

Study on mobility patterns and career paths of EU researchers

TECHNICAL REPORT 2 – Part III – Mobility Survey of the non-university research institutes sector

Presentation of the results with focus on career path and international mobility among EU researchers, and main factors inhibiting mobility and career development of EU researchers in the non-university research institutes

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1 MAIN FINDINGS

Introductory remarks

This report presents the main findings from the first comprehensive study ever on mobility patterns and career paths of researchers in the research institutes sector in EU27.

The non-university 'public or semi-public' research system does not represent a single, homogenous or well-defined 'sector' – multiple, overlapping and contradictory definitions co-exist. From the perspective of designing a sampling strategy this constitutes an analytical and statistical challenge, since this part of the research system potentially comprises all those 'public' or 'quasi-public' research performing institutes which are left once higher education institutions (HEIs) are accounted for. The identification of 'public' research sector institutes was primarily based on the EC RPO database. The EC RPO database was systematically compiled and exhaustively validated based on external criteria (institutes covering about 80% of GOVERD in 2006).

The analysis in this report therefore differs from the analysis in the WP3/4 report of the Mobility Survey of the Higher Education Sector. In that report we presented "representative statistics" of mobility patterns and career paths of the entire research population in the higher education sector of the 27 member states of the European Union, while the statistics presented in this report of the Mobility Survey of the non-university research institutes sector cannot be regarded as statistically representative. Care must then be taken in interpreting the data in this report and particularly in making direct comparisons with the data from our earlier Mobility Survey of the Higher Education Sector.

Past mobility patterns

We find that **65 per cent of the respondents in the non-university research institutes sector have been internationally mobile at least once during the course of their research career** (either international job mobility or international research visits lasting three months or more). The propensity to be mobile in this sample is higher than that found for the higher education sector, though we must stress again that the sample of researchers is not representative in the statistical sense.

We find that **35 per cent of all our respondents from the research institutes sector have been internationally mobile in the last three years**. This once more suggests a higher propensity to mobility than we find in the HEI sector (with the proviso again that the present sample cannot be regarded as statistically representative).

As in the higher education sector, **previous experience of international mobility as a student seems to be a major factor in influencing subsequent mobility** as a researcher.

We have also explored intersectoral mobility. Intersectoral and in particular intrasectoral research job-to-job mobility appears to be much more common than might perhaps be expected. We find that **67 per cent of our respondents have been employed as a researcher in a university or other higher education R&D organisation**. Further, **16 per cent of the respondents report that they have been employed as researcher in the private for-profit sector**.

Many respondents reported also that they hold **honorary position/unpaid position** (affiliation) in a university or other higher education institution (HEI). About 16 per cent of the respondents have such a position.

Female respondents have been relatively less mobile over the course of their research careers than their male colleagues. This is true both in total and in the three broad fields of education (i.e. Natural Sciences and Technology; Medical Sciences and Agriculture; Social Sciences and Humanities).

Respondents having their highest educational attainment in the Natural Sciences and Technology are most likely to have been internationally mobile (67%). Respondents having their highest educational attainment in the Social Sciences and Humanities are the least likely to have been internationally mobile (57%). The corresponding share for those in the Medical Sciences and Agriculture is 63 per cent.

Research visits of three months duration or more and not involving a change of employer are by far the main form of international mobility (73%). However, cross-country changes of employer are also a surprisingly common phenomenon (58%). **The UK, Austria, Ireland, the Netherlands and Sweden benefit most from international job mobility but most EU Member States seem to have large proportions of researchers with international research experience.**

Future mobility plans and career impacts

One of the most interesting findings in this study is that **more than half of our non-mobile respondents are actively considering being mobile in the future** (56%). As much as **85 per cent of the non-mobile respondents are open to the possibility of being mobile in the future.** These shares are even higher for previously internationally mobile respondents (67% and 90% respectively).

Further, we find that **86 per cent of previously internationally mobile respondents indicate that their time as a mobile researcher has had positive or significantly positive impacts on their career progression.** 77 per cent of previously internationally mobile respondents believe that further international mobility would have positive or significantly positive impacts on their future career progression. Interestingly we also find a very similar share among the non-mobile researchers (75%) when asked what impact they believed being mobile in the future would have on their subsequent career progression.

Motives and barriers for mobility

We also asked researchers about their personal motives as they made decisions to become mobile, about factors which acted to 'push' them away from one system and 'pull' them towards another, about barriers and obstacles experienced in the past, and about impacts of mobility (real and expected). Finally, we asked about the future orientation of respondents towards mobility and collected data about likely 'hotspots' for future mobility.

The responses suggest that **personal/family factors are an important factor in decisions *not* to become mobile**, whilst **quality of life motives, career progression goals, personal research agenda goals and training and development goals are all important factors in decisions to *become* mobile.** Open-text responses support the finding of the higher edu-

education sector researcher survey that there are changes in perspective across the career and life-course of the researcher.

We find that **research-related factors such as access to appropriate research facilities and collaborators and levels of and ability to access research funding are more important factors in determining the attractiveness of a potential 'target' country for international mobility than are salary and incentives.** Labour market and immigration policy factors also seldom seem to be important either as 'push' factors encouraging researchers to leave a particular national system or as 'pull' factors attracting researchers to a particular system. However, they do register as sources of (sometimes serious) difficulties encountered by researchers in their own experiences of mobility.

Much as with the higher education sector researcher mobility survey, factors such as **obtaining funding, finding a suitable position and making childcare arrangements are perceived as important concerns** and are experienced as obstacles by a (sizeable) minority of mobile researchers. Other factors, such as healthcare and pensions arrangements, are similarly experienced as obstacles by a (sizeable) minority of researchers whilst engaging in mobility but do not seem to have dissuaded non-mobile researchers from becoming mobile in the past to the same extent as have caring and personal relationships, obtaining funding and the challenge of finding a suitable position.

Mobility and older researchers

As with the HEI survey, a number of respondent researchers identified themselves as retired or close to retirement. **Older respondents stressed that mobility issues vary over the course of a life and career.** Some noted that mobility was much less common in the past and the political and economic situation in a number of member states made opportunities for mobility very limited. An interesting issue is the desire or plan of some senior researchers to work on after retirement in another country. Some even feel that they are "forced" to become mobile after retirement in order to continue their research because of fixed retirement ages for public servants in some member states. On the other hand shorter mobility periods seem to be more attractive to some senior researchers, whilst still others considered their own ageing (or that of a partner) as a practical obstacle to mobility. Respondents pointed to a lack of opportunities for senior researchers, suggesting that there is an age bias in much support for researcher mobility (and perhaps in research funding in general).

Very short term mobility

Although the focus of the survey was on periods of research mobility of three months or more, **a number of respondents took the opportunity to stress that mobility for less than 3 months can be very useful and attractive. This seems to be especially the case for women, researchers with family obligations, more senior researchers and researchers with professional obligations in one country (e.g. teaching) that do not allow for long periods of absence.** International conference visits and short visits of a few weeks were regarded as particularly beneficial by these respondents. It was also suggested that ICTs (virtual mobility) and cheap travel makes long-term mobility less necessary (or in other words increases the impact of short-term mobility). **A few respondents specifically com-**

plained about the lack of funding for short-term mobility and about the bureaucracy involved in applying for such funding.

Concluding remarks

Finally, our results make clear that mobility is an event in the personal, family and social life of a researcher as well as a step which may have impacts on the content and direction of their research, on the progression (for good or for ill) of their research career, and on the research institution(s) and networks in which they work – as one researcher put it **“Mobility is a mixed blessing...”**. It is these impacts which, in turn, have effects upon the broader national research and innovation “systems” in which researchers and research performing institutions act.

2 INTRODUCTION

This report explores mobility patterns and career paths of researchers in the non-university research institutes of the European Union. It represents the first systematic investigation of mobility patterns and career paths of researchers in this 'sector' across the EU27 member states. The 'sector' is in fact a heterogeneous group of research performing organisations, many of which are defined for the purposes of official statistics as the government R&D-performing sector (see OECD 2002, Section 3.2). However, some major non-university R&D performing organisations in Europe having a clear national remit, such as the German Fraunhofer-Gesellschaft, the Dutch TNO or the Finnish VTT, are statistically speaking not classified as the "government sector", whilst in other countries researchers working on similar topics in similar modes would be employed in government sector institutes or universities. Given the aim of the relevant work-packages (WP3/4) to explore 'academic mobility' we have included such organisations in our survey. Hence, this is not a survey of the government R&D sector, but of the broader public and quasi-public non-university research institutes sector.

The analysis in this report differs from the analysis in the WP3/4 report of the Mobility Survey of the Higher Education Sector. In that report we presented "*representative statistics*" of mobility patterns and career paths of the entire research population in higher education sector in EU27 based on the characterization of that well-defined sector which is available from official statistics. In the case of the non-university sector **no such characterization is possible**, as we explain further below in Chapter 2.

On the other hand, this report provides the first systematic insight into mobility and career path issues in this heterogeneous and important but under-researched sector. Hence, together with the MORE-report of Mobility Survey of the Higher Education Sector, we are able to present for the first time a, more or less, complete picture of the mobility patterns of European *academic researchers*, even though the "academic profession" remains poorly-defined from the perspective of official statistics. The present study thus represents an essential first step towards the development and production of indicators on researchers, their mobility patterns and their career paths (acknowledged as a key priority for the design of policies promoting the European Research Area) despite the shortcoming that we are unable to call upon already existing official statistics to demonstrate the representativeness of this data in terms of a sector that hitherto has simply not existed for statistical purposes.

Therefore, and as an attempt to improve our knowledge in this area, this report presents:

- 1) Definitions of different types of researcher mobility.
- 2) A methodology for measuring research mobility patterns in the EU27 based on survey data from the government sector.
- 3) New indicators on European researcher mobility by (broad) scientific field and type of researcher (in particular, distinguishing PhDs, postdocs and other types of researchers).
- 4) A sampling methodology for a survey designed with the specific purpose of constructing well-behaved indicators of mobility in EU27.
- 5) A thorough analysis of drivers and barriers of mobility as perceived by the respondents.

In Section 2.1 we discuss the concept of researcher mobility with some key definitions. Section 2.2 provides an overview of the content of this report. In Chapter 1 we have summarised the main findings.

2.1 The concept of researcher mobility and research questions

We define researchers as the “professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in the management of the projects concerned” (Frascati Manual, OECD 2002).

The concept of *mobility* normally relates to three types of movements, that is, between geographic areas, between jobs and between research visits.

Geographical mobility refers to the physical movement of an individual to another region, nation or continent. Depending on the original place (sender) and new place (receiver), we can distinguish between the following types of geographical mobility:

- *Regional mobility*: mobility to another region within the same country.
- *International mobility*: mobility to another country (possibly other continent). International mobility flows can be classified as: Intra-EU mobility; Inflows into EU from other (“third”) countries; Outflows from EU to other countries (e.g. US, Japan, China, India, etc.).

Job mobility is the concept used to describe the movement to another job. Depending on the nature of the new job, the following types of job mobility can be distinguished:

- *Career mobility*: carry out a different job (occupational category) for the same employer (e.g. moving from junior to senior researcher/manager, etc.).
- *Intersectoral mobility*: carry out a researcher job for another employer in another sector (e.g. moving from a non-university research institute to industry or vice versa).

Academic researchers (both university and non-university research institutes researchers) engage in a form of non-job research mobility which we term in the present study “*research visits*”. This phenomenon is relatively under-researched. Therefore, we have incorporated and measured this type of movements in the present Mobility Survey of the Research Institutes Sector. We define a research visit as: a mobility event lasting at least 3 months without involving a change of employer. Though considering a research visit as a mobility event deviates from the traditional Eurostat definition in which mobility is only considered as job-to-job mobility, the Mobility Survey data enables us to distinguish between job-to-job mobility events on the one hand and this non-job research mobility which may be very important.

The main focus of the present study was on *measuring international researcher mobility patterns and intersectoral researcher mobility patterns, as well as, the occurrence of international research visits*. Career and regional mobility is not the subject of this report.

Implementation of mobility definitions in the questionnaire

The main geographic mobility questions in the survey were the following:

a) *In your researcher career (which also encompasses the whole period of your PhD education) have you worked in another country than the country where you attained your highest educational degree, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as an "internationally mobile" researcher.):* Yes / No

b) *If yes in question a, did any of these instances of international mobility involve:*

	Yes	No
A move to a new employer in another country?	<input type="checkbox"/>	<input type="checkbox"/>
A research visit to another country without a change of employer?	<input type="checkbox"/>	<input type="checkbox"/>

c) *If yes in question a, have you been internationally mobile the last three years?* Yes / No

Perhaps, question (a) is the most counter-intuitive and requires some comments and a justification.

Both the Frascati Manual and the definitions used in this study consider all PhD-students engaged in R&D as researchers. Thus, a researcher – also a PhD-student – who never moved from the country where he/she attained the highest educational degree is considered as a non-internationally mobile researcher even if this person before the commencement of his/her researcher career has moved from another country to the country where he/she attained his/her highest educational degree for educational or other purposes. With this clarification we achieve a more precise definition of the phenomenon of *internationally mobile researchers*, since we exclude all cases of *student mobility* or *economic or social migration incidents* unrelated to research activities.

The main sectoral mobility questions in the questionnaire were the following (Q50 and 51):

During the course of your research career, have you ever:

- *Been employed as a researcher in a university or other HEI?* This question registers mobility between research institutes sector and HEI sector.

- *Been employed as a researcher in the private, for-profit sector?* This question registers mobility between the public or not-for-profit research base and the private sector).

During your employment career as a researcher, for how many public or not-for-profit research performing organisations (e.g. public research institutes, not-for-profit research institutes, higher education institutions or other public research institutes) have you worked?

The temporal dimension of mobility events

Mobility can be of a temporary nature or it can be 'permanent'. The distinction between these two types does not only depend on the time span of the movement (i.e. length of stay), but is also linked to the intentions of the mobile researcher. If the individual researcher wishes to return to the previous location, then the mobility event could be considered temporary. If the individual researcher is not intending to return, the move could provisionally be considered as 'permanent'. Strictly speaking, mobility is a temporal event, a move from one place and/or sector to another, rather than a status or attribute of a researcher.

However, we do measure shares of EU27-researchers having experience of at least one international mobility event (job-to-job mobility and/or research visits) during their entire researcher career *and* shares of researchers with experience of at least one international mobility event (job-to-job mobility and/or research visits) during the *last three years* of their researcher careers. Further, we also investigate and measure researchers' intentions regarding future mobility both among those who have never been internationally mobile and among those who have experience with at least one event of international mobility.

Combining several research positions – joint appointments

So far we only considered types of mobility occurring sequentially in time (i.e. a researcher moves from one location to another). It is, however, possible that a researcher combines two or more research jobs at the same point in time. These second positions can be held within the same organisation (i.e. a medicine professor who works both at a university hospital clinic and in the same university's department of medicine), in two different organisations within the same sector (i.e. in two different universities) and in the same country, in two different organisations in two different sectors (i.e. at a university and at a non-university research institute) but still in the same country, or in two (or more) different countries (which is not that uncommon for a researcher living close to the border of two countries). This issue is investigated in the Mobility Survey of the Research Institutes Sector (see questions Q46 and Q47 in the Annex 2).

Influencing factors, motivations and impact of mobility

Based on the Mobility Survey data we also investigate factors which influence the mobility flows of researchers. We call them "**influencing factors**", because the same factors can either drive or facilitate mobility (push factors) or hamper it (pull factors). Depending on the individual researcher, some factors may be so important that they can be considered as the *main motivations* for being mobile.

We may also distinguish between *positive, neutral and negative* effects of mobility. At a research system level it would be reasonable to assume that researcher mobility stimulates the flow of tacit knowledge within the system (a positive impact), but there can also be negative impacts. For example, a type of mobility which is traditionally considered to be negative is the loss of qualified human capital from non-frontier research countries (often referred to as "brain drain"). Recent studies suggest a high rate of return for countries such as China, India or Taiwan and because of this scholars have argued that it may be more appropriate to talk about "brain circulation" than "brain drain" (or brain gain). Though the impacts of mobility are not a central theme of this report, we do present some results on the impacts of mobility (and non-mobility), in particular at the level of the individual researcher's career.

2.2 The content of the report

The focus in this report is on the career path and international mobility of EU researchers in the non-university research institutes sector, and on the main factors inhibiting mobility and career development of EU researchers in this sector.

Chapter 3 provides technical details on the methodology that has been used for designing and targeting the sample of researchers in the non-university research institutes, as well as, other issues.

Chapter 4 describes the implementation phases of the Mobility Survey of the Research Institutes Sector. The last section in the chapter discusses the limitations stemming from the practical difficulties we met in the design and the implementation phase of the survey.

Chapter 5 provides estimates of key-characteristics of the researcher population in the research institute sector in EU27 as calculated from the survey responses and based on the methodology developed in Chapter 3.

Chapter 6 presents new indicators on international and intersectoral researcher mobility for researchers in the research institutes sector in EU27 and measures intentions regarding respondents' future mobility plans both for those who have been internationally mobile and those who have not been internationally mobile.

Chapter 7 analyses influencing factors, motivations and impact of mobility on researcher careers based on the Mobility Survey data of the Research Institutes Sector.

3 METHODOLOGY AND DEFINITIONS

3.1 Background

The original plan of the MORE-project (as specified in the ITT and envisaged in the proposal) was to conduct a second (follow-up) survey of researchers in 'academia' (basically defined as higher education institutions – HEIs) in 2010. During the project this plan was revised. It was later agreed between the Consortium and the EC that a repeat survey after such a short time would offer no significant advantage over the 2009 survey. Instead it was proposed – and agreed – that a more experimental survey of non-university 'public sector' researchers should be conducted. Accordingly, the WP3 and WP4 partners of the MORE-project have, in parallel with the conduct and analysis of the Higher Education Sector survey, been developing an approach that can be used to survey non-university 'public or semi-public sector' researchers, thus expanding the original conception of 'academia.' This development, and the associated planning, is reported here.

3.2 Definitional issues

In the WP1 Scoping Report we discussed the special circumstances afforded to academic researchers by non-university public research institutes such as the Max Planck Institutes in Germany or the CNRS institutes in France, not to mention the post-cold war Academy of Science institutes seen in much of Eastern Europe. A primary motivation for the establishment of essentially *basic research-oriented institutes* such as these was to free up leading researchers from teaching role, a decisive shift away from the Humboldtian university tradition which emphasises the unity of teaching and research. Researchers in these kinds of public research organisations are clearly performing research activities analogous to those performed by university researchers in university-based research systems such as those in the UK.

However, the non-university public research institutes sector comprises a much broader range of institutions than those created (largely in the twentieth century) to pursue (more or less) basic research. The European non-university public research sector comprises an enormous number of large and small basic, applied and mission-oriented organisations ranging from large national laboratories and academies of science to small and specialised units (Georghiou et al. (EUROLABS), 2003). Although largely ignored by research policy studies and even after an unprecedented wave of reforms over the past decade or so, this sector remains responsible for a large number of publicly-funded researchers and for a large proportion of public research funding. Many of the core missions of these institutes have become redundant for the purposes of continued public funding and many others, even those nominally performing 'public good' functions, have been forced to seek alternative or additional income streams in the face of declining block-funding. Much as with universities, public research institutes have been encouraged to diversify and commercialise their knowledge and capabilities. Some research institutes have been merged with universities as part of national research system reorganisations (i.e. Denmark) or they became fully- or partially-privatised (although this extreme was found by Georghiou et al., 2003, to be comparatively rare).

More common is re-structuring into a quasi-commercial operation acting as an independent cost/profit centre arms-length from government. These re-

forms (seen with national variations across Europe and beyond it) notwithstanding, the public purse remains the principal source of funding for most of these institutes albeit, funding that is often won competitively rather than allocated in blocks by a parent ministry or agency. Unfortunately, these very reforms muddy the waters in terms of clearly classifying research institutes as 'public' or 'private' and their R&D expenditure as GOVERD or BERD.

3.3 Sample challenges

This non-university public or semi-public research system, then, though extensive and highly significant in many EU member states, does not represent a homogenous well-defined 'sector' since it includes national academies and private and public research institutes conducting basic, applied and experimental research. There are sometimes overlapping and sometimes conflicting partial definitions available for Public Research Organisations (PROs/RPOs), Public Research Institutes (PRIs), Research and Technology Organisations (RTOs), Public Sector Research Establishments (PSREs) etc. Many of the organisations generally considered to be part of this 'sector' are not formally in the public (government) sector, being legally private (non- or for-profit) entities. Some are highly focused on the kinds of curiosity-driven or strategic basic research and far-from-market applied research also undertaken in the HEI sector – indeed in some member states there is an extensive infrastructure of such institutes accounting for a great deal of total research effort (e.g. the Academies of Science of many member states, or the Max Planck Society of Germany). Many others are focused rather on mission-oriented research in support of public policy goals (e.g. geological surveys or meteorological agencies or are the large agriculture, marine or nuclear focused institutes of many member states). There are a relatively small number of very large organisations each comprising a number of different research institutes (or labs), often on multiple sites (e.g. the Max Planck organisation). There is also a very long tail of much smaller institutes (e.g. the Netherlands Metrology Institute). Many perform a range of other technical or business services and for some, R&D accounts for a small proportion of their total activity (and employment base), with research being conducted in support of these other activities (e.g. the Health and Safety Laboratory of the UK Health and Safety Executive, or the metrology and national measurement system institutes of many member states).

The first and foremost such challenge is that it seems impossible to proceed with a rigorous multi-level sampling strategy of the kind used in the HEI survey. A number of existing data sources can be used to create a prospective 'population' of research institutes which could then be used as the basis for a simple and exploratory survey (these will be discussed in more detail below). But, without a clear understanding of our interest in 'research institutes', the heterogeneity inherent in this statistically residual sector will threaten our ability to make a meaningful interpretation of the results.

We were then faced with the task of identifying some selection criteria on the basis of which we could identify a subset of the non-university research institutes sector that is of particular analytical interest to the present study. There is no clear existing definition for a good reason and it is very difficult to draw up clear parameters for constructing an operationalisable definition of any kind, because so many of the parameters are relative. Mission-orientation, for instance, is a decidedly relative factor: much the same research could be performed by much the same kind of researchers in a highly mission-oriented marine research institute attached to a department of environment or fishe-

ries in one member state as is performed in another member state in an independent Fraunhofer or research council-type institute. In this case the 'mission-orientation' is relative to the connection between the institute and the policy-making department which is the 'owner' of the institute and the primary customer for its research. Following a wave of restructuring in many member states since the early 1980's, traditional ownership arrangements between parent ministries and government research institutes have been transformed, with the result that many 'mission-oriented' institutes that were formerly "government owned" are now formally independent and sometimes legally 'private'. They may still have as a major customer the same policy-making ministry, but it is a difficult to determine whether they remain primarily 'mission-oriented'.

Nonetheless, we have had to make some progress. In the following sections, the analytical interests of the project will be used to derive some loose 'selection criteria' which can be applied to identify a relevant population of research-performing institutes.

3.4 Identifying the population of researchers

The initial role of the WP3/4 MORE surveys was to explore international (and to a lesser extent intersectoral) mobility amongst 'academic researchers'. This was redefined in practical terms into a survey of HEI based researchers, conducted in 2009. However, as noted in the original conceptual report of the project, 'academia' should not be considered to be synonymous with HEIs. In some countries a wide range of research performing organisations outside the HEI sector perform research analogous to that conducted primarily in universities in others. These organisations are subject to academic or quasi-academic culture, career paths, incentives, etc. Their researchers are members of the same disciplinary and problem-oriented networks and communities as are HEI researchers working in similar fields. There is a continuum from the highly academic culture and incentive system of an Academy of Sciences, CNR, CSIC or Max Planck institute through the semi-academic culture and incentive system of a TNO or Fraunhofer institute through to the very different culture and incentives institutions much closer to market or closer to policy oriented research performing institutes.

Similarly, institutes may play a 'national', 'local' or 'sectoral' role. Institutes focused wholly in the support of a particular sector, perhaps in a particular sub-national region, are likely (but not always) to be smaller in absolute size, further away from the academic or quasi-academic end of the continuum described above, and are likely to be more oriented towards technology or knowledge transfer and other technical or consultancy services rather than research and development.

Taking these differences together, we suggest that the institutes of primary analytical interest to the present study are those which are closest to the 'academic' or 'quasi-academic' end of the continuum described above and which are 'national' in role and ambition. As already noted public ownership cannot be a determining criterion. However, receipt of public funding for research and development is an obvious criterion. Added to that, it would seem sensible to focus on those institutes employing the bulk of non-university based researchers, rather than to focus on the very long tail of organisations of a very small scale and/or which are only partly focused on research.

For the reasons discussed at the outset, it is not possible to precisely operationalise a sector definition that is amenable to selection by reliable indicators.

However, we can make expert-based judgements about which institutes meet these criteria of 'scope', 'scale' and 'role'. Using total number of employees or researcher FTEs is a sensible measure of size but the danger of setting an arbitrary size threshold which takes no account of country size or differences between fields of science or application area has persuaded us not to use this as a 'strong' criterion. As a starting point, we opted to use one of the three main sources of data available to us as an 'authoritative' basis for population-building, supplementing this with institutes identified from other sources, from country experts we have consulted, and from our own direct research, based on the criteria described above.

We selected the EC-funded RPO database held by IDEA Consult as the most authoritative source because it has the virtue of EU27 coverage and because it was systematically compiled and exhaustively validated based on the criterion that it should cover research organisations responsible for 80% of GOVERD in 2006.

The other sources of data available to the consortium (the elderly, but large EUROLABS study database held by Manchester and the FP6/7 data provided by the EC) have some disadvantages as primary sources (in the EUROLABS case the main disadvantages are the largely EU15 only coverage and the age of the dataset) but have been used to help flesh out the IDEA Consult list.

3.5 Reflections on the classification of the non-university research institute sector

In this section we have provided a working definition of the sector and an account of the complexities regarding the demarcation of the non-university research institutes as an R&D performing "sector". Clearly, we believe there is a need for some improvements of the Frascati Manual on this point, probably more towards the direction of a more fine-grained sub-class typology which will pay attention to the heterogeneous scope of activities of the non-university research institutes. In other studies done by Technopolis group one distinguishes between basic research or scientific oriented organisations (including Academies of Science), the government laboratories (fisheries and marine, agriculture, metrology, etc.) and the research technology organisations (RTOs). This typology comes closer to the reality and allows for little overlap between the three categories.

A remaining challenge, however, is how to classify key R&D organisations, notably large PROs such as TNO, Fraunhofer, etc., whose R&D expenditures are presently reported in Eurostat and OECD statistics as BERD and not as GOVERD. One possible way forward might be to create an additional new sub-category in the business enterprise sector where the R&D expenditure of RTOs and similar organisations is reported separately. This is in fact how this statistical problem has been tackled in the Norwegian R&D statistics. Though Eurostat's R&D statistics for Norway include R&D expenditure performed in the Norwegian industry-oriented research institutes as BERD, in the national R&D statistics it is reported as GOVERD and as a statistically distinct group entity (industry-oriented research institutes).

We believe that an improvement of the Frascati definitions and guidelines will greatly contribute to a better understanding of the importance, size and nature of the diverse R&D activities of the non-university research institutes as an R&D performing "sector".

4 THE NON-UNIVERSITY RESEARCH INSTITUTES MOBILITY SURVEY: IMPLEMENTATION

4.1 First step: Development of a list of research institutes

The sample of “public” research sector institutes was based on the IDEA RPO list systematically compiled and exhaustively validated based on external criteria (institutes covering about 80% of GOVERD in 2006). This database contains information such as the names of the higher education institutes and their electronic addresses. This list was complemented by selected institutes for some countries such as the Academy of Sciences for the East European Countries and a list provided by NIFU STEP. For two countries (i.e. Portugal and Malta) that were not represented in this list, we also crosschecked the FP6 database. However, all research institutes contained in the FP6 database in Portugal were identifiably linked to higher education institutes and thus were excluded from the sample.

4.2 Second step: Development of the faculty and department database

All organisation identified in step 1 were searched using their web sites in order to identify all their departments. It must be stressed that during this process some departments that were collaborating closely with universities were removed from the list so that we would avoid duplications with the HEI’s survey. For the remaining departments the following information was gathered:

- Organisation name
- Department name
- Field of science
- Web reference

The task was quite complicated as the structure of these organisations differs even within the same country. This process identified 1377 units / departments (see Table 1).

Table 1: Department used for sampling.

Country	Units / departments
Austria	163
Belgium	40
Bulgaria	94
Cyprus	4
Czech Republic	51
Denmark	10

Estonia	12
Finland	10
France	44
Germany	217
Greece	128
Hungary	40
Ireland	5
Italy	114
Latvia	4
Lithuania	20
Luxembourg	16
Netherlands	36
Poland	98
Romania	30
Slovakia	57
Slovenia	20
Spain	98
Sweden	10
United Kingdom	56
Total EU27	1377

4.3 Third step: Development of the researcher database

From the above database **all units/departments were screened** with the researchers contained in them as identified from their web sites. More specifically the following information was gathered:

- Name of researcher
- E-mail of researcher
- Title / Position (i.e Professor. Dr. etc.)

In some cases the originally selected departments / faculties contained either no information about their staff or had information only for a small fraction of

their researchers. In other cases, the list of researchers was aggregated for the entire institute making it impossible to assign a particular researcher to a specific department.

In total 50.151 names and respective e-mail addresses were collected. Their allocation per country is presented in Table 2.

Table 2: Number of departments and the respective number of researchers per country.

Country	Number of departments	Number of emails	No. validated emails
Austria	163	911	905
Belgium	40	542	539
Bulgaria	94	2861	2840
Cyprus	4	53	53
Czech Republic	51	5021	3514
Denmark	10	1479	1479
Estonia	12	209	209
Finland	10	907	906
France	44	5113	5110
Germany	217	8364	8344
Greece	128	422	421
Hungary	40	2200	2198
Ireland	5	97	97
Italy	114	4876	4864
Latvia	4	13	13
Lithuania	20	181	179
Luxembourg	16	69	69
Netherlands	36	667	665
Poland	98	4066	4063
Romania	30	322	319

Slovakia	57	3264	3261
Slovenia	20	348	348
Spain	98	6199	5996
Sweden	10	155	155
United Kingdom	56	1812	1812
Grand Total	1377	50151	48359

In order to validate the email lists, the research team checked randomly a large number of addresses. Moreover the final list of emails was checked by a software tool and non-valid or inactive email addresses were removed. In addition, a number of researchers requested to be excluded from our e-mail lists. In total 3.6% of the original list of 50.151 emails were removed, resulting in a final list of 48.359.

4.4 Implementation of the Mobility Survey

Logotech developed a web version of the paper questionnaire. The web questionnaire incorporated the necessary workflow and controls for avoiding wrong entries.

The survey was launched on the 4th of March and one set of reminders was sent before the closing of the survey on the 29th of March. After a quality check and cleaning of wrong entries and duplicate submissions, 5.103 completed and valid questionnaires remained in the database. The response rates and the number of respondents per country are exhibited in Table 3.

Table 3: Final realised sample.

Country	Sent	Completed	Per cent
Austria	905	120	13.3 %
Belgium	539	78	14.5 %
Bulgaria	2840	373	13.1 %
Cyprus	53	12	22.6 %
Czech Republic	3514	346	9.8 %
Denmark	1479	174	11.8 %
Estonia	209	33	15.8 %
Finland	906	90	9.9 %

Country	Sent	Completed	Per cent
France	5110	359	7.0 %
Germany	8344	786	9.4 %
Greece	421	55	13.1 %
Hungary	2198	251	11.4 %
Ireland	97	8	8.2 %
Italy	4864	537	11.0 %
Latvia	13	2	15.4 %
Lithuania	179	11	6.1 %
Luxembourg	69	8	11.6 %
Netherlands	665	127	19.1 %
Poland	4063	263	6.5 %
Romania	319	65	20.4 %
Slovakia	3261	254	7.8 %
Slovenia	348	66	19.0 %
Spain	5996	808	13.5 %
Sweden	155	24	15.5 %
United Kingdom	1812	253	14.0 %
Total	48359	5103	10.6 %

In the subsequent chapters we do not report on countries with small numbers of responses, i.e. less than 40 respondents. This affects the following seven countries: Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland and Sweden, as well as Malta and Portugal (as mentioned above, there are no respondents from these two countries). All responses from all countries are, nevertheless, included in calculations of aggregated EU27 figures.

5 KEY CHARACTERISTICS OF THE SAMPLE OF EU27 RESEARCHERS

In this chapter we provide key characteristics of the sample of researchers in the EU27 based on the Mobility Survey of the Research Institutes Sector. Section 5.1 presents characteristics such as, gender, age, marital status and family situation (number of children). In Section 5.2 we focus on the respondents' education and training, while in Section 5.3 we examine the respondents' contractual status and role.

All country shares are based on the respondents' country of affiliation¹, which we use as the country variable for all figures and all tables in Chapters 5 and 6. By "country of affiliation" we mean the country where the organisational unit of the respondent is located.

5.1 Gender, age, marital status and children

5.1.1 Gender and age

Table 4 shows that 61 per cent of the respondents are male. The table also shows that the share of male researchers is the same for those who carry out research and those who improve or develop new products/processes/services (both 61%), but higher for those who supervise research (64%).

Table 4: Shares of researcher population in the research institutes sector in EU27 by type of researcher and by gender.

Type of researcher	Male (%)	Female (%)	Total	Sample size (n)
Researchers who carry out research	61	39	100	4,932
Researchers who supervise research	64	36	100	3,363
Researchers who improve or develop new products/processes/services	61	39	100	2,908
Total	61	39	100	5,050

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

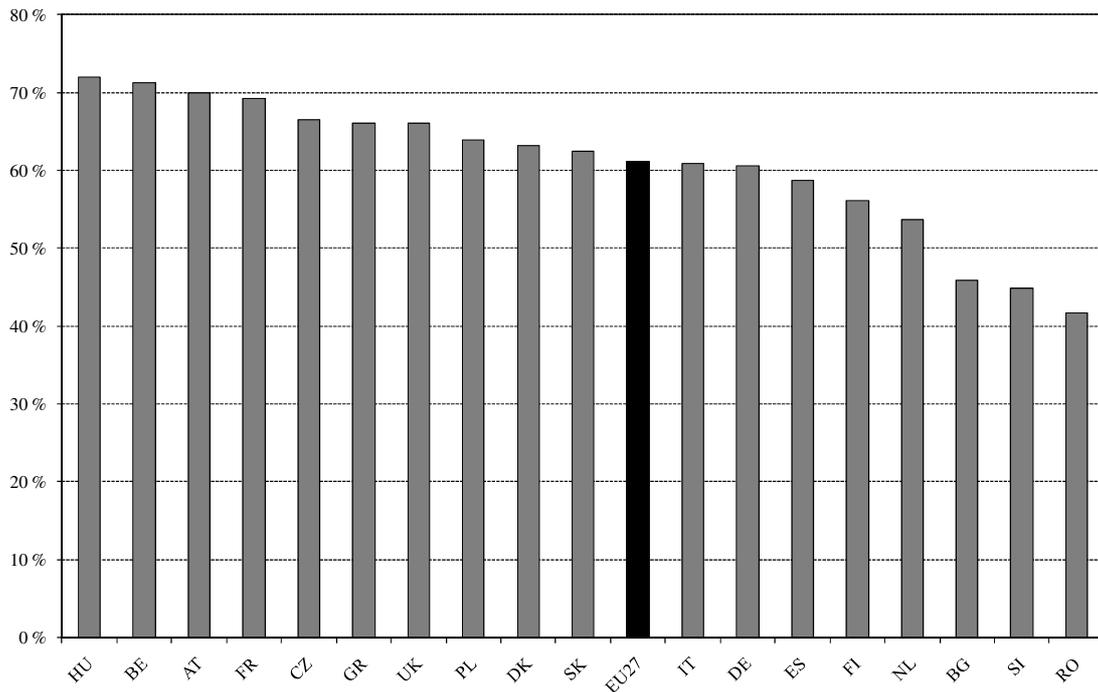
1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "What is your gender?" (Question 8), (ii) "In the context of your present job do you carry out research?" (Question 5), (iii) "In the context of your present job do you supervise research?" (Question 6), and (iv) "In the context of your present job do you improve or develop new products/processes/services?" (Question 7).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 1 shows that Hungary (72%), Belgium (71%) and Austria (70%) have the highest shares of male researchers, whilst Romania (42%) and Slovenia (45%) have the lowest shares.

¹ Throughout the report by "country of affiliation" we mean the country in which the research organisation – and consequently the e-mail address of the respondent which has been retrieved from the website of this organisation – is located.

Figure 1: Shares of male researchers in the research institutes sector in EU27 by country of affiliation. n=5,050.



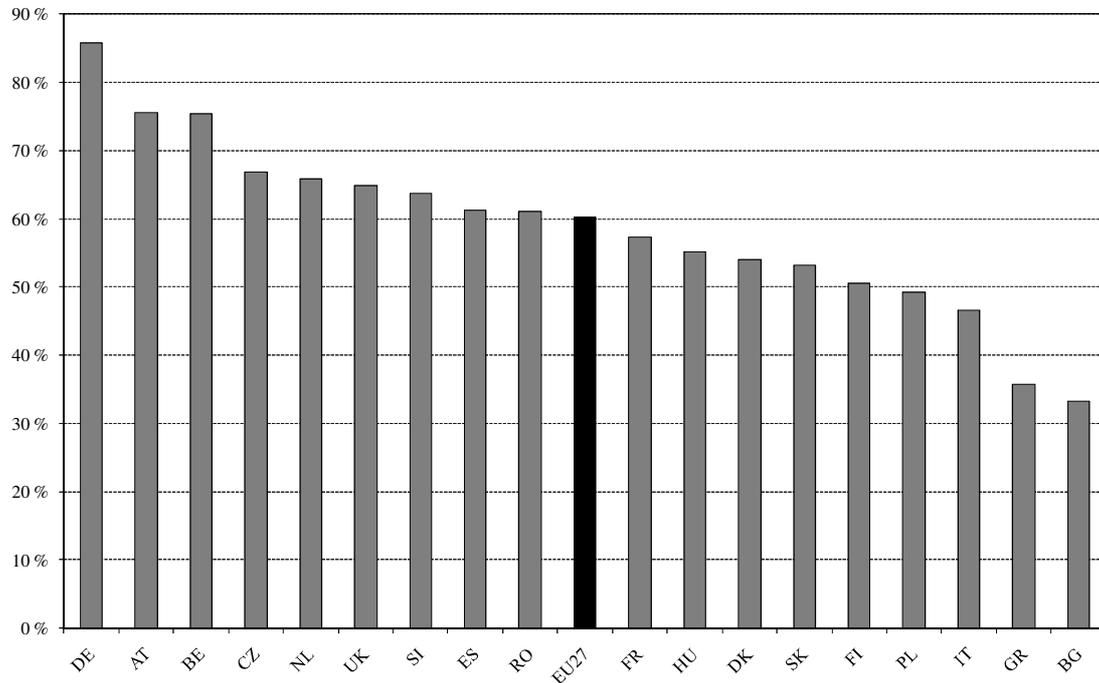
Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The shares in the figure are based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 8): "What is your gender?" (see Annex 2).
- 2) The shares in the figure are only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation. By "country of affiliation" we mean the country in which the research organisation – and consequently the e-mail address of the respondent which has been retrieved from the website of this organisation – is located.

60 per cent of the respondents are younger than 45 years old (see Figure 2). Germany (86%), Austria (76%) and Belgium (75%) have the highest shares of respondents in this age group, while Bulgaria (33%) and Greece (36%) have the lowest.

Figure 2: Shares of researcher population in the research institutes sector in EU27 by age and by country of affiliation based on the distribution of age among the respondents in the Mobility Survey. Shares of researchers younger than 45 years old. n=5,050.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The shares in the figure are based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 9): "What is your year of birth?" (see Annex 2).
- 2) The shares in the figure are only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation.

Table 5 shows the shares of the respondents by age group and by country of affiliation. We see that Germany (34%) and the Netherlands (23%) have the highest shares of respondents in the youngest age group (i.e. those less than 30 years old). Poland (17%) has the highest share of respondents in the oldest age group (i.e. those between 61 and 70 years old). Large countries such as Germany (44%), Spain (35%) and France (40%) have high shares of respondents in the age group between 31 and 40 years old, but Belgium has the highest share among all EU27 countries in the table in this age group (53%).

Table 5: Age distribution of researcher population in the research institutes sector in EU27 by country of affiliation. Shares based on respondents' age distribution in the Mobility Survey. n=5,050.

Country	Acronym	Less than 30 years	Between 31 and 40 years	Between 41 and 50 years	Between 51 and 60 years	Between 61 and 70 years	Total
Austria	AT	17	48	21	11	3	100
Belgium	BE	12	53	22	11	1	100
Bulgaria	BG	5	22	24	33	16	100
Czech Republic	CZ	18	43	15	17	7	100
Denmark	DK	12	27	37	18	7	100
Germany	DE	34	44	13	6	2	100
Greece	GR	0	20	50	25	5	100
Spain	ES	15	35	30	14	6	100
France	FR	7	40	23	22	8	100
Italy	IT	5	28	35	22	10	100
Hungary	HU	13	33	20	18	16	100
Netherlands	NL	23	36	18	17	7	100
Poland	PL	17	26	16	24	17	100
Romania	RO	8	40	18	21	13	100
Slovenia	SI	19	38	25	12	7	100
Slovakia	SK	20	29	17	25	8	100
Finland	FI	11	28	28	26	7	100
United Kingdom	UK	16	33	31	15	5	100
Total	EU27	16	35	24	18	8	100

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 9): "What is your year of birth?" (see Annex 2).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

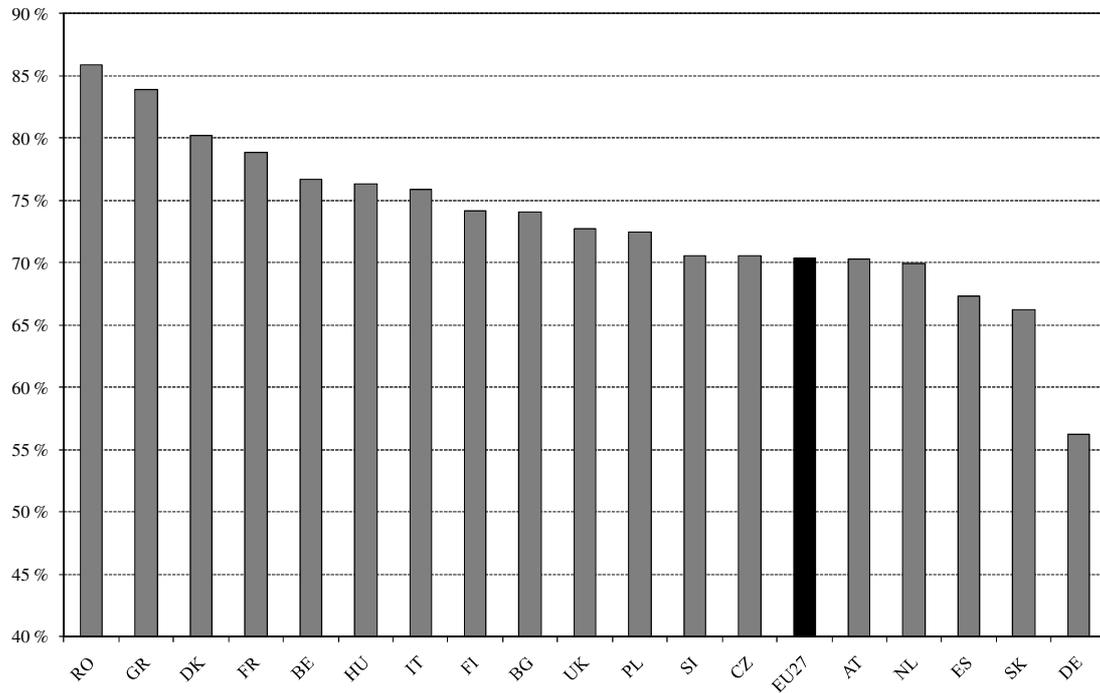
3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are excluded from the table, since there are few (or no) respondents from these countries.

4) In the table we measure the share of EU27 researchers by age group and country of affiliation.

5.1.2 Marital status and children

70 per cent of the respondents report that they are either married or cohabiting with a partner (Figure 3). This share is highest in Romania (86%), and lowest in Germany (56%). Figure 4 depicts that 55 per cent of the respondents report that they have children. In Denmark, 75 per cent of the respondents report having children, whilst the share of respondents with children is lowest in Germany at 32 per cent.

Figure 3: Shares of married or cohabiting researchers among all researchers in the research institutes sector in EU27 by country of affiliation. n=5,023.

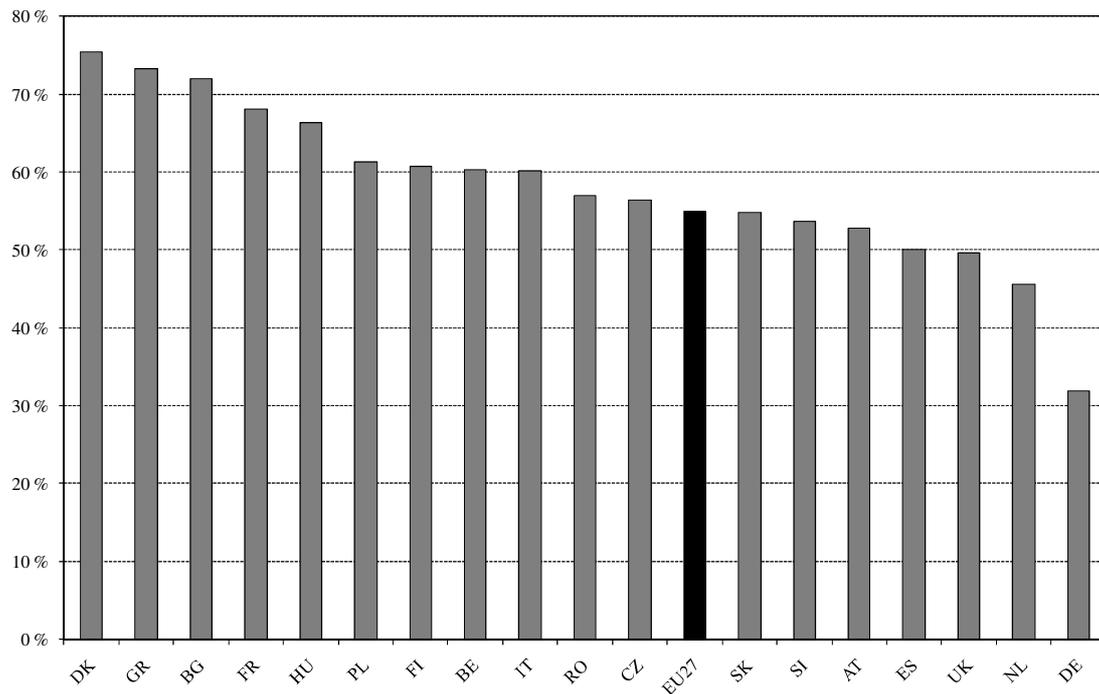


Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 12): "What is your marital status?" (see Annex 2).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation.

Figure 4: Shares of researchers with children in the research institutes sector in EU27 by country of affiliation. $n=5,050$.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 13): "Do you have children?" (see Annex 2).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation.

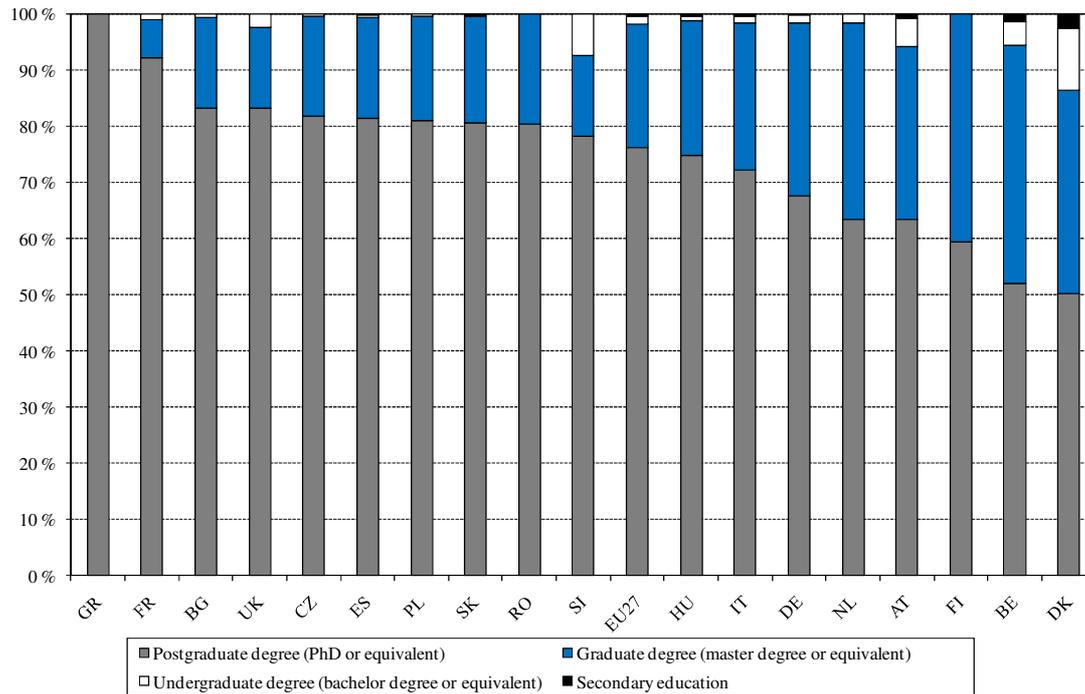
5.2 Education and training

5.2.1 Highest educational attainment

Figure 5 shows that 76 per cent of the respondents have a postgraduate degree (PhD or equivalent) as their highest educational attainment, and 22 per cent have a graduate degree (master degree or equivalent). Only 1 per cent of the respondents have an undergraduate degree (bachelor degree or equivalent), while less than 1 per cent have a secondary education (i.e. high school, gymnasium, grammar school, lyceum or equivalent) as their highest educational attainment.

We also see from Figure 5 that the share of respondents with a postgraduate degree as their highest educational attainment is highest in Greece (100%, i.e. all respondents from this country) and France (92%), and lowest in Denmark (50%) and Belgium (52%). Belgium (42%) and Finland (40%) have the highest shares of researchers with a graduate degree, and Denmark has the highest share of researchers with an undergraduate degree (11%) as the highest educational attainment. Denmark (2%) has the highest shares of researchers with only secondary education as the highest educational attainment, while there are very few respondents in this group in each of the other EU27 countries.

Figure 5: Shares of researchers in the research institutes sector in EU27 by highest educational attainment and by country of affiliation. n=5,050.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 17): "What is your highest educational attainment?" (see Annex 2).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation.

5.2.2 Student mobility and industrial placements

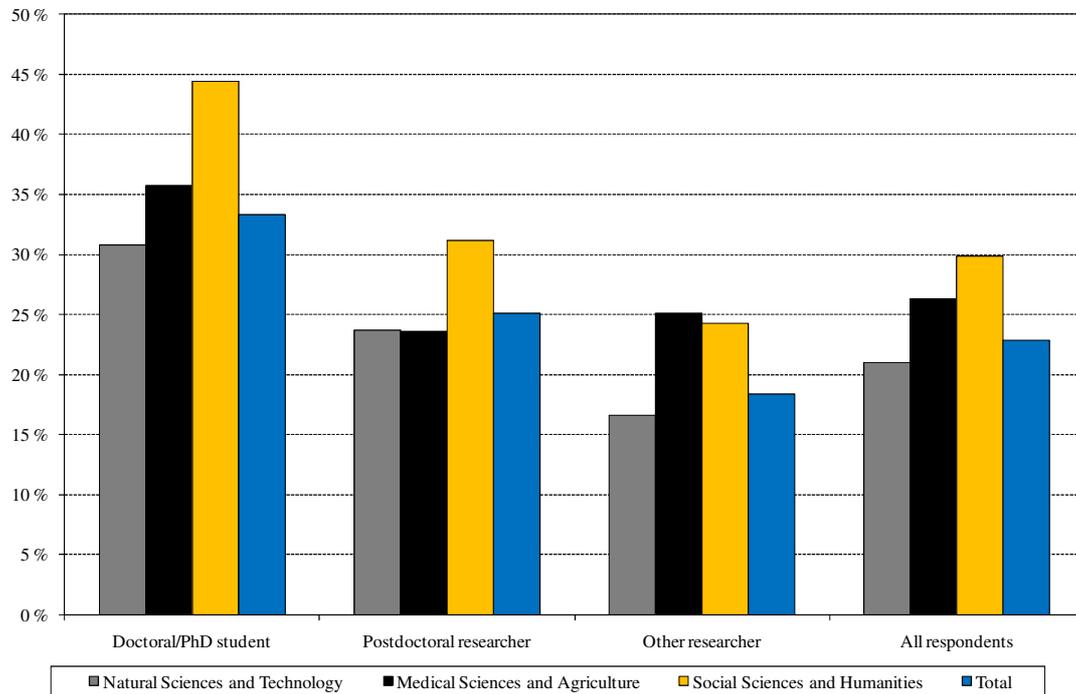
23 per cent of the respondents have been 'exchange students' during their post-secondary education (Figure 6). The same figure shows that a greater share of researchers in the Social Sciences and Humanities has been internationally mobile, whilst students compared with researchers in the other two broad fields of education. Furthermore, we see that the share of researchers that have been internationally mobile as students is higher among doctoral/PhD students than among the two other groups. This share is lowest amongst those who classify themselves in the "other researchers" category².

Figure 7 illustrates that the share of researchers who have been mobile as students is highest in the Netherlands and Germany (both 35%). We find only 14 per cent in this group in Bulgaria.

Figure 8 shows that 24 per cent of the respondents have worked in industry on a formal placement, internship, apprenticeship or similar whilst a student. This share is highest in Austria (48%), and lowest in the Czech Republic (15%).

² We investigate the characteristics of those respondents who placed themselves in the "other researcher" category in Figures 13, 14 and 15. This category largely consists of older individuals with longer researcher experience.

Figure 6: Shares of researchers in the research institutes sector in EU27 who have been 'exchange students' during their post-secondary education by field of education and by current status as a researcher. n=5,035.



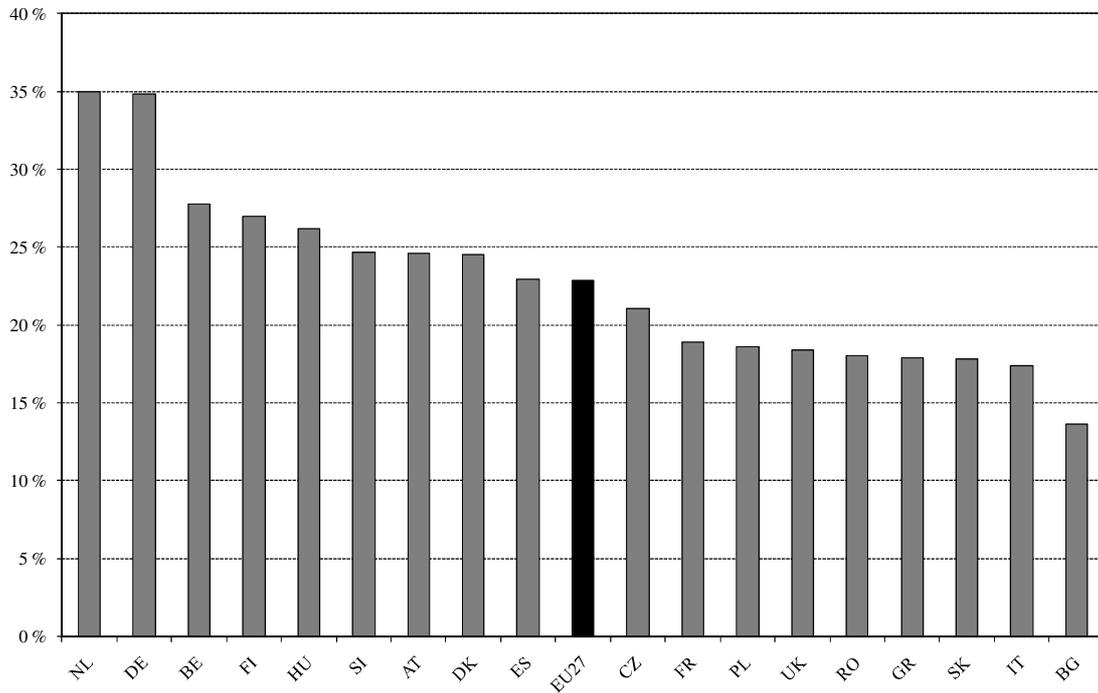
Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "During your post-secondary education (i.e. in further or higher education, excluding your PhD if you have one) did you spend time (minimum 3 months) as an 'exchange student' (e.g. Erasmus or similar) in a different country from the country in which you were conducting your studies?" (Question 26), (ii) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), and (iii) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34).

2) The figure is only based on persons less than or equal to 70 years, in order to exclude retired researchers from the sample.

Figure 7: Shares of researchers in the research institutes sector in EU27 who have been 'exchange students' during their post-secondary education by country of affiliation. n=5,035.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

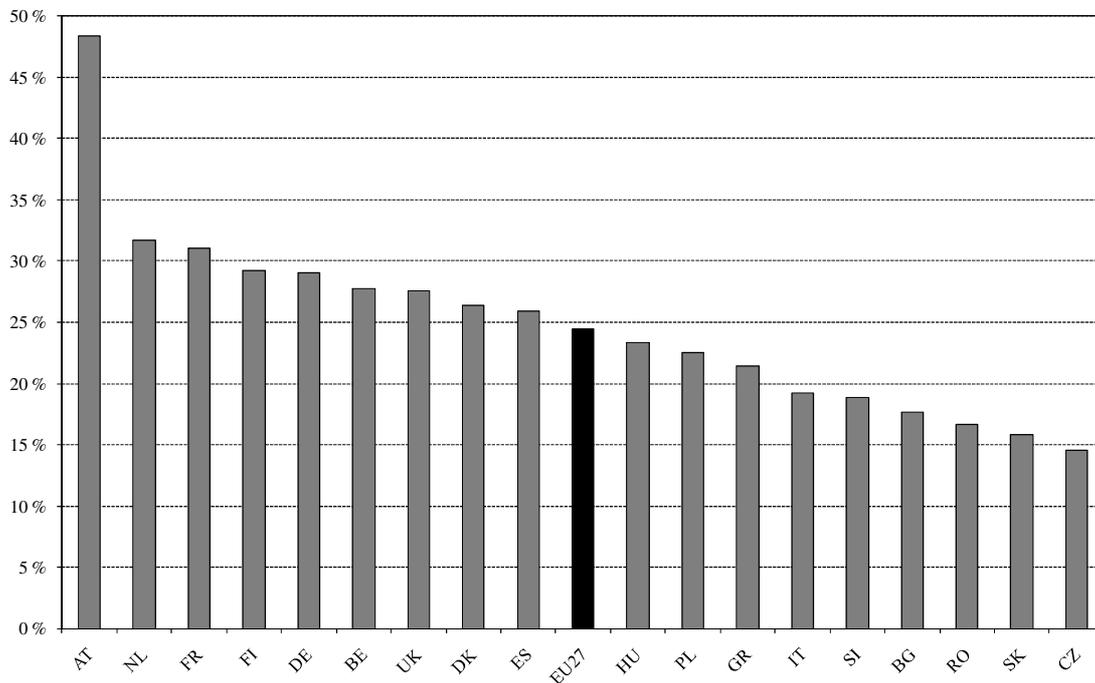
1) The figure is based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 26): "During your post-secondary education (i.e. in further or higher education, excluding your PhD if you have one) did you spend time (minimum 3 months) as an 'exchange student' (e.g. Erasmus or similar) in a different country from the country in which you were conducting your studies?" (see Annex 2).

2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.

4) In the figure we measure the share of EU27 researchers by country of affiliation.

Figure 8: Shares of researchers in the research institutes sector in EU27 who have worked in industry on a formal placement, internship, apprenticeship or similar during their post-secondary education by country of affiliation. $n=5,035$.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

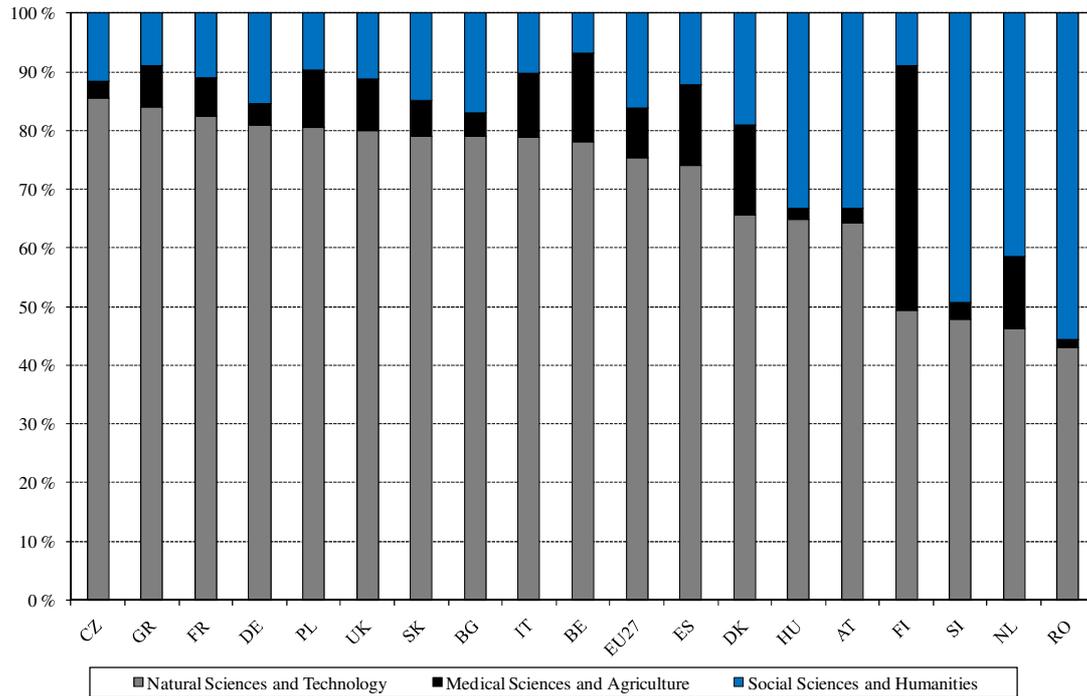
- 1) The figure is based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 27): "During your post-secondary education (i.e. in further or higher education, excluding your PhD if you have one) did you spend time working in industry on a formal placement, internship, apprenticeship or similar? Please exclude part-time or vacation jobs unrelated to your programme of study." (see Annex 2).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation.

5.2.3 Field of education

Figure 9 presents the share of EU27 researchers by field of education for each of the EU27 countries. We find that 75 per cent of the respondents from the EU27 as a whole received their highest educational attainment in the Natural Sciences and Technology, 16 per cent in the Social Sciences and Humanities, and 8 per cent in the Medical Sciences and Agriculture.

The Czech Republic (85%) and Greece (84%) have the highest shares of respondents in the Natural Sciences and Technology, while these shares are lowest in Romania (43%) and Netherlands (46%). Finland (42%) has the highest share of respondents in the Medical Sciences and Agriculture, while Romania (56%) and Slovenia (49%) have the highest shares of respondents in the Social Sciences and Humanities.

Figure 9: Shares of researchers in the research institutes sector in EU27 by field of education and by country of affiliation. n=5,050.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

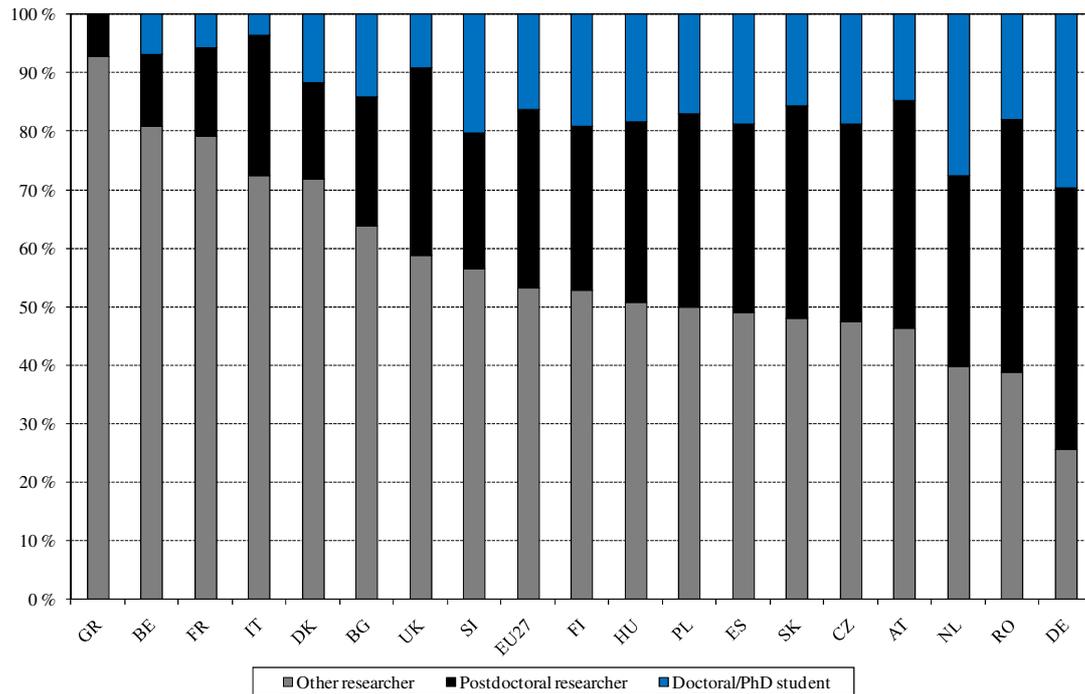
- 1) The figure is based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 32): "Please indicate in which field of research you have obtained your highest educational attainment." (see Annex 2).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation.

5.3 Respondents' researcher status

5.3.1 Current status as a researcher

We have asked the respondents in the Mobility Survey of the Research Institutes Sector to indicate their researcher status by selecting one of the following three options: a) *doctoral/PhD student*, b) *postdoctoral researcher*, and c) *other researcher*. In the realised sample we find that 16 per cent of the respondents are doctoral/PhD students and 31 per cent are postdoctoral researchers, whilst 53 per cent placed themselves in the "other researcher" category (see Figure 10).

Figure 10: Shares of researchers in the research institutes sector in EU27 by current status as a researcher and by country of affiliation. n=5,050.



Source: The Mobility Survey of the Research Institutes Sector.

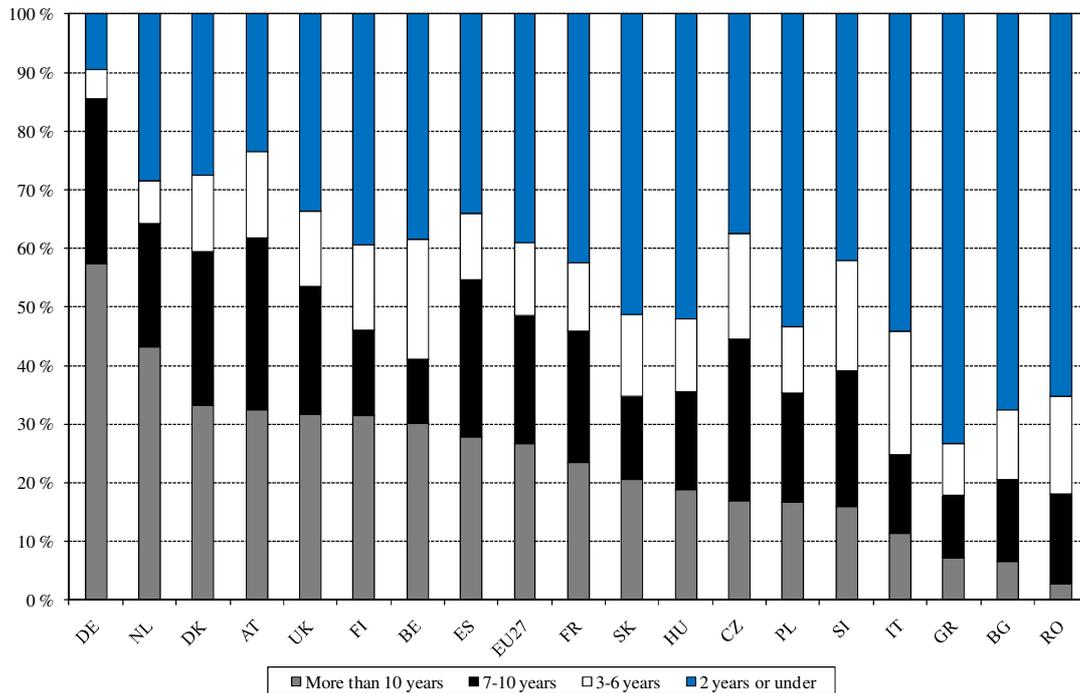
Notes:

- 1) The figure is based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 34): "Which of the following categories do you consider best describes your current status as a researcher?" (see Annex 2).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation.

From Figure 10 we see that Germany (30%) and the Netherlands (28%) have the highest shares of doctoral/PhD students in the realised survey sample, while Greece has no respondents in this status group at all. Germany (45%) and Romania (43%) have the highest shares of postdoctoral researchers, while Greece (7%) and Belgium (12%) have the lowest shares. On the other hand, Greece (93%) and Belgium (81%) have the highest shares of researchers in the "other researcher" category, while these shares are lowest in Germany (26%), Romania (39%) and the Netherlands (40%).

Figure 11 shows that 27 per cent of the respondents have been employed by their principal employer for more than 10 years, 22 per cent for 7-10 years, 13 per cent for 3-6 years, and 39 per cent for 2 years or less. Germany (57%) and Netherlands (43%) have the highest shares of respondents who have been employed for more than 10 years, and Romania (3%), Bulgaria and Greece (both 7%) have the lowest shares. Greece (73%) has the highest share of respondents who have been employed for 2 years or less, while Germany (10%) has the lowest share.

Figure 11: Shares of researchers in the research institutes sector in EU27 by years employed by their principal employer and by country of affiliation. n=5,048.



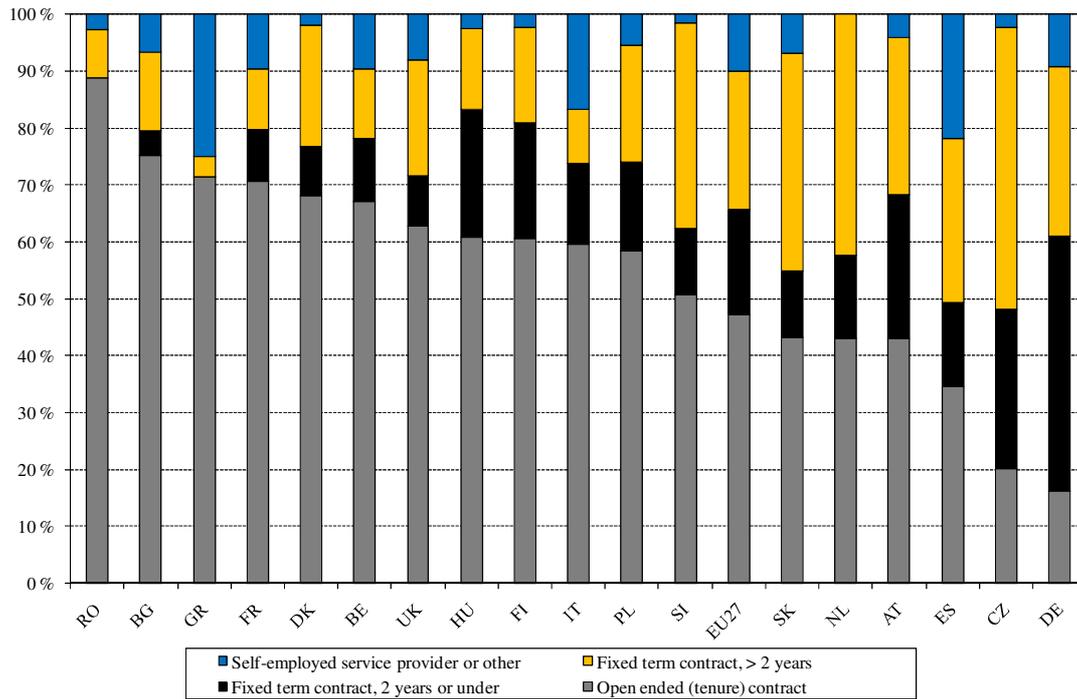
Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 39): "How long (years) have you been employed by this principal employer?" (see Annex 2).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation.

Figure 12 shows that 47 per cent of the respondents report an open-ended (tenure) contract, 19 per cent a fixed term contract of 2 years or less, and 24 per cent a fixed term contract of more than 2 years, whilst 10 per cent placed themselves in the category "self-employed service provider or other". Romania (89%) and Bulgaria (75%) have the highest shares of respondents with open-ended contracts, while Germany (16%) and the Czech Republic (20%) have the lowest shares. The Czech Republic (50%) and the Netherlands (42%) have the highest shares of respondents on a fixed term contract of more than 2 years, while Germany (45%) has the highest share of respondents on a fixed term contract of 2 years or less. Greece (25%) and Spain (22%) have the highest shares of respondents in the category "self-employed service provider or other".

Figure 12: Shares of researchers in the research institutes sector in EU27 by employment contract status and by country of affiliation. n=5,048.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 41): "What is your employment contract status?" (see Annex 2).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation.

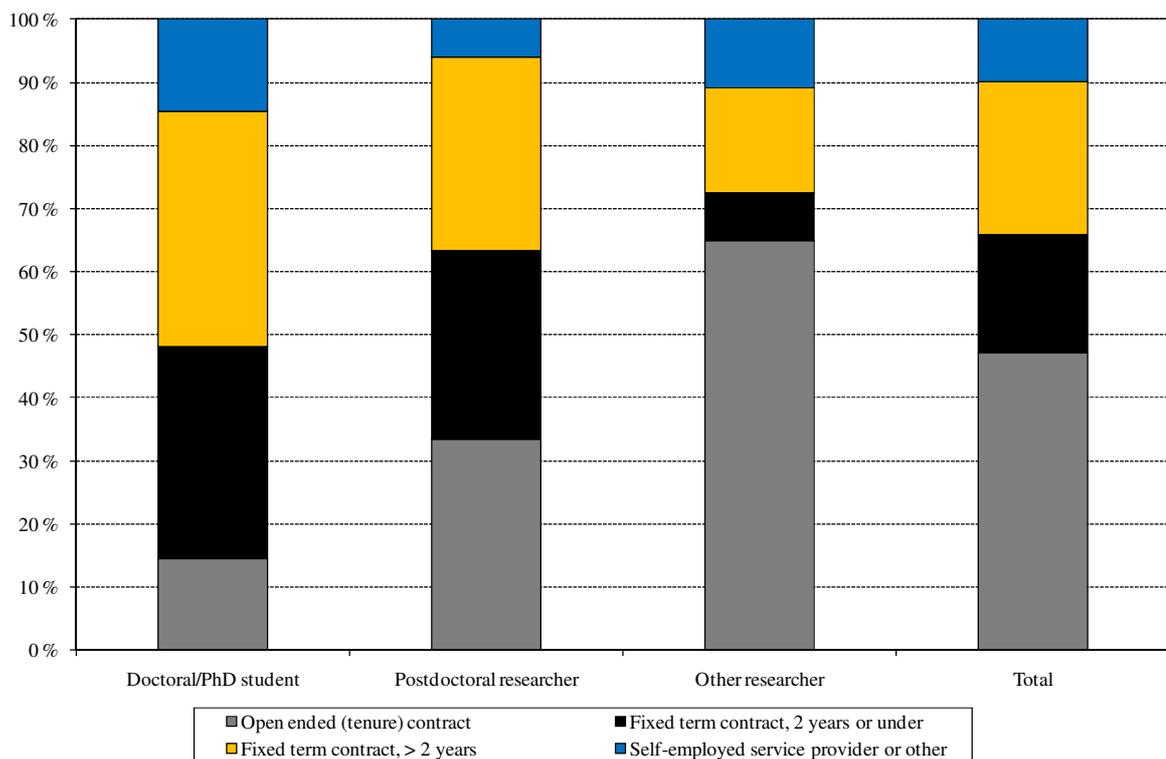
Figure 13 shows that those who classify themselves as doctoral/PhD students are, not surprisingly, least likely to indicate an open-ended contract employment status (15%), while researchers in the "other researcher" category, likely to include more senior researchers, have the highest share (65%). On the other hand, doctoral/PhD students are most likely to place themselves in the other three contract status categories. Researchers in the "other researcher" category have the lowest shares in the two fixed term contract categories, while postdoctoral researchers have the lowest share in the category "self-employed service provider or other" (6%). 33 per cent of the postdoctoral researchers have an open-ended contract, while 31 per cent have a fixed term contract of more than 2 years.

Figure 14 shows that postdoctoral researchers are younger than researchers in the "other researcher" category: postdoctoral researchers (37%) have a much higher share of researchers who are younger than 35 than researchers in the "other researcher" category (12%), and lower shares of those who are between 35 and 54 (51% for postdoctoral researchers, and 64% for researchers in the "other researcher" category) and those who are between 55 and 70 (12% for postdoctoral researchers, and 24% for researchers in the "other researcher" category). Moreover, and again not surprisingly, we see that doctoral/PhD students are much younger than the two other researcher categories. 84 per cent of the doctoral/PhD students are younger than 35, and 12 per cent are between 35 and 54. Only 4 per cent of the doctoral/PhD students are in the oldest age group.

We see from Figure 15 and Figure 16 that 36 per cent of the respondents have been working under their employment contract status for 2 years or less, 21 per cent for 3-6 years, 12 per cent for 7-10 years, and 31 per cent for more than 10 years. Figure 15 shows that 22 per cent of the researchers in the “other researcher” category have been working under their employment contract status for 2 years or less, while the same share for postdoctoral researchers is 47 per cent. This share is highest for doctoral/PhD students (62%), which is not a surprising result given the nature of doctoral research. 45 per cent of the researchers in the “other researcher” category have been working under their employment contract status for more than 10 years, once more suggesting that this category contains many of the most senior respondents, while this share is 21 per cent for postdoctoral researchers and only 6 per cent for doctoral/PhD students.

Figure 16 shows that Germany (66%) and the Netherlands (50%) have the highest shares of respondents in the contract status category of 2 years or less. Romania (65%) and Bulgaria (61%) have the highest shares of respondents who have been working under their contract status for more than 10 years.

Figure 13: Shares of researchers in the research institutes sector in EU27 by employment contract status and by current status as a researcher. n=5,048.



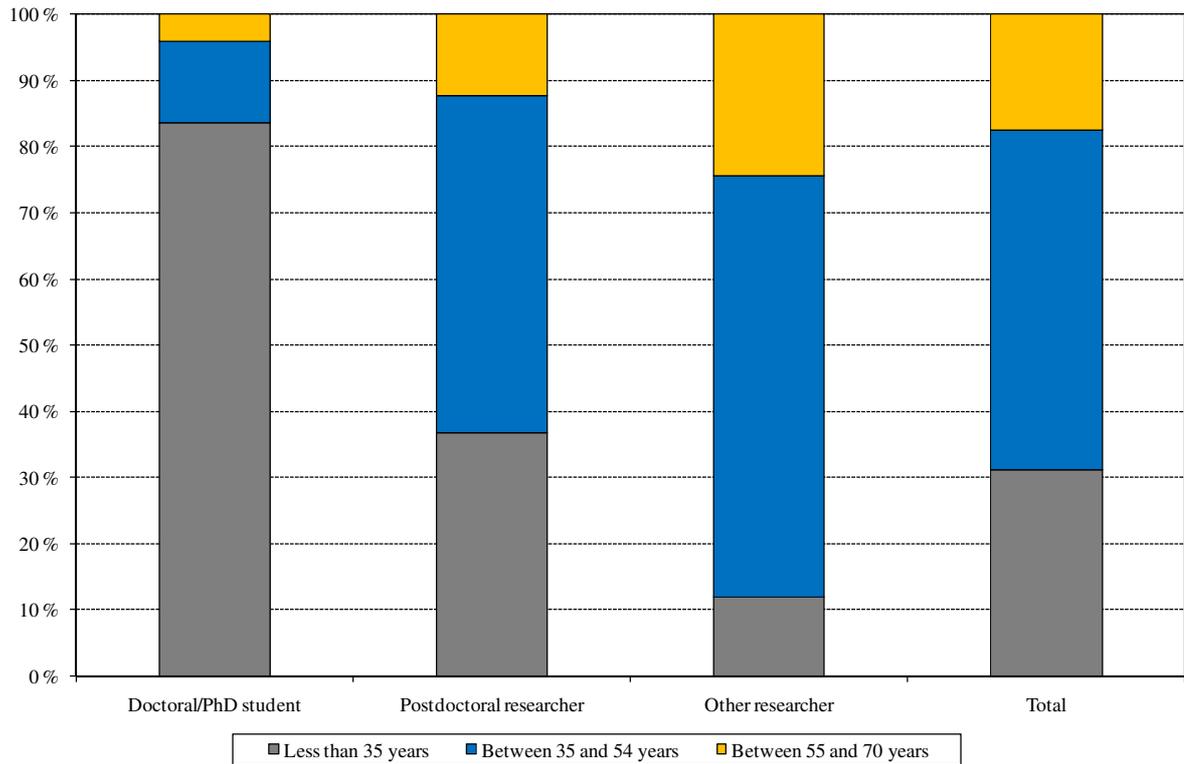
Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) “Which of the following categories do you consider best describes your current status as a researcher?” (Question 34), and (ii) “What is your employment contract status?” (Question 41).

2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 14: Shares of researchers in the research institutes sector in EU27 by age group and by current status as a researcher. n=5,050.

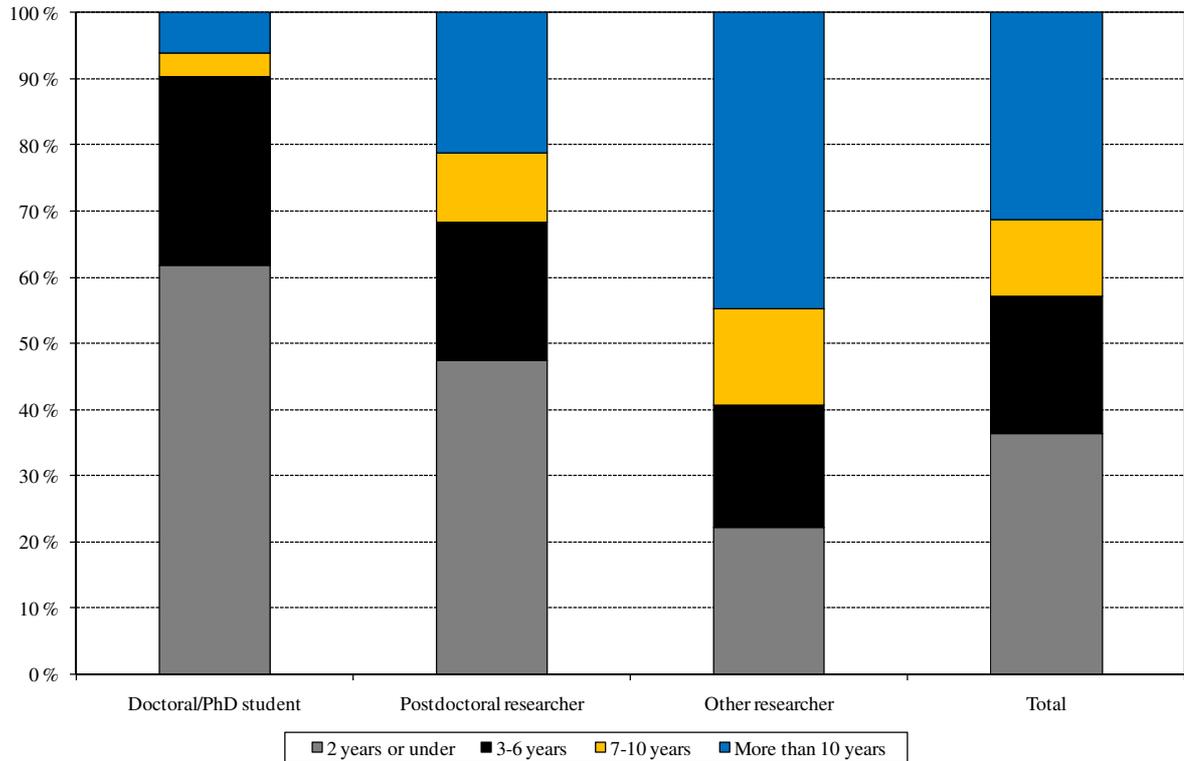


Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "What is your year of birth?" (Question 9), and (ii) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 15: Shares of researchers in the research institutes sector in EU27 by duration of present contract (in years) under their current status as a researcher. n=5,048.

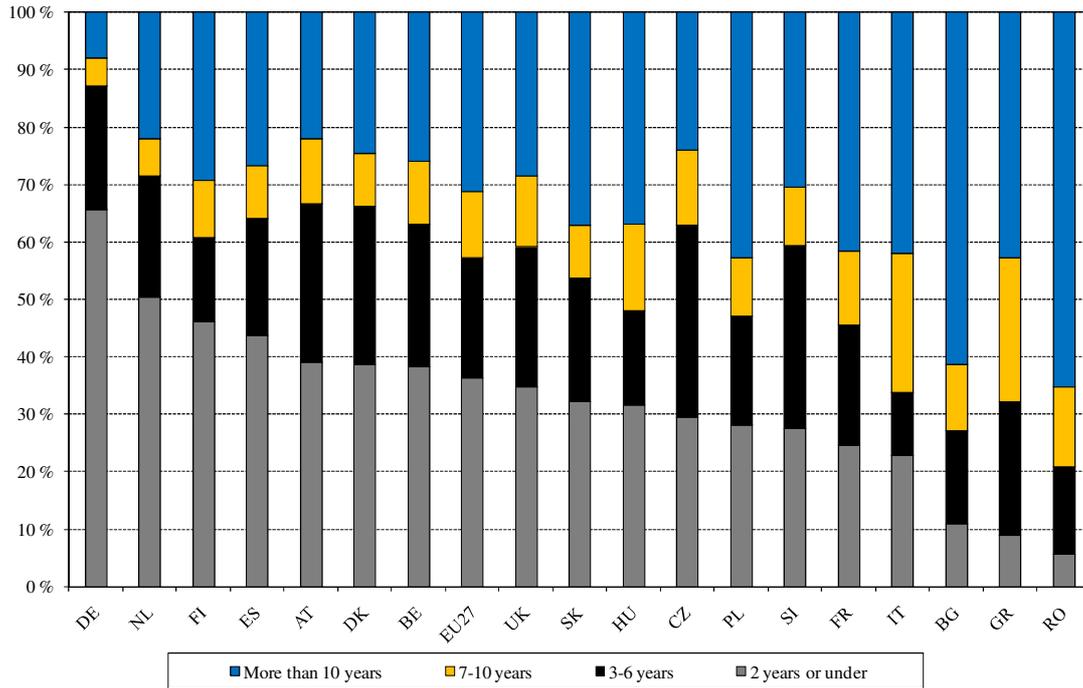


Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), and (ii) "How long (years) have you been working under this contract status?" (Question 42).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 16: Shares of researchers in the research institutes sector in EU27 by years of seniority and by country of affiliation. n=5,048.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 42): "How long (years) have you been working under this contract status?" (see Annex 2).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are excluded from the figure, since there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation.

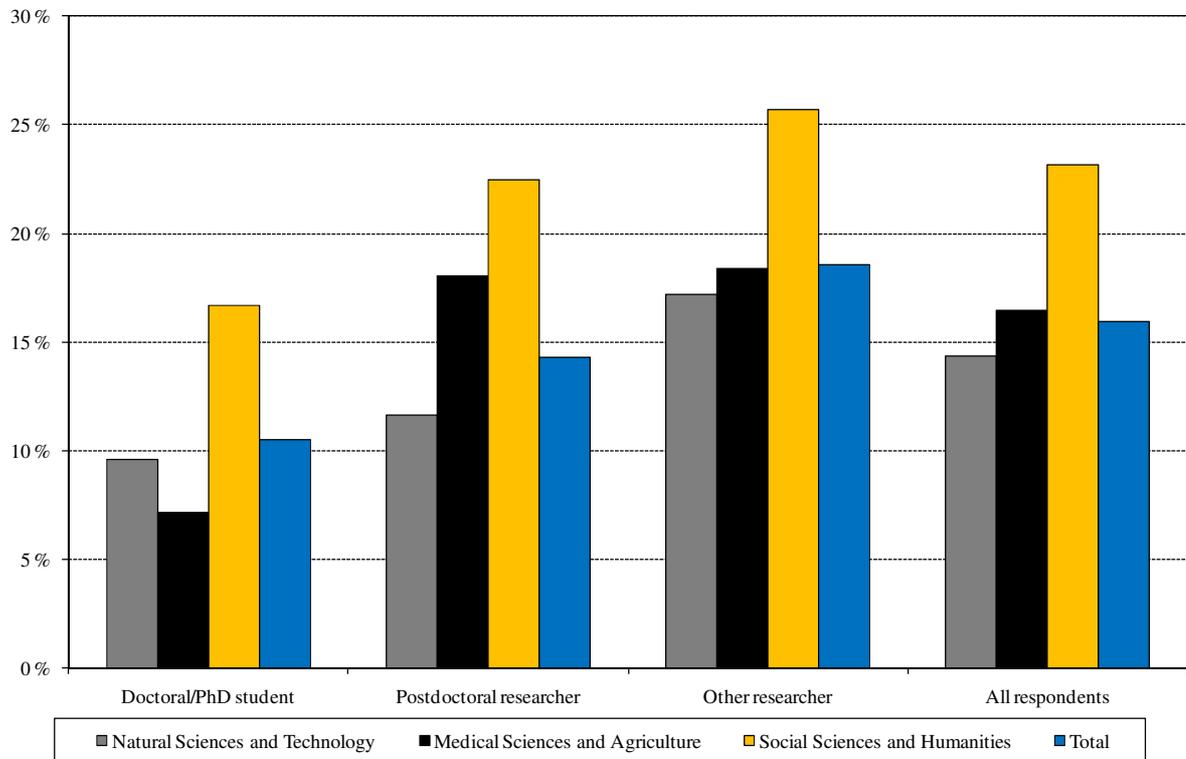
5.3.2 Honorary position/unpaid position (affiliation) in a university or other HEI

Figure 17 and Figure 18 present shares of respondents in the research institutes sector in the EU27 with an honorary position/unpaid position (affiliation) in a university or other higher education institution (HEI). We find that 16 per cent of the respondents have such a position. This share is lowest for doctoral/PhD students (10%), and highest for researchers in the "other researcher" category" (19%). The corresponding share for postdoctoral researchers is 14 per cent.

Furthermore, we find the highest share of respondents with an honorary position/unpaid position in a University or other HEI is among those in the Social Sciences and Humanities (23%), and the lowest share among those in the Natural Sciences and Technology (14%). The same pattern is found for postdoctoral researchers and researchers in the "other researcher" category. Doctoral/PhD students have the lowest share among those being educated in the Medical Sciences and Agriculture (7%).

From Figure 18 we see that the share of respondents with an honorary position/unpaid position is highest for those from United Kingdom (26%), Romania (22%) and Italy (21%). This share is lowest for respondents from Belgium (8%) and Greece (9%).

Figure 17: Shares of researchers in the research institutes sector in EU27 with an honorary position/unpaid position (affiliation) in a University or other HEI by field of education and by current status as a researcher. n=5,048.



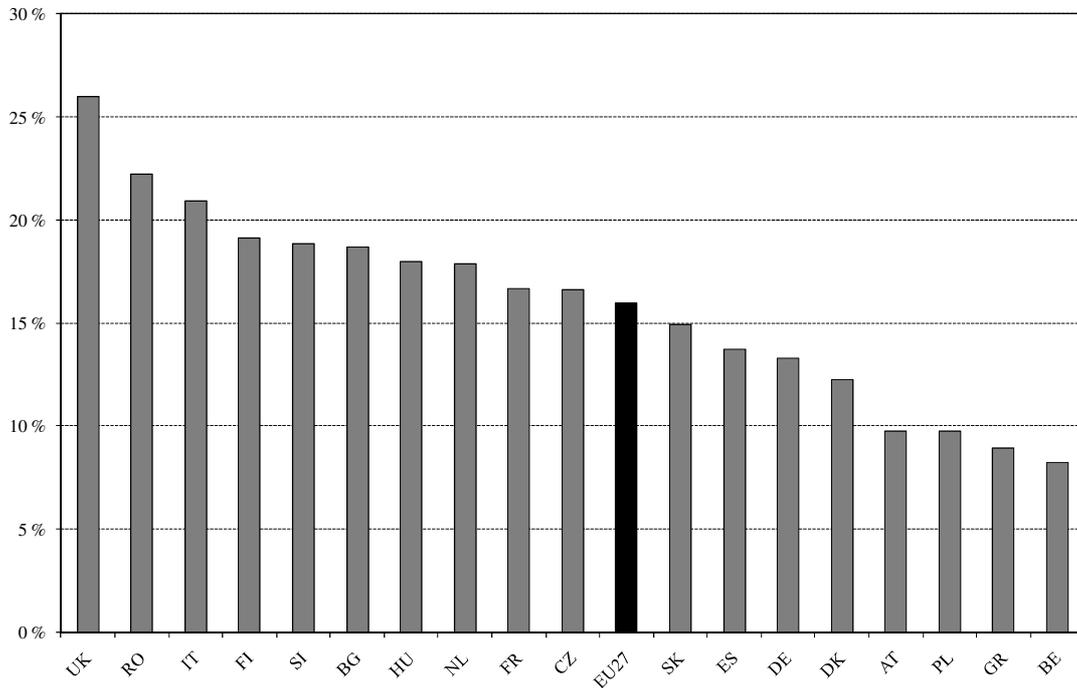
Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), (ii) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), and (iii) "Do you hold an honorary position/unpaid position (affiliation) in a University or other HEI?" (Question 46).

2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 18: Shares of researchers in the research institutes sector in EU27 with an honorary position/unpaid position (affiliation) in a University or other HEI by country of affiliation. n=5,048.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 46): "Do you hold an honorary position/unpaid position (affiliation) in a University or other HEI?" (see Annex 2).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation.

6 CAREER PATHS AND INTERNATIONAL MOBILITY AMONG EU27 RESEARCHERS IN THE SAMPLE

This chapter investigates the career paths and international mobility patterns of EU27 researchers in the non-university research institutes sector. Section 6.1 provides statistics on intersectoral mobility between the non-university research institutes sector and the higher education sector, as well as, intersectoral mobility between the non-university research institutes sector and the business enterprise sector (private for-profit sector). Section 6.2 presents survey results on international mobility patterns. Section 6.3 presents data about the respondents' future mobility plans, while Section 6.4 focuses on the respondent's opinions regarding the effects of international mobility on career progression. In Section 6.5 we present main findings and conclusions from this chapter. In Annex 4 we present statistics on intersectoral and international mobility patterns between respondents with a citizenship from a country inside or outside EU27.

6.1 Experience of mobility: Intersectoral mobility

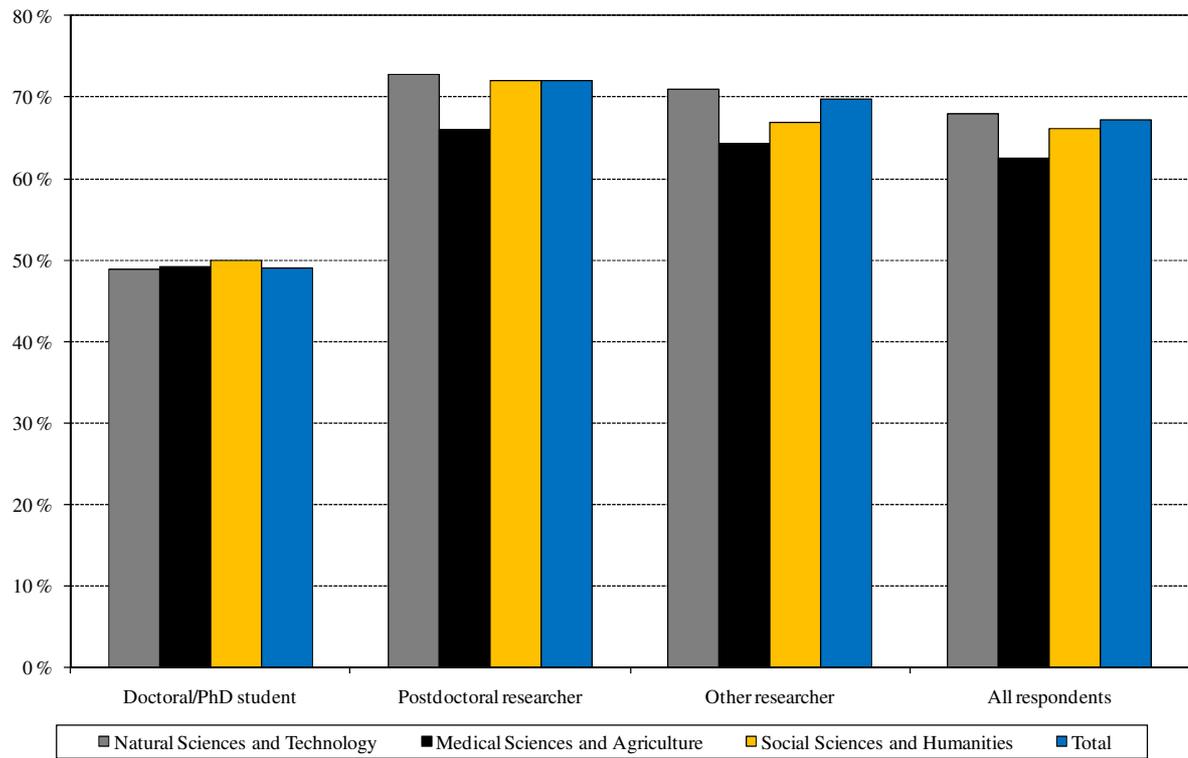
6.1.1 Intersectoral mobility to and from higher education institutions

Figure 19 shows that 67 per cent of the respondents in the research institutes sector in EU27 have been employed as a researcher in a university or other higher education institution (HEI). This share is highest for those having their highest educational attainment in the Natural Sciences and Technology (68%), and lowest for those in the Medical Sciences and Agriculture (62%). We also find that this share is highest among postdoctoral researchers (72%), and lowest among doctoral/PhD students (49%). The corresponding share for researchers in the "other researcher" category is 70 per cent. Both postdoctoral researchers (73%) and researchers in the "other researcher" category (71%) have the highest share among those in the Natural Sciences and Technology, but there are small differences between postdoctoral researchers in the Natural Sciences and Technology and their counterparts in the Social Sciences and Humanities (72%). Furthermore, we find small differences between all three fields of education among doctoral/PhD students.

In Figure 20 we present the shares of respondents who have been employed as a researcher in a university or other HEI by country of affiliation³. We see that this share is highest for respondents from France (80%) and Greece (78%), and lowest for Slovenia (32%) and Denmark (47%).

³ Please recall that by "country of affiliation" we mean the country in which the research organisation – and consequently the e-mail address of the respondent which has been retrieved from the website of this organisation – is located.

Figure 19: Shares of researchers in the research institutes sector in EU27 who have been employed as a researcher in a university or other HEI by field of education and by current status as a researcher. n=4,856.



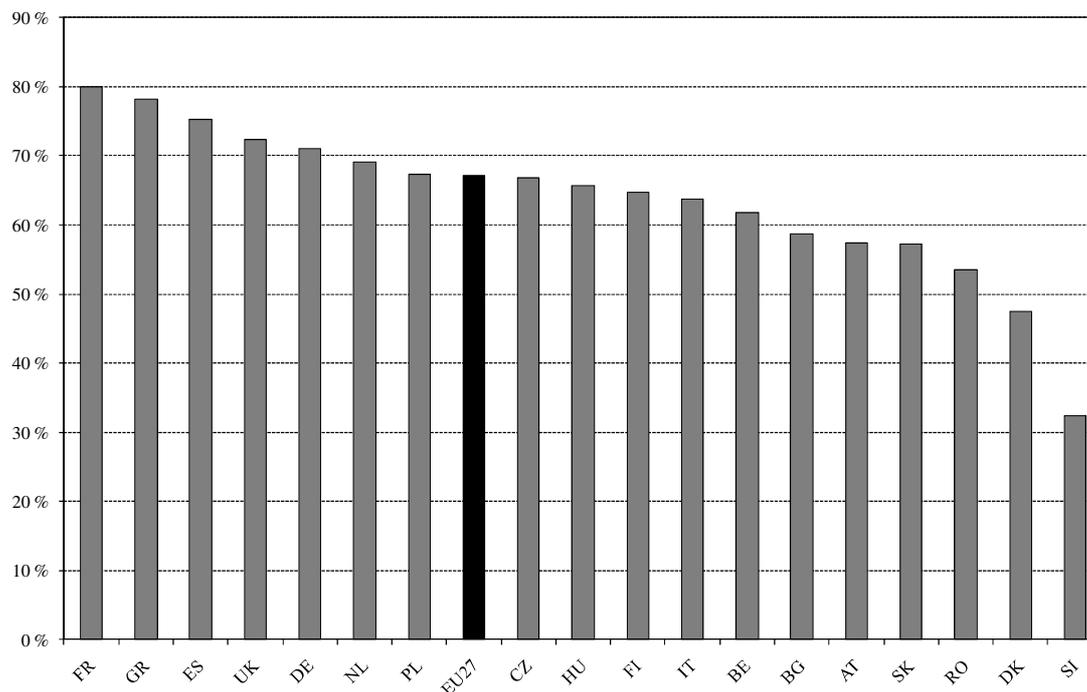
Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), (ii) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), and (iii) "During the course of your research career, have you ever been employed as a researcher in a university or other HEI?" (Question 50).

2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 20: Shares of researchers in the research institutes sector in EU27 who have been employed as a researcher in a university or other HEI by country of affiliation. $n=4,856$.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

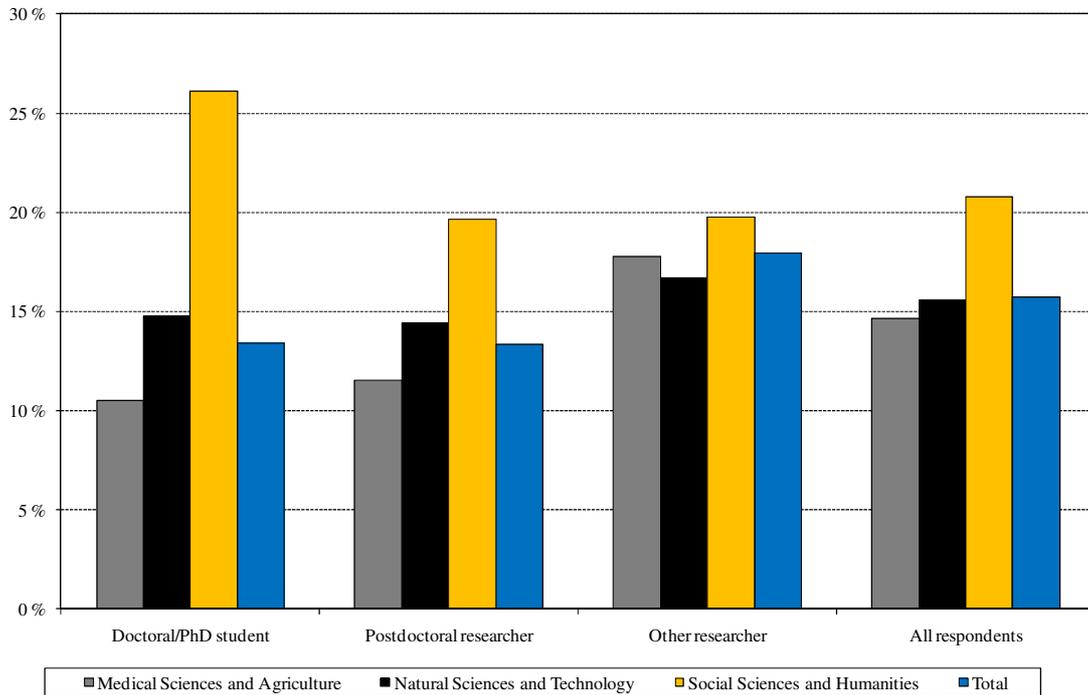
- 1) The figure is based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 50): "During the course of your research career, have you ever been employed as a researcher in a university or other HEI?" (see Annex 2).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation.

6.1.2 Intersectoral mobility to and from private for-profit sector

16 per cent of the respondents have been employed as a researcher in the private, for-profit sector. This is seen in Figure 21. The same figure shows that this share is highest among those in the Social Sciences and Humanities for all three status groups of researchers, and we also find the highest share among doctoral/PhD students within this field (26%). For both postdoctoral researchers (12%) and doctoral/PhD students (10%), we find the lowest share among those with a field of education in the Medical Sciences and Agriculture, while for researchers in the "other researcher" category the lowest share is among those in the Natural Sciences and Technology (17%).

Figure 22 shows that the share of respondents who have been employed as a researcher in the private, for-profit sector is highest for Denmark (29%), Romania (28%) and Greece (24%). This share is lowest for Slovenia (7%) and the Czech Republic (8%).

Figure 21: Shares of researchers in the research institutes sector in EU27 who have been employed as a researcher in the private, for-profit sector by field of education and by current status as a researcher. n=3,997.



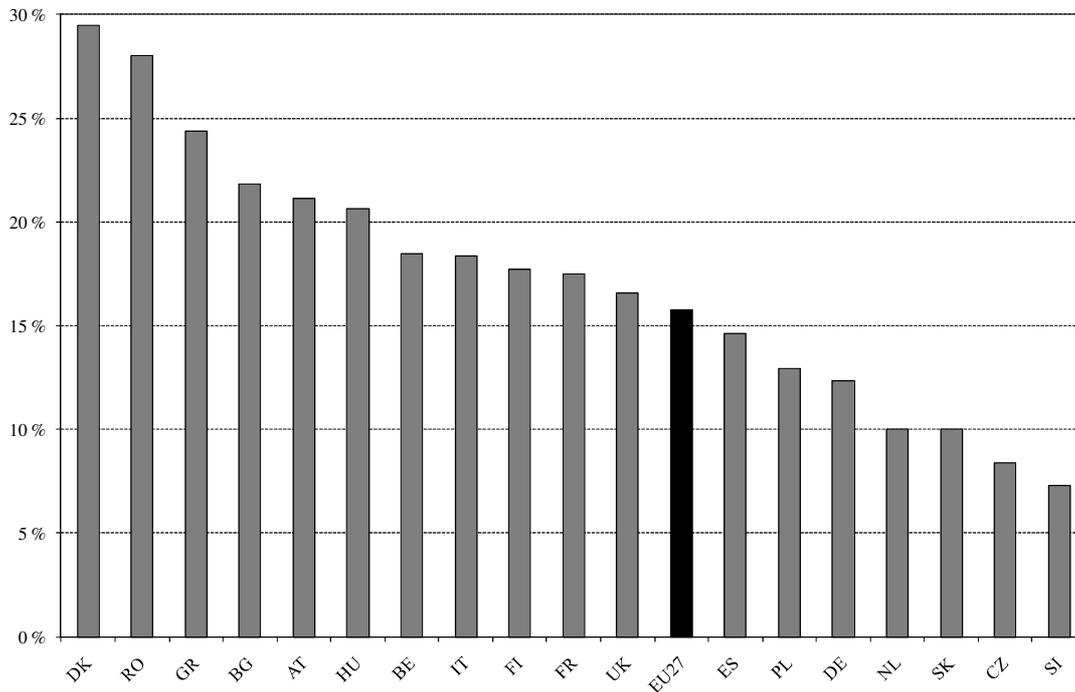
Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), (ii) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), and (iii) "During the course of your research career, have you ever been employed as a researcher in the private, for-profit sector?" (Question 50).

2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 22: Shares of researchers in the research institutes sector in EU27 who have been employed as a researcher in the private, for-profit sector by country of affiliation. $n=3,997$.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 50): "During the course of your research career, have you ever been employed as a researcher in the private, for-profit sector?" (see Annex 2).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation.

6.2 Experience of international mobility

6.2.1 International mobility during the researcher career

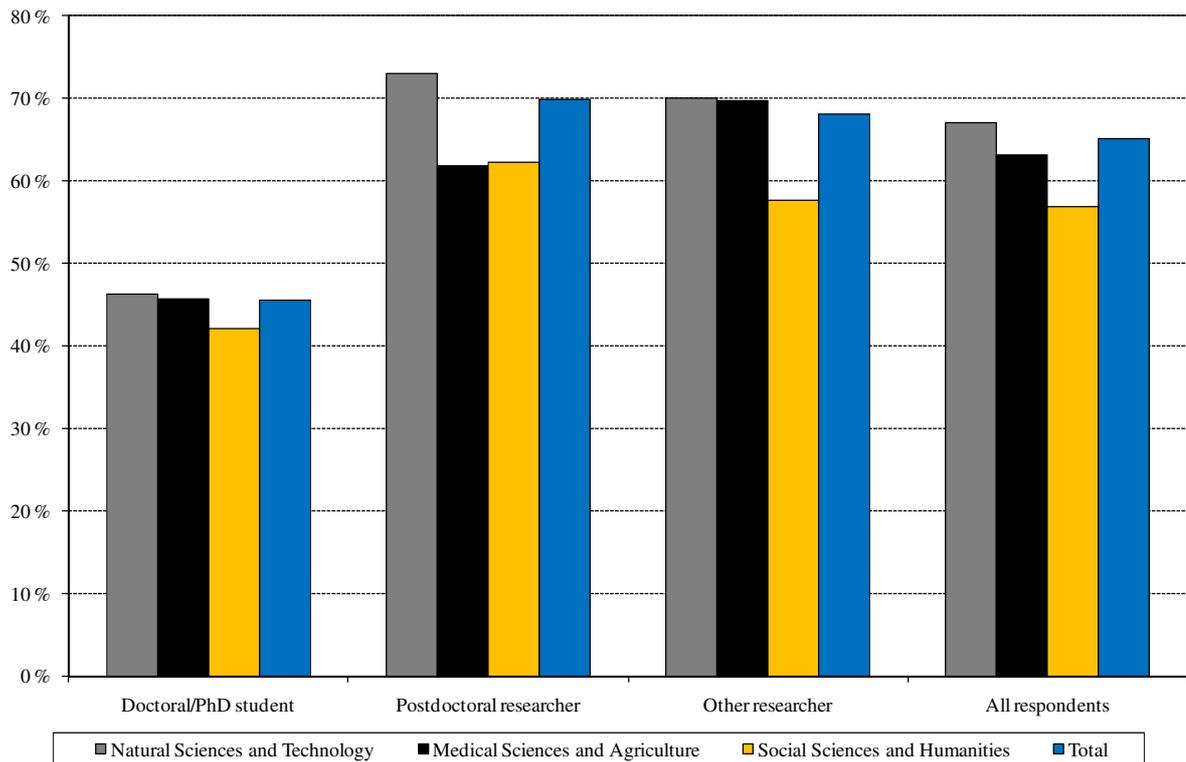
Figure 23 shows that 65 per cent of the respondents in the research institutes sector in EU27 have been internationally mobile, i.e. they have worked in or made a research visit of three months or more in another country than the country where they attained their highest educational degree⁴. This share is highest for postdoctoral researchers (70%), and lowest for doctoral/PhD students (46%). The corresponding share for researchers in the "other researcher" category is 68 per cent.

Figure 23 also shows that those researchers educated in the Natural Sciences and Technology are the most internationally mobile (67%). We see that those researchers educated in the Social Sciences and Humanities are the least internationally mobile (57%). The latter also holds for researchers in the "other researcher" category (58%) and postdoctoral/PhD students (42%).

⁴ The present study's definition of international mobility (see Section 2.1).

Males (68%) are more likely to be internationally mobile than females (61%). This is presented in Figure 24. This share is highest for those in the Natural Sciences and Technology for both male researchers (69%) and female researchers (63%). Respondents in the Social Sciences and Humanities have the lowest share of internationally mobile researchers for both genders (62% for males, and 51% for females).

Figure 23: Shares of researchers in the research institutes sector in EU27 with international mobility experience at least once in their researcher career by field of education and by current status as a researcher. n=5,049.

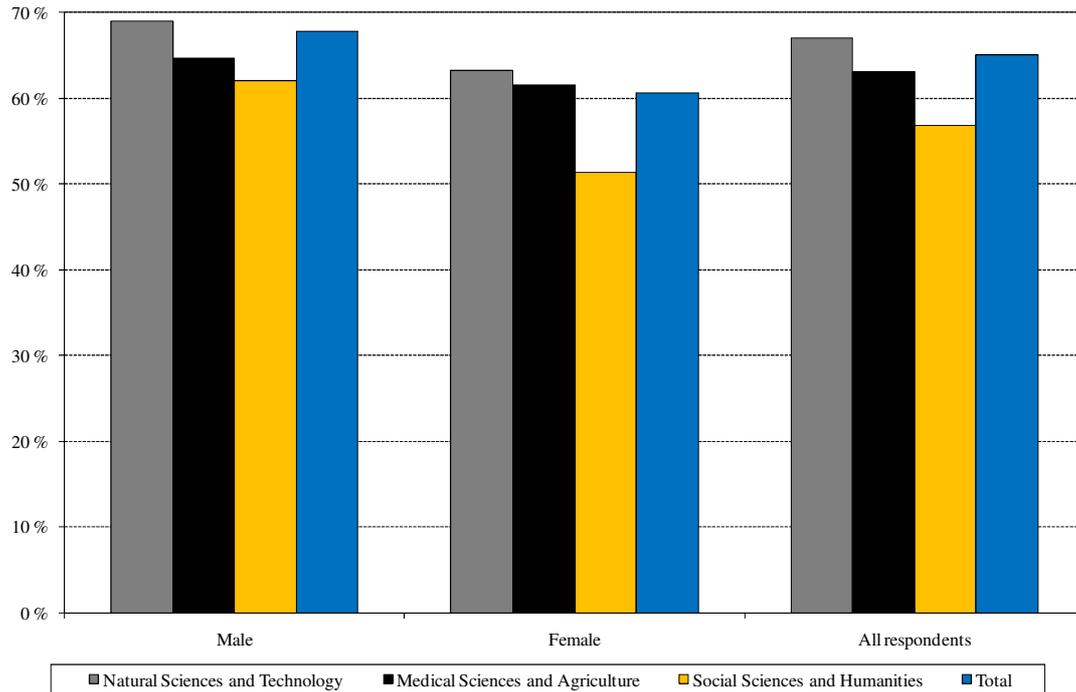


Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), (ii) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), and (iii) "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as a previously "internationally mobile" researcher.)" (Question 53).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 24: Shares of international mobile researchers in the research institutes sector in EU27 by field of education and by gender. n=5,049.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

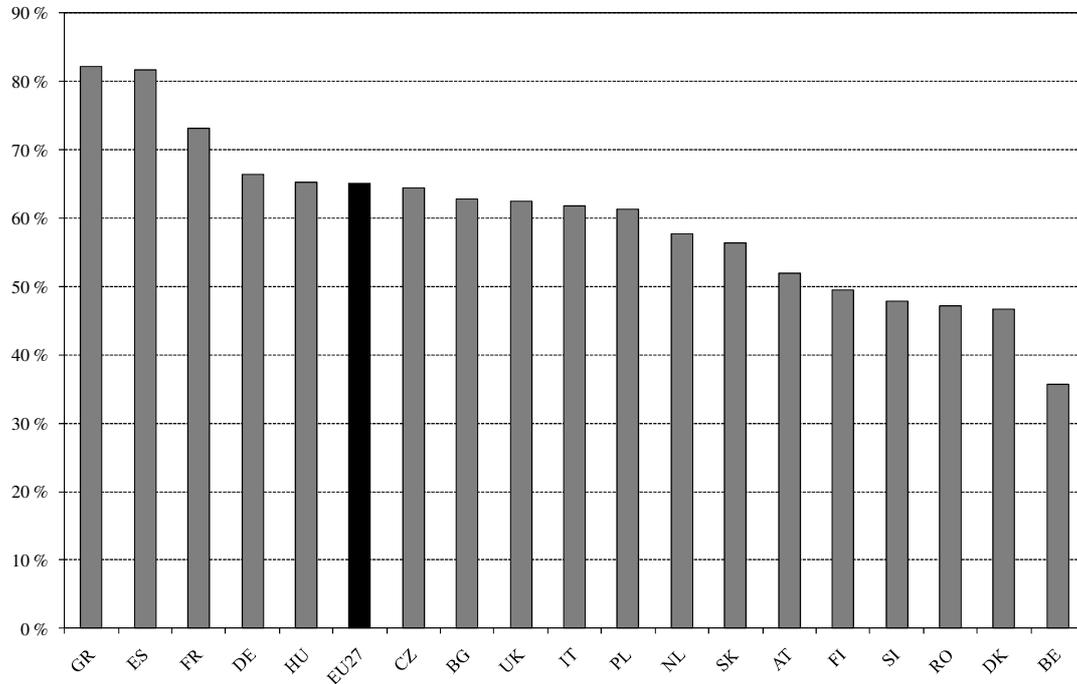
1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "What is your gender?" (Question 8), (ii) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), and (iii) "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as a previously "internationally mobile" researcher.)" (Question 53).

2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 25 shows the shares of internationally mobile researchers in the research institutes sector by country of affiliation. We see that this share is highest for Greece and Spain (both 82%), and lowest for Belgium (36%).

Table 6 shows the share of internationally mobile researchers both by country of affiliation and field of education.

Figure 25: Shares of international mobile researchers in the research institutes sector in EU27 by country of affiliation. n=5,049.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 53): "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as a previously "internationally mobile" researcher.)" (See Annex 2)
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation.

Table 6: Shares of international mobile researchers in the research institutes sector in EU27 by country of affiliation and by field of education. $n=5,049$.

Country	Acronym	Natural Sciences and Technology	Medical Sciences and Agriculture	Social Sciences and Humanities	Total
Austria	AT	51	0	59	52
Belgium	BE	32	36	80	36
Bulgaria	BG	62	60	66	63
Czech Republic	CZ	67	60	49	64
Denmark	DK	47	44	48	47
Germany	DE	67	82	61	66
Greece	GR	83	75	80	82
Spain	ES	82	78	86	82
France	FR	75	70	59	73
Italy	IT	63	72	45	62
Hungary	HU	68	100	58	65
Netherlands	NL	63	80	45	58
Poland	PL	67	44	32	61
Romania	RO	65	0	35	47
Slovenia	SI	52	0	47	48
Slovakia	SK	59	47	46	56
Finland	FI	52	46	50	49
United Kingdom	UK	67	45	46	62
Total	EU27	67	63	57	65

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), and (ii) "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as a previously "internationally mobile" researcher.)" (Question 53).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

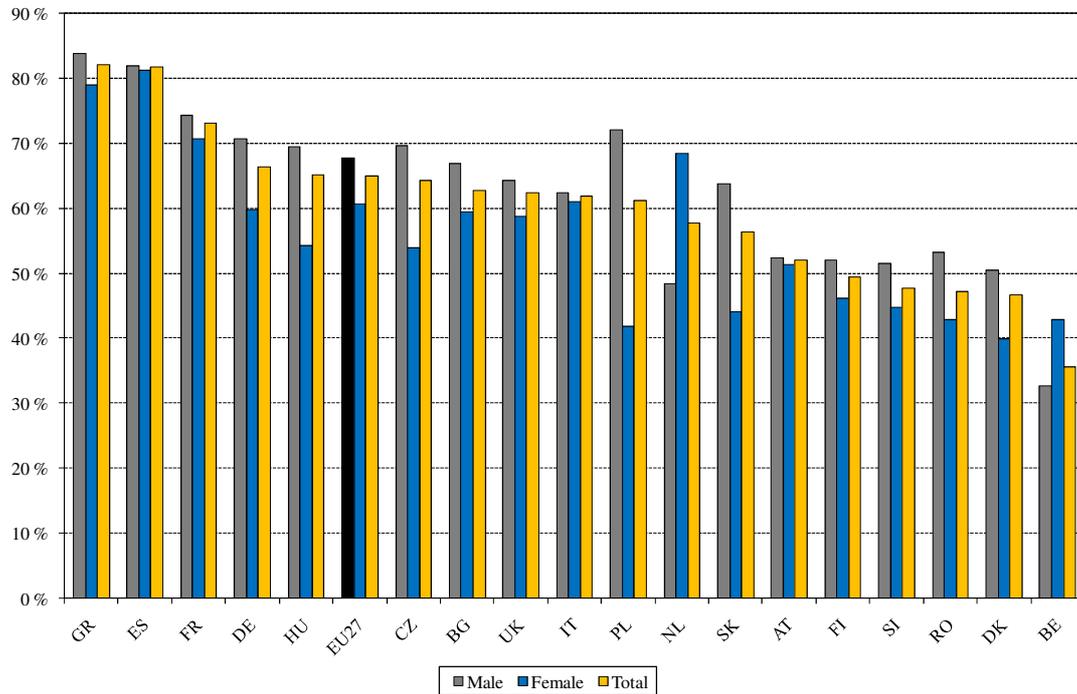
3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.

4) In the table we measure the share of EU27 researchers by country of affiliation, and by field of education.

Figure 26 presents the share of internationally mobile researchers both by gender and country of affiliation. We see that males are more internationally mobile than females for most of the EU27 countries.

We observe in Figure 27 that postdoctoral researchers are more internationally mobile than are doctoral/PhD students in most of the EU27 countries, except for Belgium, Italy and the United Kingdom. In about half of the EU27 countries, respondents in the "other researcher" category are more internationally mobile than postdoctoral researchers, while in the remaining countries the opposite result holds.

Figure 26: Shares of international mobile researchers in the research institutes sector in EU27 by gender and by country of affiliation. n=5,049.

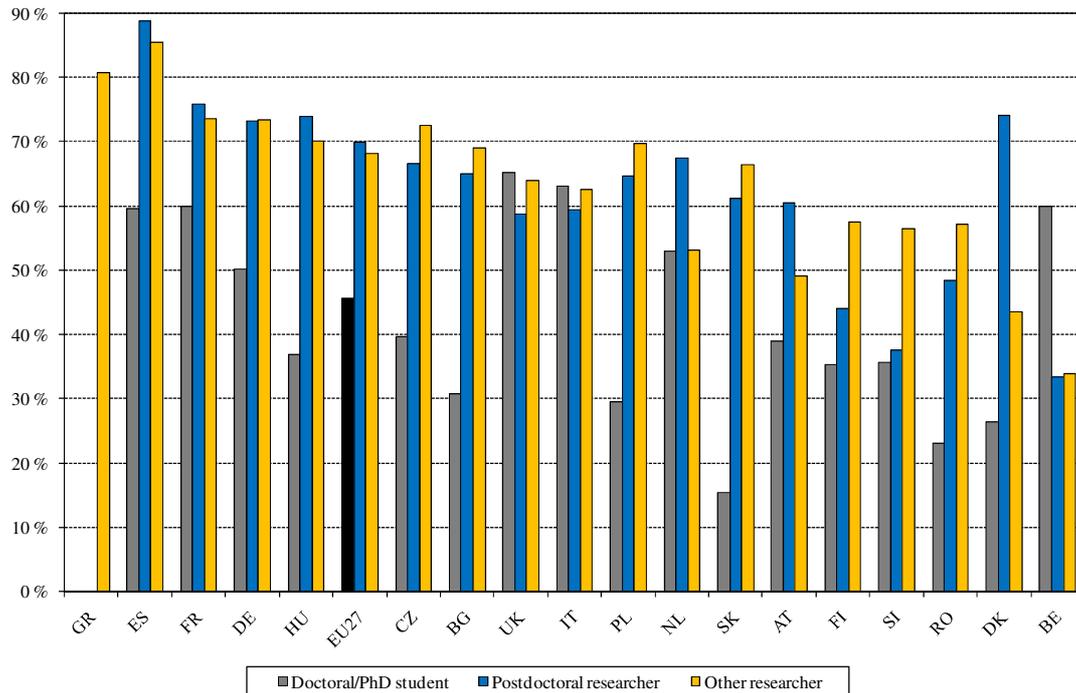


Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "What is your gender?" (Question 8), and (ii) "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as a previously "internationally mobile" researcher.)" (Question 53).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation, and by gender.

Figure 27: Shares of international mobile researchers in the research institutes sector in EU27 by current status as a researcher and by country of affiliation. $n=5,049$.



Source: The Mobility Survey of the Research Institutes Sector.

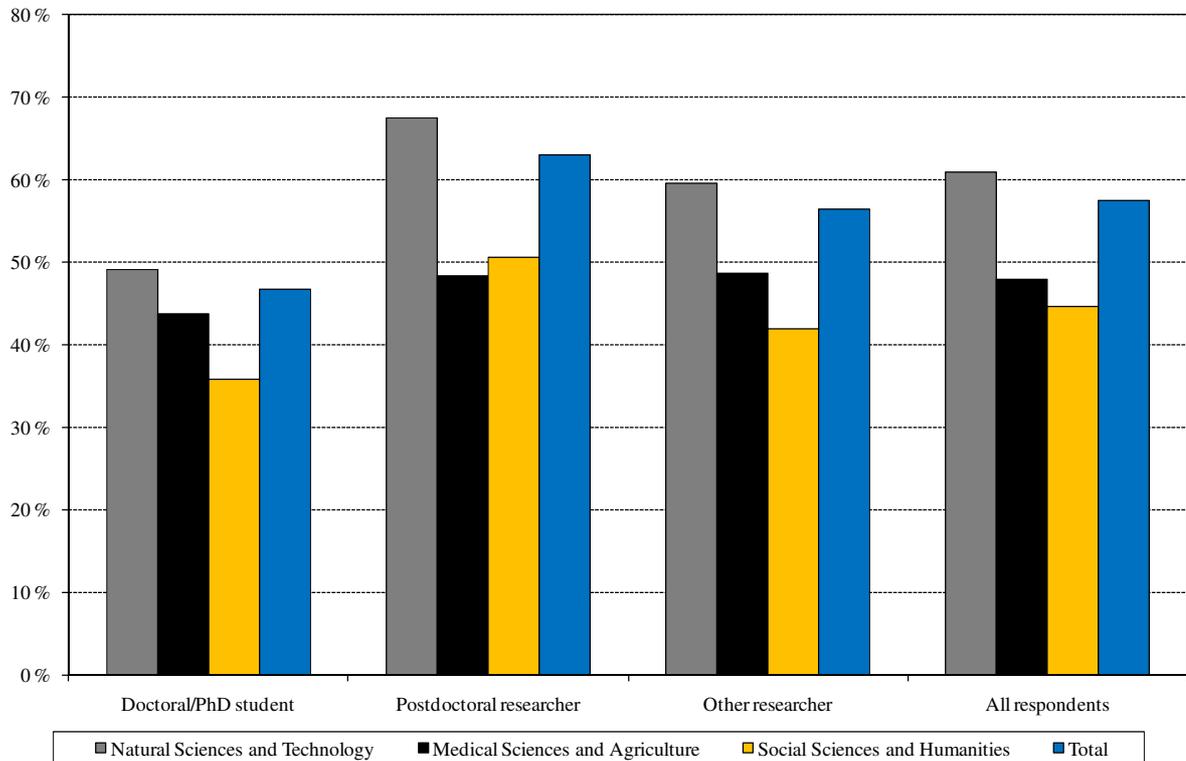
Notes:

- 1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), and (ii) "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as a previously "internationally mobile" researcher.)" (Question 53).
- 2) We have used the same rank of EU27 countries as in Figure 26 for all respondents.
- 3) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 4) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries. For the same reason we exclude the shares of doctoral/PhD students and postdoctoral researchers from Greece.
- 5) In the figure we measure the share of EU27 researchers by country of affiliation.

Figure 28 shows that 58 per cent of the internationally mobile researchers have experienced at least one move to a new employer in another country over their researcher career. This share is highest for respondents in the Natural Sciences and Technology (61%), and lowest for those in the Social Sciences and Humanities (45%). The same pattern holds for the three main status groups of researchers, but with one exception: For postdoctoral researchers we find the lowest share among those in the Medical Sciences and Agriculture (48%). The figure also shows that the postdoctoral researchers category has the highest share of respondents who have changed jobs (63%), whilst the doctoral/PhD student category unsurprisingly has the lowest share (47%). Figure 29 presents the share of internationally mobile researchers who have experienced at least one move to a new employer in another country during the course of their researcher career by country of affiliation. This share is highest for internationally mobile researchers from United Kingdom and Germany (both 79%), and lowest for those from Romania (21%) and Bulgaria (30%). At the same time, as Figure 25 (and Figure 29) clearly shows, the share of internationally mobile researchers amongst all

respondents in the research institutes sector is lower in the United Kingdom than for the EU27 as a whole⁵, but higher in Germany.

Figure 28: Shares of researchers in the research institutes sector in EU27 having experience of at least one move to a new employer in another country in their researcher career by field of education and by current status as a researcher. Shares among all internationally mobile researchers. n=3,285.



Source: The Mobility Survey of the Research Institutes Sector.

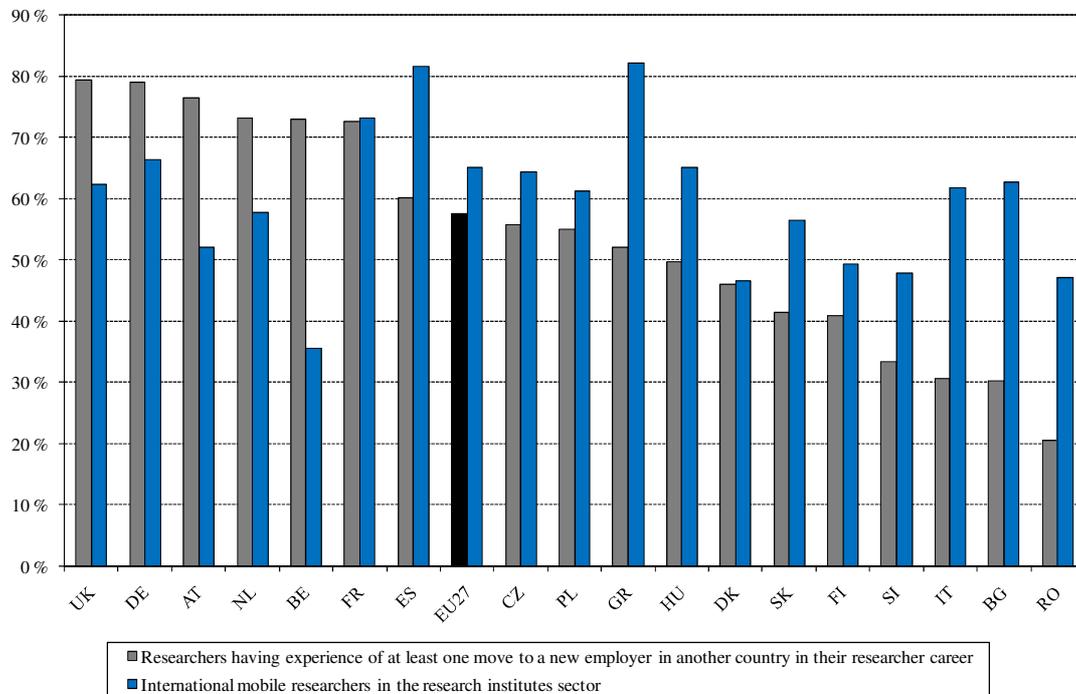
Notes:

1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), (ii) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), and (iii) "Did any of these instances of international mobility involve a move to a new employer in another country?" (Question 55).

2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

⁵ Note that the gray columns (black column for the total) in the figure show the number of respondents having experience of at least one move to a new employer in another country in per cent of internationally mobile respondents in each EU27 countries, while the blue columns show the number of internationally mobile respondents in per cent of all respondents in each EU27 countries.

Figure 29: Shares of researchers in the research institutes sector in EU27 having experience of at least one move to a new employer in another country in their researcher career by country of affiliation (gray columns; and black column for the total) among all internationally mobile researchers in that country. These shares are compared with the shares of internationally mobile researchers among all researchers in the research institutes sector in EU27 (blue columns). $n=3,285$.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as a previously "internationally mobile" researcher.)" (Question 53), and (ii) "Did any of these instances of international mobility involve a move to a new employer in another country?" (Question 55).

2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

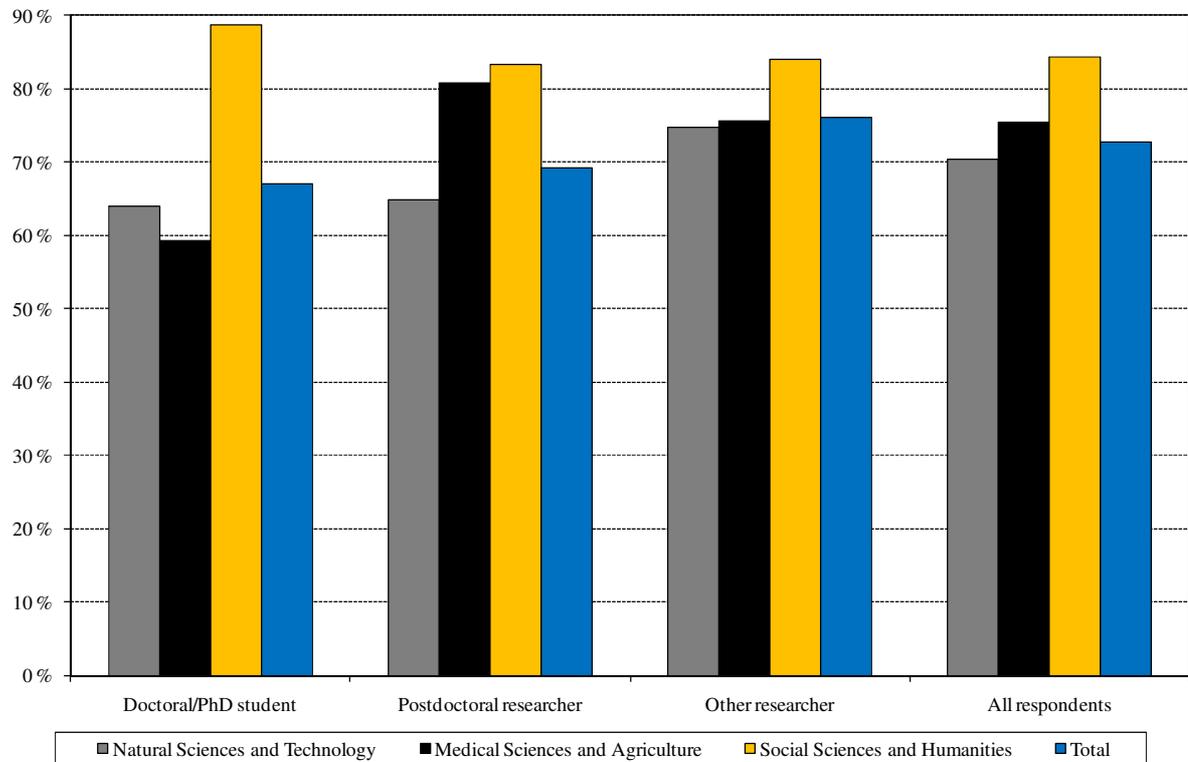
3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.

4) In the figure we measure the share of EU27 researchers by country of affiliation.

73 per cent of the internationally mobile respondents have experienced at least one research visit to another country during the course of their research career (Figure 30). We find the highest share for respondents in the "other researcher" category (76%), and the lowest share is for doctoral/PhD students (67%). Respondents in the Social Sciences and Humanities, regardless of employment category, are the most likely to have undertaken at least one research visit. Note that for doctoral/PhD students the share of those with at least one research visit is much higher for respondents in the Social Sciences and Humanities (89%) than for those in Medical Sciences and Agriculture (59%).

We see from Figure 31 that Romania (94%), Poland (94%) and Bulgaria (92%) have the highest share of respondents who have experienced a research visit during their research career. United Kingdom (51%) and Germany (54%) have the lowest shares.

Figure 30: Shares of researchers in the research institutes sector in EU27 having experience of at least one research visit to another country in their researcher career by field of education and by current status as a researcher. Shares among all internationally mobile researchers. n=3,285.



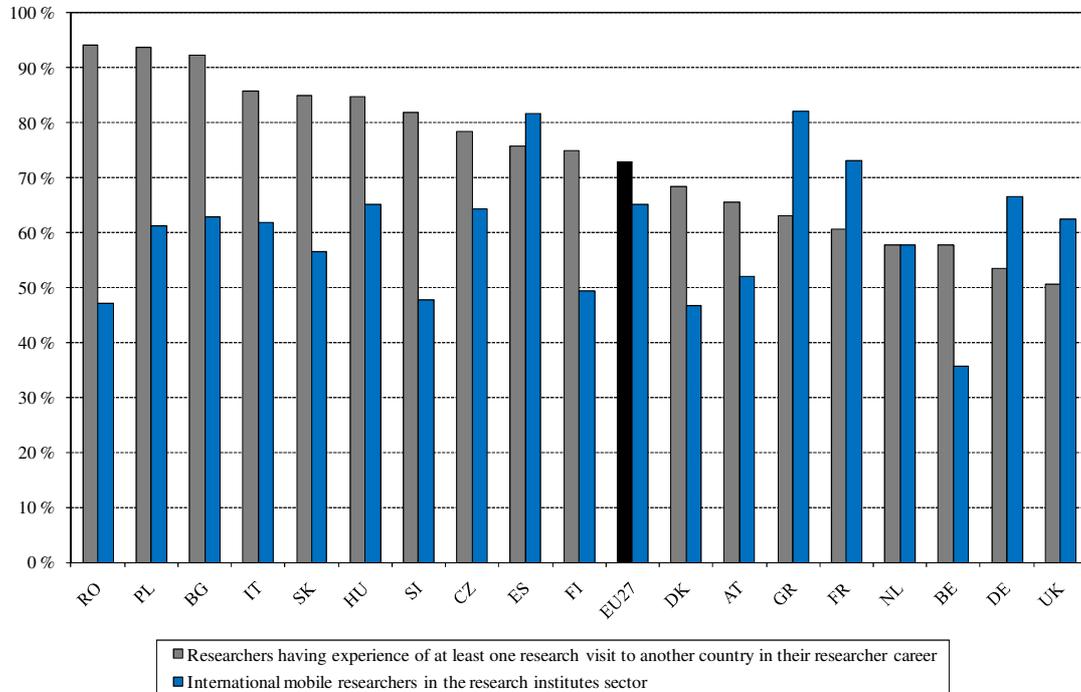
Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), (ii) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), and (iii) "Did any of these instances of international mobility involve a research visit to another country without a change of employer?" (Question 55).

2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 31: Shares of researchers in the research institutes sector in EU27 having experience of at least one research visit to another country in their researcher career by country of affiliation (gray columns; and black column for the total) among all internationally mobile researchers in that country. These shares are compared with the shares of internationally mobile researchers among all researchers in the research institutes sector in EU27 (blue columns)⁶. n=3,285.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 55): "Did any of these instances of international mobility involve a research visit to another country without a change of employer?" (see Annex 2).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation.

In Table 7 we present the shares of all respondents who have experienced at least one move to a new employer in another country, and the shares of all respondents who have experienced at least one research visit to another country at least once during the course of their research career, by country of affiliation. These shares are compared with the shares of internationally mobile researchers amongst all respondents in the research institutes sector by country of affiliation. The third column in Table 7 shows the number of respondents having experience of at least one move to a new employer in another country *in per cent of all respondents* by country of affiliation. The fourth column shows the number of respondents having experience of at least one research visit to another country *in per cent of all respondents* by country of affiliation. The fifth column shows the

⁶ Note that the gray columns (black column for the total) in the figure show the number of respondents having experience of at least one research visit to another country in per cent of internationally mobile respondents in each EU27 countries, while the blue columns show the number of internationally mobile respondents in per cent of all respondents in each EU27 countries.

number of internationally mobile respondents *in per cent of all respondents* by country of affiliation.

Table 7: Shares of researchers in the research institutes sector in EU27 having at least once in their careers experienced a move to a new employer in another country, and shares of researchers having at least once in their careers experienced at least one research visit to another country, by country of affiliation. Shares among all respondents. These shares are compared with the shares of internationally mobile researchers in the research institutes sector in EU27 among all respondents. n=5,049.

Country	Acronym	Move to a new employer in another country	Research visit to another country	Share of internationally mobile researchers
Austria	AT	40	34	52
Belgium	BE	26	21	36
Bulgaria	BG	19	58	63
Czech Republic	CZ	36	50	64
Denmark	DK	21	32	47
Germany	DE	53	36	66
Greece	GR	43	52	82
Spain	ES	49	62	82
France	FR	53	44	73
Italy	IT	19	53	62
Hungary	HU	32	55	65
Netherlands	NL	42	33	58
Poland	PL	34	57	61
Romania	RO	10	44	47
Slovenia	SI	16	39	48
Slovakia	SK	23	48	56
Finland	FI	20	37	49
United Kingdom	UK	50	32	62
Total	EU27	37	47	65

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as a previously "internationally mobile" researcher.)" (Question 53), (ii) "Did any of these instances of international mobility involve a move to a new employer in another country?" (Question 55), and (iii) "Did any of these instances of international mobility involve a research visit to another country without a change of employer?" (Question 55).

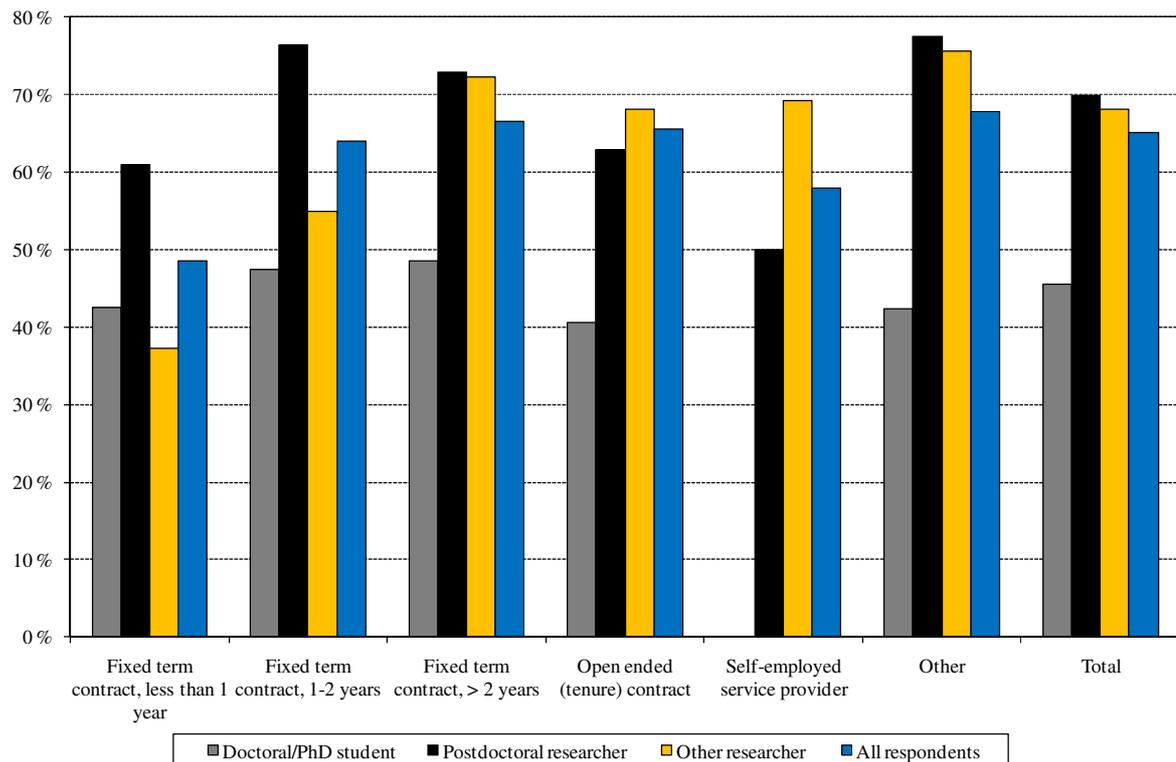
2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.

4) In the table we measure the share of EU27 researchers by country of affiliation.

Figure 32 shows that the “other researchers” category (68%), together with that of fixed term contracts of more than 2 years (67%) and that of open-ended contracts (66%), have the highest shares of internationally mobile respondents. The share is lowest amongst respondents with a fixed term contract of less than 1 year (49%). Furthermore, doctoral/PhD students with an open-ended contract constitute a much lower share of internationally mobile researchers (41%) than respondents in the “other researcher” category (68%) as well as postdoctoral researchers (63%).

Figure 32: Shares of international mobile researchers in the research institutes sector in EU27 by current status as a researcher and by employment contract status. $n=5,047$.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) “Which of the following categories do you consider best describes your current status as a researcher?” (Question 34), (ii) “What is your employment contract status?” (Question 41), and (iii) “In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as a previously “internationally mobile” researcher.)” (Question 53).

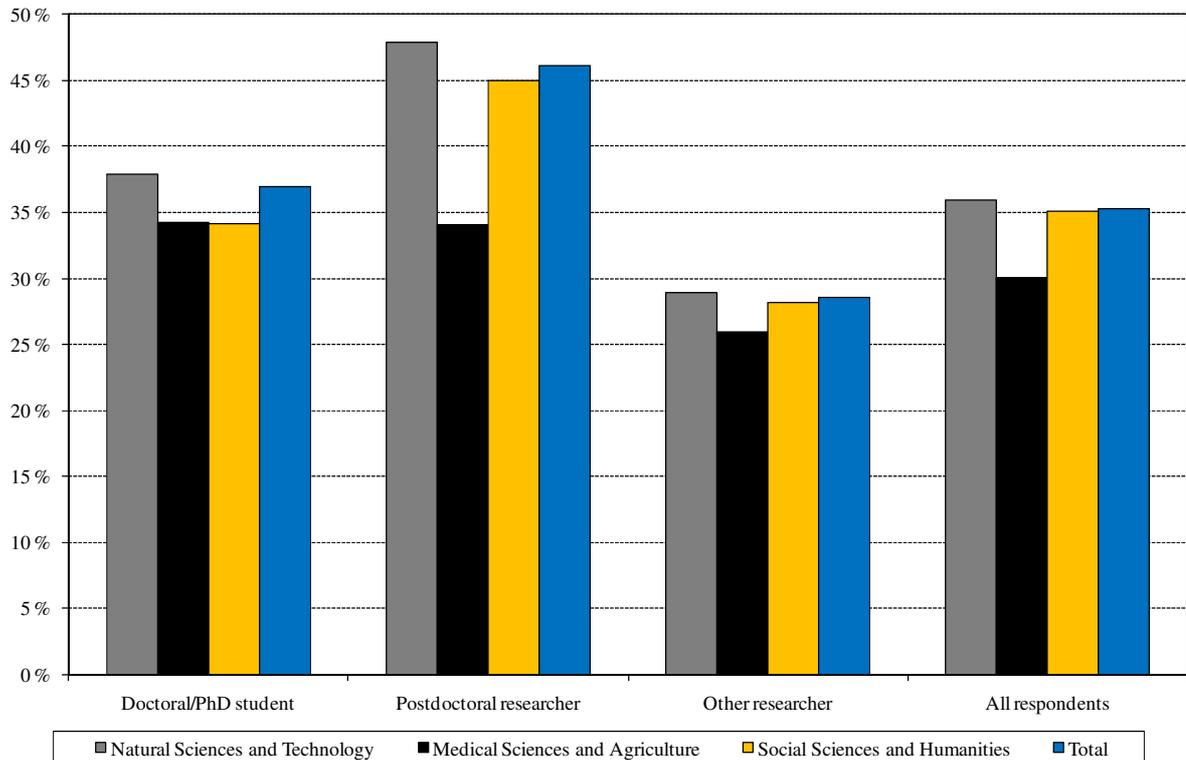
2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

6.2.2 International mobility during the last three years

Figure 23 focuses on international mobility of researchers during their entire research careers, whilst Figure 33 looks at mobility during the last three years. Figure 33 shows that 35 per cent of the respondents in the research institutes sector have been internationally mobile over the last three years. We find that postdoctoral researchers have been the most internationally mobile over the last three years (46%), whilst respondents in the “other researcher” category have been least likely to be mobile (29%). Moreover, 37 per cent of doctoral/PhD students have been internationally mobile over the last three years. The Medical Sciences

and Agriculture have the lowest share of internationally mobile respondents for the EU27 as a whole (30%), whilst there are small differences in international mobility between those in the Natural Sciences and Technology (36%) and those in the Social Sciences and Humanities (35%).

Figure 33: Shares of researchers who have been internationally mobile the last three years by field of education and by current status as a researcher. Shares among all researchers in the research institutes sector in EU27. n=5,049.



Source: The Mobility Survey of the Research Institutes Sector.

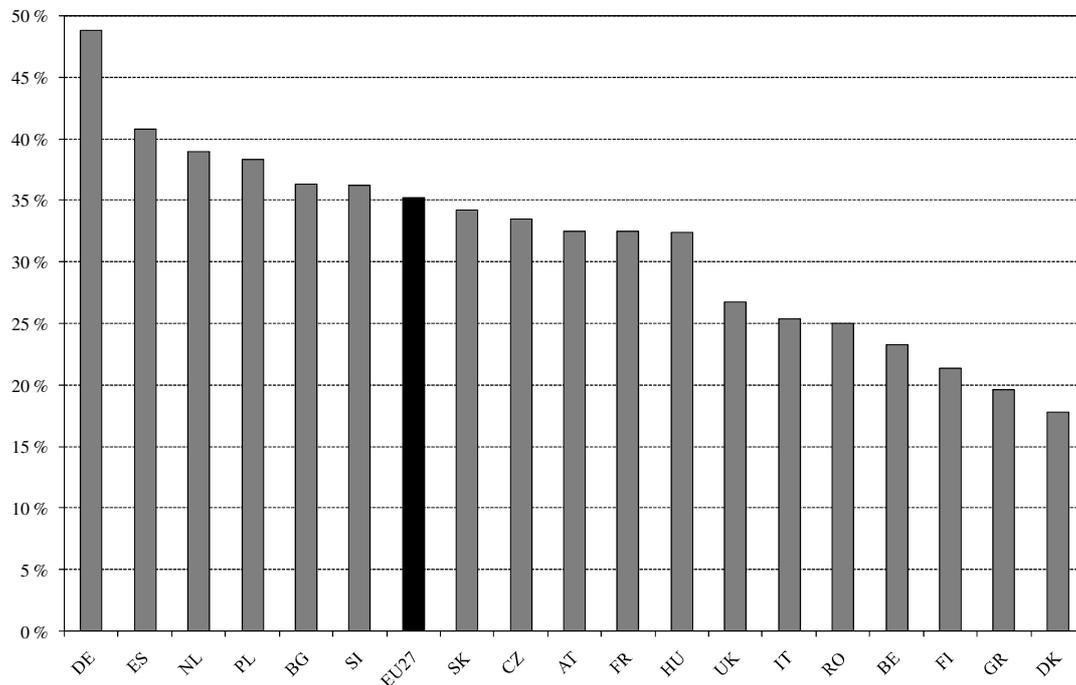
Notes:

1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), (ii) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), and (iii) "Have you been internationally mobile in the last three years?" (Question 56).

2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

As Figure 34 illustrates, respondents in the research institutes sector from Germany (49%) and Spain (41%) are most likely to have been internationally mobile during the last three years, whilst those from Denmark (18%), Greece (20%) and Finland (21%) are least likely to have been. Table 8 shows the share of researchers who have been internationally mobile over the last three years among all respondents, by country of affiliation and by field of education.

Figure 34: Shares of researchers who have been internationally mobile the last three years among all researchers in the research institutes sector in EU27 by country of affiliation. Shares among all researchers in the research institutes sector in EU27. n=5,049.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following question in the Mobility Questionnaire of the Research Institutes Sector (Question 56): "Have you been internationally mobile in the last three years?" (see Annex 2).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation.

Table 8: Shares of researchers who have been internationally mobile the last three years among all researchers in the research institutes sector in EU27 by country of affiliation and by field of education. Shares among all researchers in the research institutes sector in EU27. n=5,049.

Country	Acronym	Natural Sciences and Technology	Medical Sciences and Agriculture	Social Sciences and Humanities	Total
Austria	AT	33	0	34	33
Belgium	BE	25	9	40	23
Bulgaria	BG	37	53	31	36
Czech Republic	CZ	34	30	28	34
Denmark	DK	20	20	10	18
Germany	DE	49	46	50	49
Greece	GR	19	25	20	20
Spain	ES	41	29	55	41

France	FR	33	22	33	32
Italy	IT	24	34	25	25
Hungary	HU	31	80	31	32
Netherlands	NL	44	67	25	39
Poland	PL	42	24	20	38
Romania	RO	26	0	25	25
Slovenia	SI	39	0	35	36
Slovakia	SK	34	40	35	34
Finland	FI	18	22	38	21
United Kingdom	UK	27	18	32	27
Total	EU27	36	30	35	35

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), and (ii) "Have you been internationally mobile in the last three years?" (Question 56).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.

4) In the table we measure the share of EU27 researchers by country of affiliation, and by field of education.

Figure 35 to Figure 39 compare international mobility across the entire research career with recent mobility (i.e. in the last three years) by field of education, current status as a researcher, country of affiliation, employment contract status and gender showing all internationally mobile researchers as a percentage share of all respondents, and all researchers who answered that they have been internationally mobile over the last three years as a percentage share of all respondents.

Figure 35 shows that respondents who gained their highest educational attainment in the Social Sciences and Humanities have the lowest share of internationally mobile researchers as a proportion of all respondents (57%), while those in the Medical Sciences and Agriculture have the lowest share of researchers who answered that they have been internationally mobile over the last three years as a proportion of all respondents (30%). Those in the Natural Sciences and Technology have the highest share for both groups (67% and 36%, respectively).

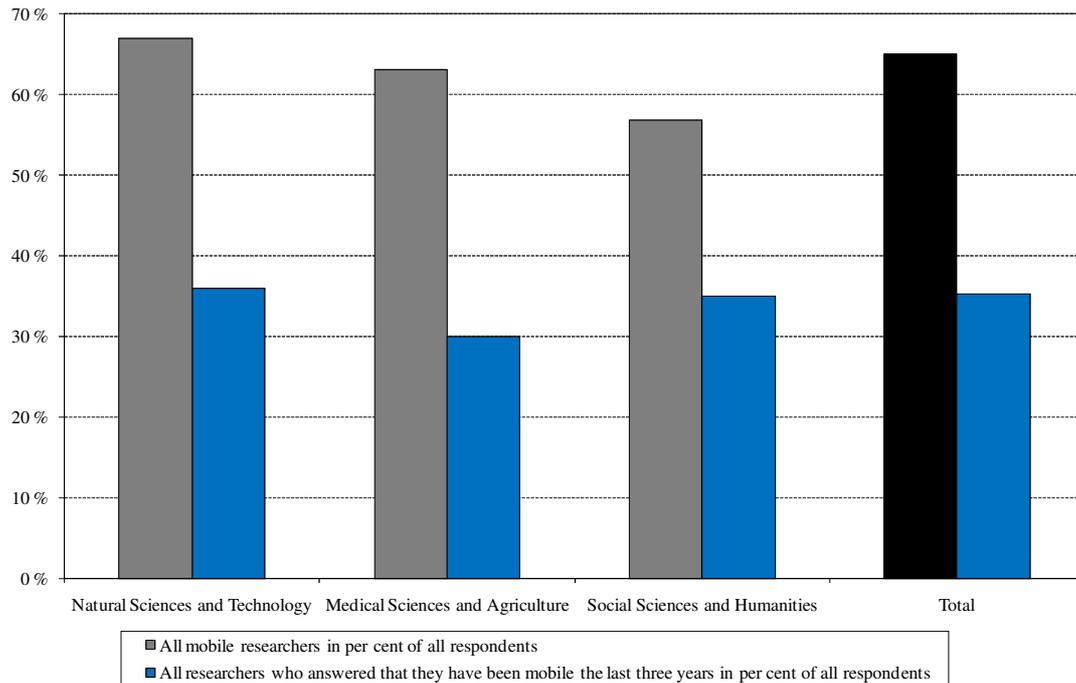
In the beginning of Section 6.2.2 we noted that postdoctoral researchers have the highest share of internationally mobile researchers. This is also the case regarding recent incidences of mobility. Postdoctoral researchers have the highest share of internationally mobile researchers over the last three years, as is evidently shown in Figure 36. As expected, the differences between recent and overall mobility shares are smaller for doctoral/PhD students than for the two other researcher categories (i.e. postdoctoral and "other").

Figure 37 shows that countries with high shares of respondents who have been internationally mobile during their research career as a whole, do not necessarily have high shares of respondents who have been mobile in the last three years. For example, the share of all internationally mobile researchers for Greece (82%) is much higher than the corresponding share for the EU27 as a whole (65%), but the share of internationally mobile researchers over the last three years for Greece (20%) is much lower than the corresponding share for the EU27 as a whole (35%).

We also find (Figure 38) that the highest number of those who have been internationally mobile over the last three years as a percentage of all respondents is among researchers with a fixed term contract of 1-2 years (49%), while those who placed themselves in the category “self-employed service provider or other” have the lowest share (11%).

Figure 39 shows that males (36%) and females (35%) have about the same share of respondents who have been internationally mobile over the last three years as a percentage of all respondents.

Figure 35: Shares of researchers in the research institutes sector in EU27 by mobility status and by field of education. n=5,049.



Source: The Mobility Survey of the Research Institutes Sector.

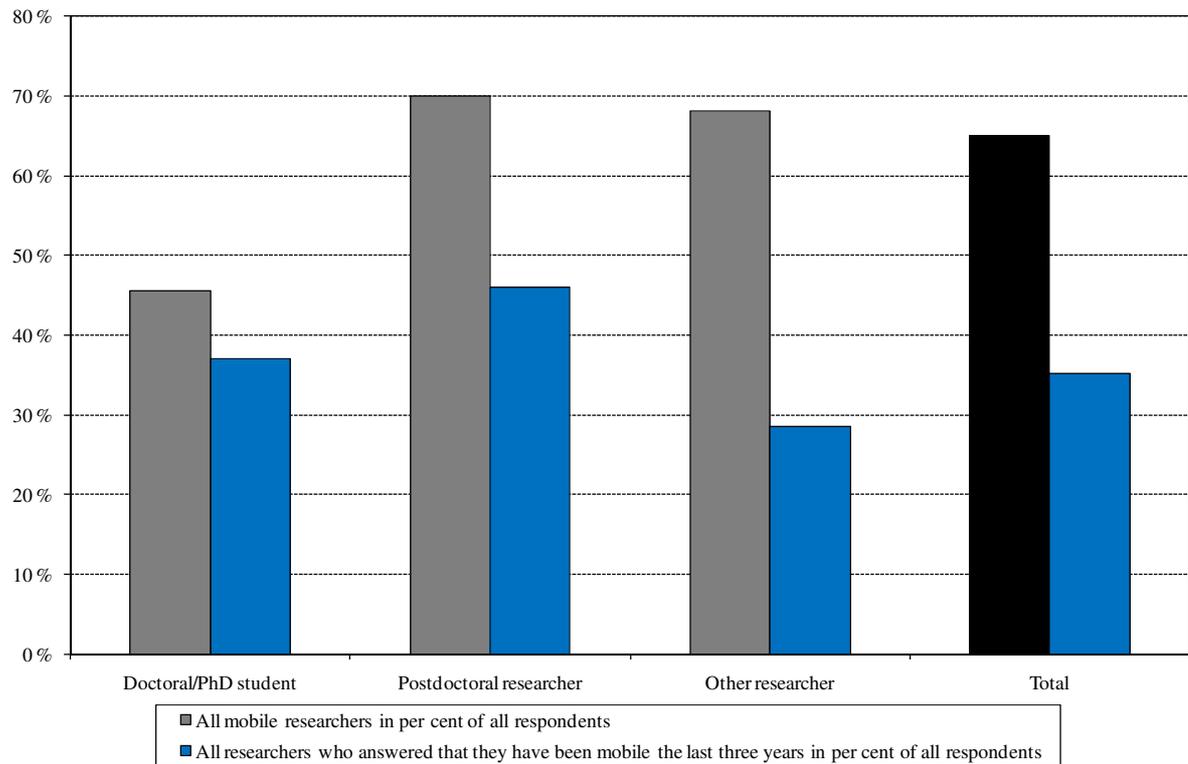
Notes:

1) The figure shows the shares of internationally mobile researchers among all researchers (gray columns; and black column for the total) versus internationally mobile researchers the last three years among all researchers (blue columns).

2) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) “Please indicate in which field of research you have obtained your highest educational attainment” (Question 32), (ii) “In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as a previously “internationally mobile” researcher.)” (Question 53), and (iii) “Have you been internationally mobile in the last three years?” (Question 56).

2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 36: Shares of researchers in the research institutes sector in EU27 by mobility status and by current status as a researcher. n=5,049.



Source: The Mobility Survey of the Research Institutes Sector.

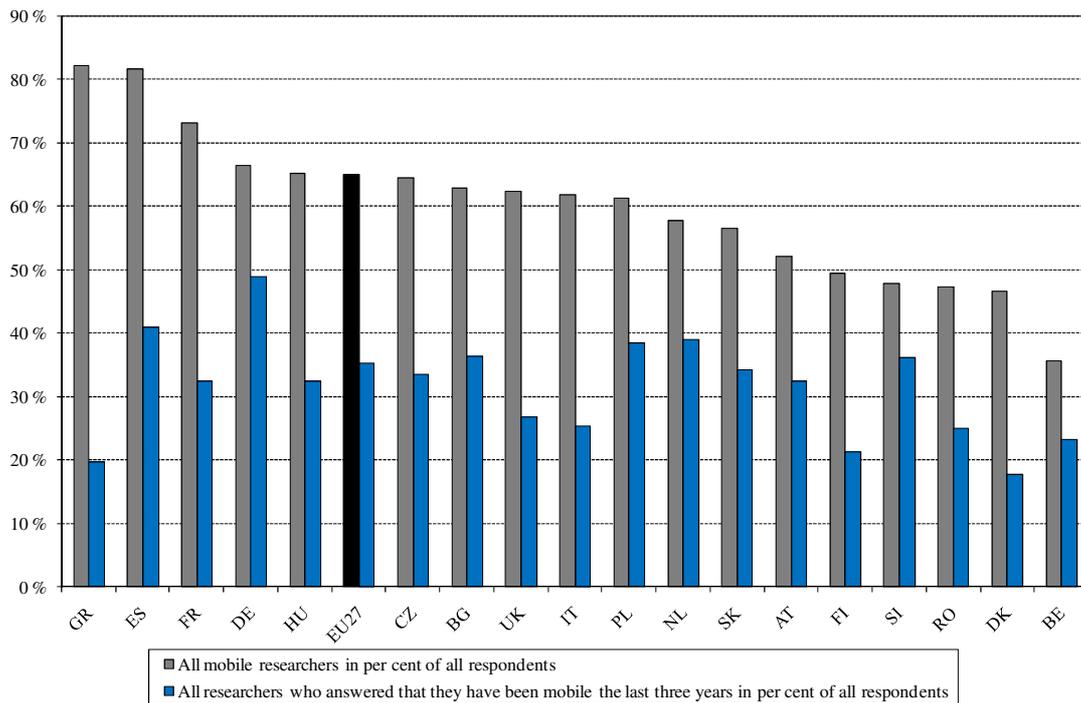
Notes:

1) The figure shows the shares of internationally mobile researchers among all researchers (gray columns; and black column for the total) versus internationally mobile researchers the last three years among all researchers (blue columns).

2) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), (ii) "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as a previously "internationally mobile" researcher.)" (Question 53), and (iii) "Have you been internationally mobile in the last three years?" (Question 56).

2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 37: Shares of researchers in the research institutes sector in EU27 by mobility status and by country of affiliation. n=5,049.

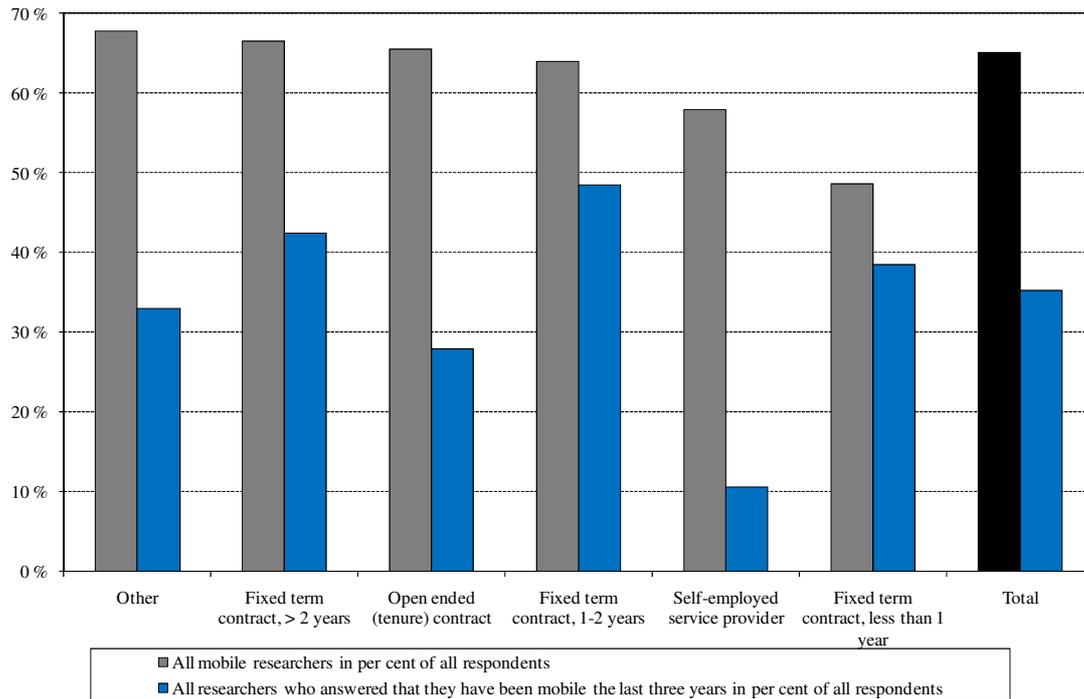


Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure shows the shares of internationally mobile researchers among all researchers (gray columns; and black column for the total) versus internationally mobile researchers the last three years among all researchers (blue columns).
- 2) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as a previously "internationally mobile" researcher.)" (Question 53), and (ii) "Have you been internationally mobile in the last three years?" (Question 56).
- 3) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 4) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 5) In the figure we measure the share of EU27 researchers by country of affiliation.

Figure 38: Shares of researchers in the research institutes sector in EU27 by mobility status and by employment contract status. n=5,047.



Source: The Mobility Survey of the Research Institutes Sector.

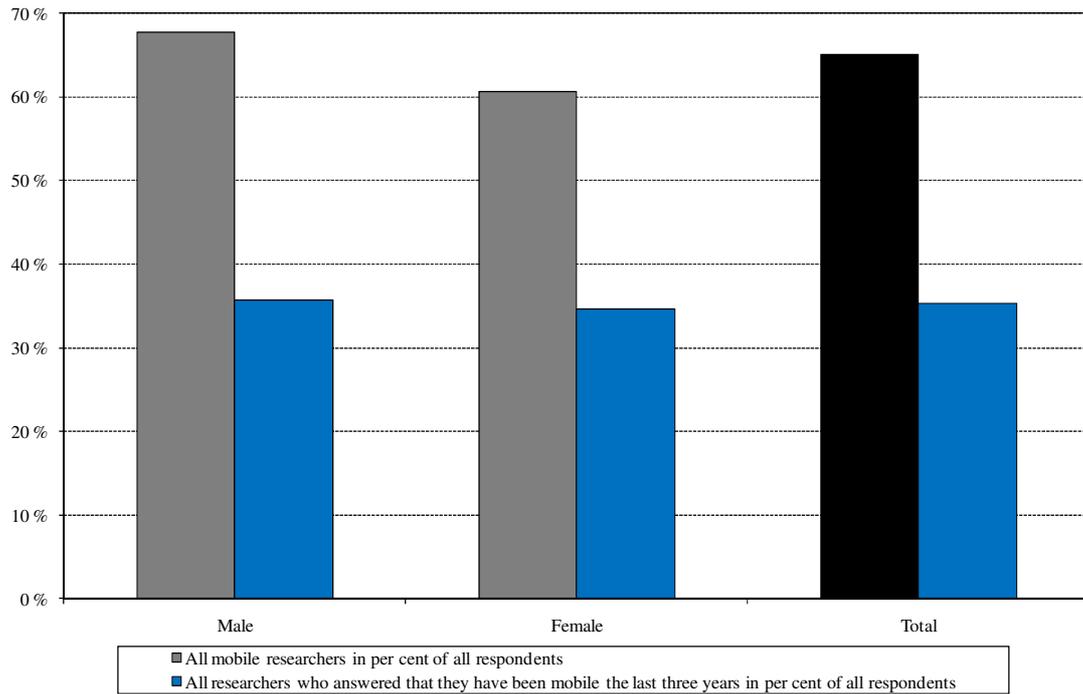
Notes:

1) The figure shows the shares of internationally mobile researchers among all researchers (gray columns; and black column for the total) versus internationally mobile researchers the last three years among all researchers (blue columns).

2) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "What is your employment contract status?" (Question 41), (ii) "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as a previously "internationally mobile" researcher.)" (Question 53), and (iii) "Have you been internationally mobile in the last three years?" (Question 56).

3) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 39: Shares of researchers in the research institutes sector in EU27 by mobility status and by gender. n=5,049.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

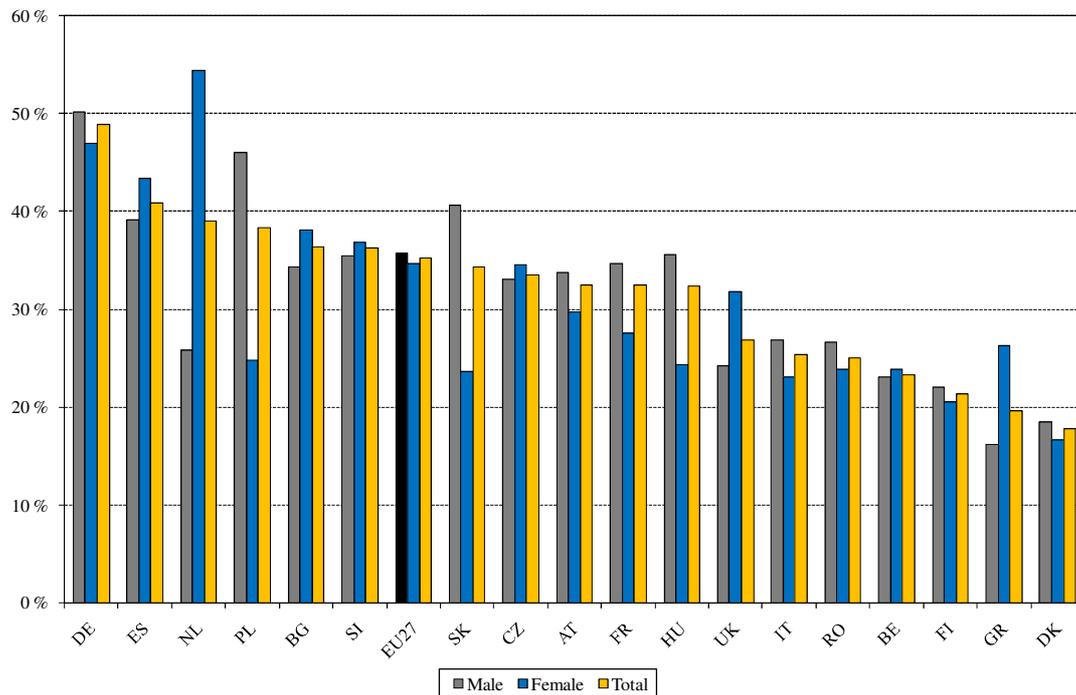
1) The figure shows the shares of internationally mobile researchers among all researchers (gray columns; and black column for the total) versus internationally mobile researchers the last three years among all researchers (blue columns).

2) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "What is your gender?" (Question 8), (ii) "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as a previously "internationally mobile" researcher.)" (Question 53), and (iii) "Have you been internationally mobile in the last three years?" (Question 56).

3) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 26 showed the shares of internationally mobile respondents over the entire research career both by gender and country of affiliation. Figure 40 focuses on the shares of recent mobility (i.e. over the last three years). We see that males have been more likely to be internationally mobile during the last three years than females in more than half of the EU27 countries, whilst the opposite situation holds in the remaining countries.

Figure 40: Shares of researchers who have been internationally mobile the last three years by gender and by country of affiliation. Shares among all researchers in the research institutes sector in EU27. $n=5,049$.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

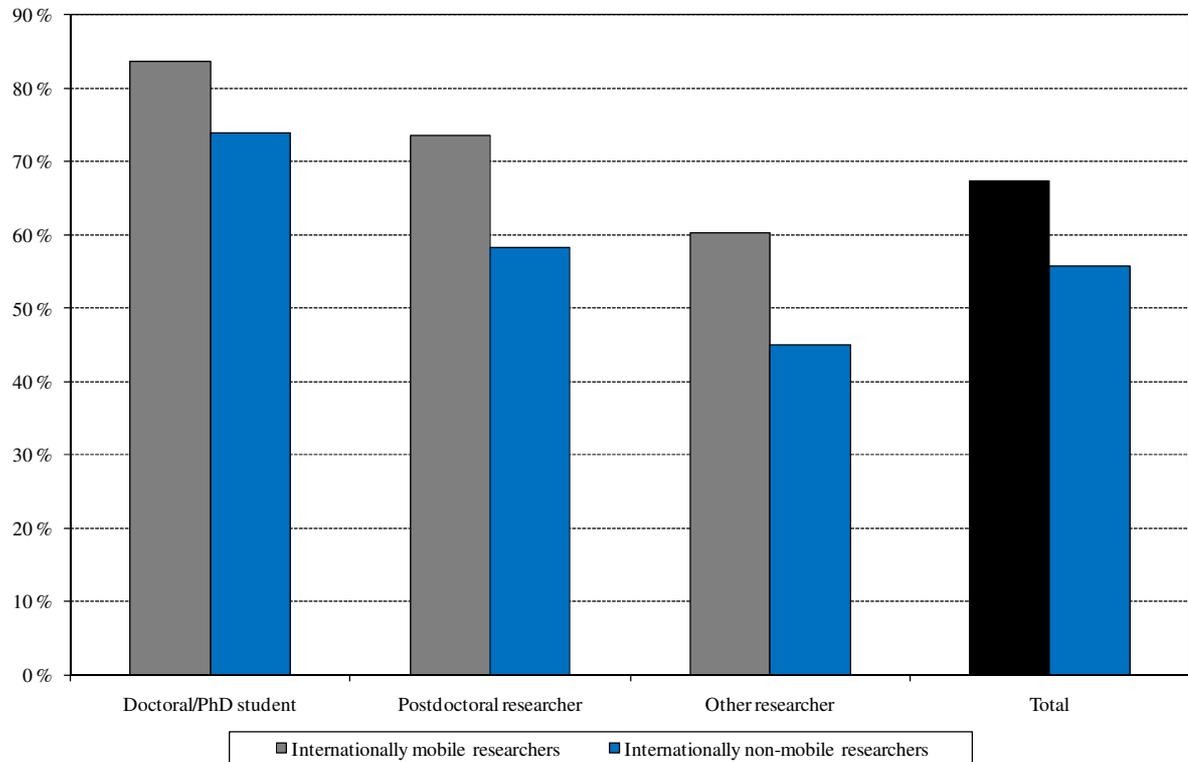
- 1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "What is your gender?" (Question 8), and (ii) "Have you been internationally mobile in the last three years?" (Question 56).
- 2) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the figure we measure the share of EU27 researchers by country of affiliation.

6.3 Future mobility plans

We see from Figure 41 that, of all our previously internationally mobile researchers, 67 per cent have actively considered further international mobility in the future, whilst the corresponding share amongst those who have not previously been mobile is 56 per cent. The doctoral/PhD students category has the highest share of those who have actively considered being mobile in the future both among previously mobile researchers (84%) and those without previous experience of international mobility (74%). Researchers in the "other researcher" category have the lowest shares among both internationally mobile researchers (60%) and non-mobile researchers (45%).

Figure 42 shows that previously mobile respondents in the Social Sciences and Humanities are most likely to have actively considered being internationally mobile in the future (76%), whilst the not previously mobile respondents in the Social Sciences and Humanities have the lowest share (50%). Previously mobile respondents in the Natural Sciences and Technology have the lowest share among previously internationally mobile researchers (66%), whilst not previously mobile respondents in the Medical Sciences and Agriculture (58%) and in the Natural Sciences and Technology (57%) are most likely of those who have not previously been mobile to have actively considered mobility in the future.

Figure 41: Shares of researchers in the research institutes sector in EU27 who have actively considered being internationally mobile in the future by mobility status (i.e. whether they have been internationally mobile at least once in their researcher career or not) and by current status as a researcher. n=3,271 for internationally mobile researchers (gray columns; and black column for the total), and n=1,759 for internationally non-mobile researchers (blue columns).



Source: The Mobility Survey of the Research Institutes Sector.

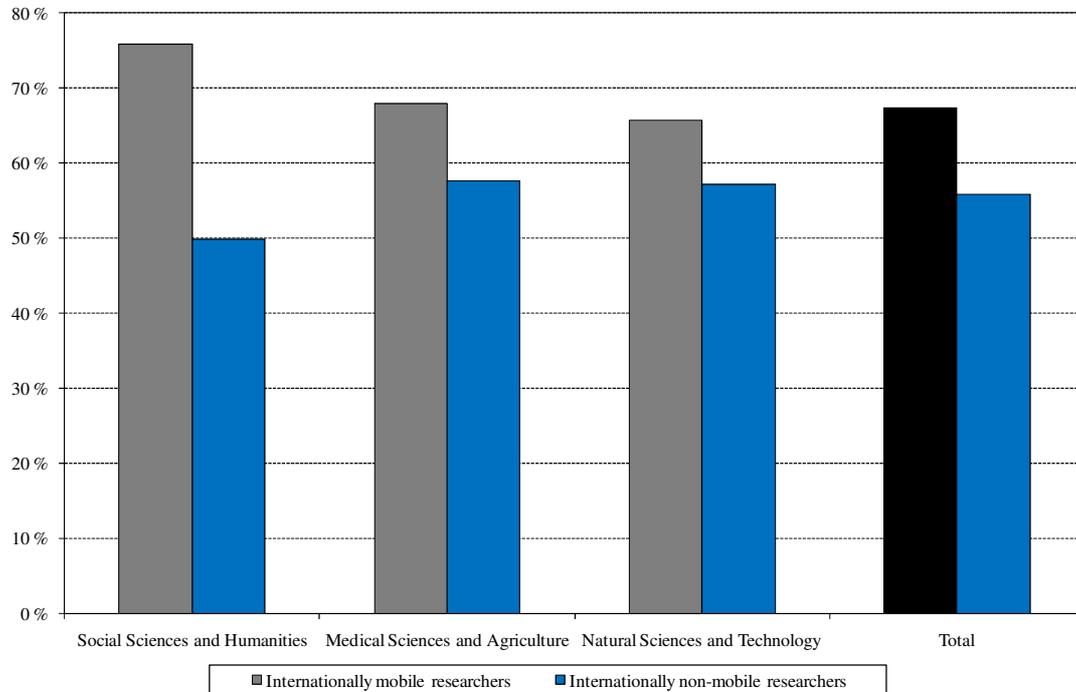
Notes:

1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), (ii) "Have you actively considered being internationally mobile in the future?" (Question 65), and (iii) "Have you actively considered being internationally mobile in the future?" (Question 75).

2) For this project, a person is considered as an "internationally mobile" researcher if (s)he answered yes to the following question: "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more?" (Question 53).

3) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 42: Shares of researchers in the research institutes sector in EU27 who have actively considered being internationally mobile in the future by mobility status (i.e. whether they have been internationally mobile at least once in their researcher career or not) and by field of education. $n=3,271$ for internationally mobile researchers (gray columns; and black column for the total). $n=1,759$ for internationally non-mobile researchers (blue columns).



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

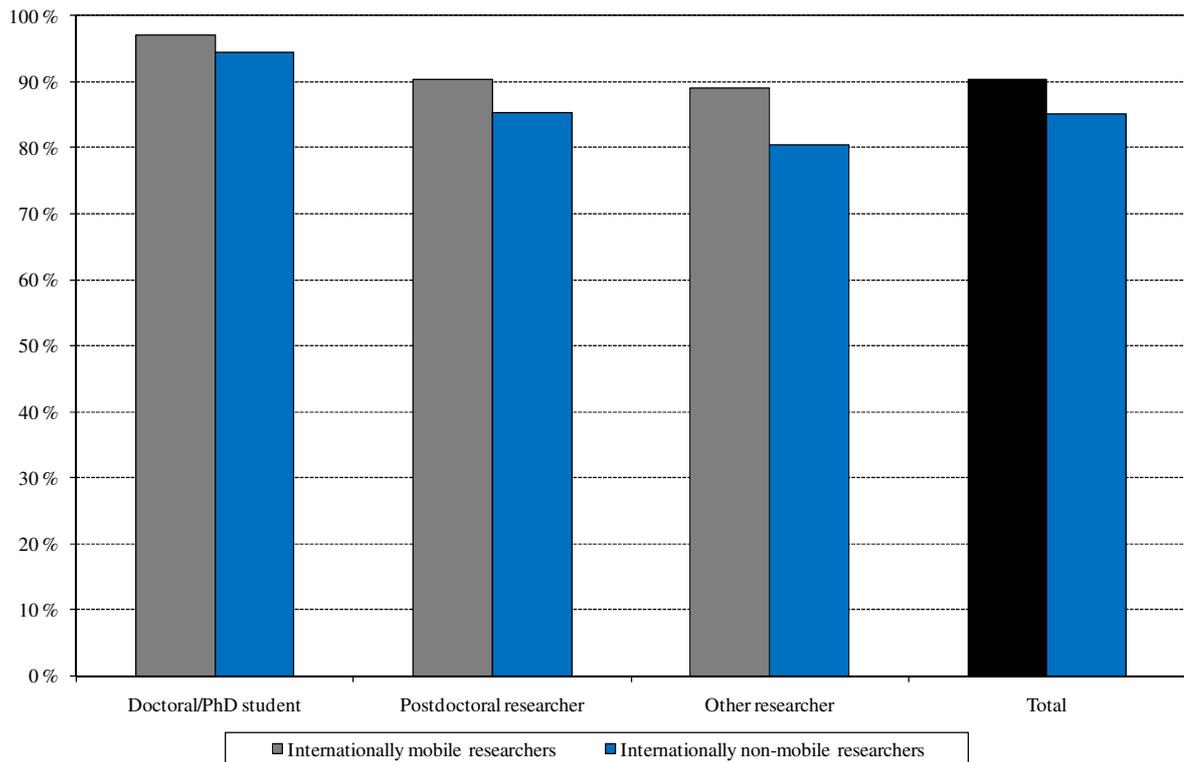
- 1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), (ii) "Have you actively considered being internationally mobile in the future?" (Question 65), and (iii) "Have you actively considered being internationally mobile in the future?" (Question 75).
- 2) For this project, a person is considered as an "internationally mobile" researcher if (s)he answered yes to the following question: "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more?" (Question 53).
- 3) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 43 shows that 85 per cent of all not previously mobile respondents report themselves to be open to the possibility of being mobile in the future. Among those who have been internationally mobile in the past, fully 90 per cent are open to the possibility of being mobile in the future. Those in the doctoral/PhD student category are most likely to be open to the possibility of being mobile in the future (both previously mobile researchers (97%) and not previously mobile researchers (94%)). Respondents who placed themselves in the "other researcher" category have the lowest shares amongst both previously mobile (89%) and not previously mobile researchers (80%) who are open to the possibility of being mobile in the future, although there are small differences between this group and that of postdoctoral researchers (90%) amongst all previously internationally mobile researchers.

Respondents in the Social Sciences and Humanities have the highest share of those who are open to the possibility of being mobile in the future amongst both

previously internationally mobile researchers (95%) and amongst those not previously mobile (86%). This is seen in Figure 44. There is little difference by broad field of education and indeed those in the Medical Sciences and Agriculture and in the Natural Sciences and Technology have a similar share of all mobile researchers who are open to the possibility of being mobile in the future (both 90%).

Figure 43: Shares of researchers in the research institutes sector in EU27 who are open to the possibility of being mobile in the future by mobility status (i.e. whether they have been internationally mobile at least once in their researcher career or not) and by current status as a researcher. *n*=3,271 for internationally mobile researchers (gray columns; and black column for the total). *n*=1,759 for internationally non-mobile researchers (blue columns).



Source: The Mobility Survey of the Research Institutes Sector.

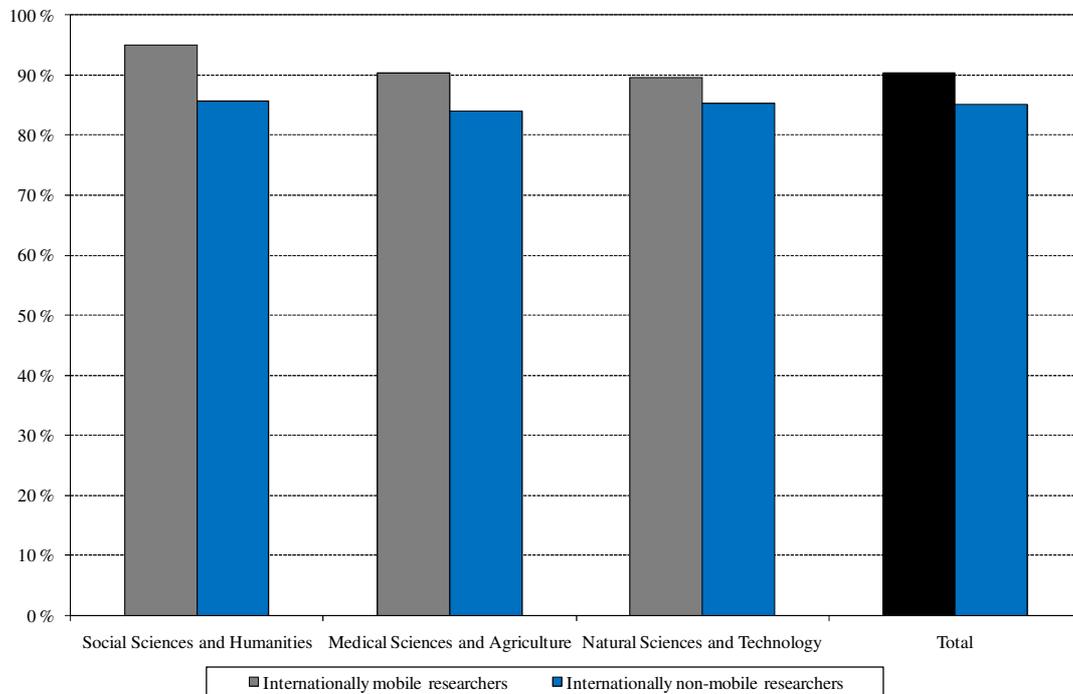
Notes:

1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), (ii) "Are you open to the possibility of being mobile in the future?" (Question 66), and (iii) "Are you open to the possibility of being mobile in the future?" (Question 76).

2) For this project, a person is considered as an "internationally mobile" researcher if (s)he answered yes to the following question: "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more?" (Question 53).

3) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 44: Shares of researchers in the research institutes sector in EU27 who are open to the possibility of being mobile in the future by mobility status (i.e. whether they have been internationally mobile at least once in their researcher career or not) and by field of education. *n*=3,271 for internationally mobile researchers (gray columns; and black column for the total). *n*=1,759 for internationally non-mobile researchers (blue columns).



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), (ii) "Are you open to the possibility of being mobile in the future?" (Question 66), and (iii) "Are you open to the possibility of being mobile in the future?" (Question 76).
- 2) For this project, a person is considered as an "internationally mobile" researcher if (s)he answered yes to the following question: "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more?" (Question 53).
- 3) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

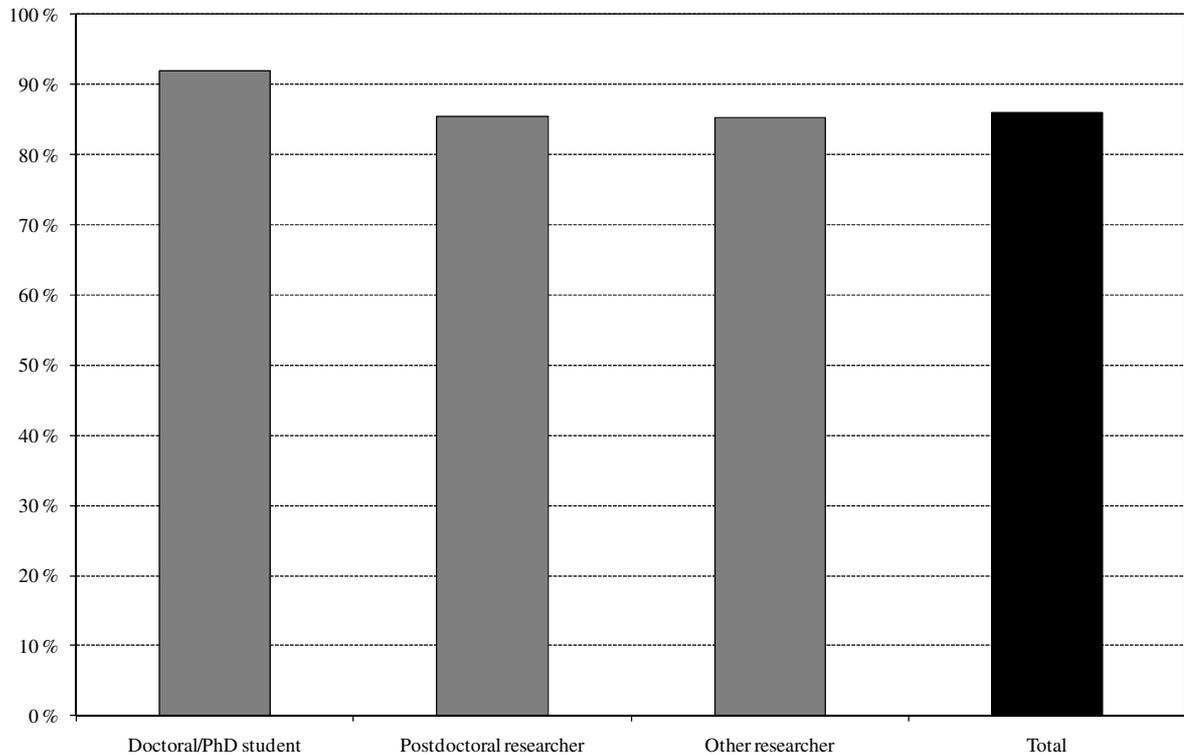
6.4 The effects of international mobility on future career progression

Figure 45 shows that 86 per cent of the previously internationally mobile respondents believe that their past mobility has had positive or significant positive impacts on their career progression (see Table 9 for an overview of the overall distribution). This share is highest for those in the doctoral/PhD student category (92%). For both postdoctoral researchers and researchers who placed themselves in the "other researcher" category this share is still very high at 85 per cent.

If we compare the three broad fields of education, there is virtually no difference in the share of previously internationally mobile researchers who believe that mobility has had positive or significant positive impacts on their career progres-

sion. This is seen in Figure 46 (see Table 10 for an overview of the overall distribution). The shares vary between 85 per cent (for those in the Medical Sciences and Agriculture) and 86 per cent (for those in the Natural Sciences and Technology and in the Social Sciences and Humanities).

Figure 45: Shares of researchers in the research institutes sector in EU27 who answer that mobility has had positive or significant positive impacts on their career progression by current status as a researcher. Shares among all internationally mobile researchers. n=3,271.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), and (ii) "Overall, what effect has your time as a mobile researcher had on your career progression?" (Question 64).
- 2) For this project, a person is considered as an "internationally mobile" researcher if (s)he answered yes to the following question: "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more?" (Question 53).
- 3) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Table 9: Shares of researchers in the research institutes sector in EU27 who answer that mobility has had significant negative, negative, positive, significant positive impacts or no impact on their career progression by current status as a researcher. Shares among all internationally mobile researchers. n=3,271.

Current status as a researcher	Significant negative impacts	Negative impacts	No impact	Positive impacts	Significant positive impacts	Total
Doctoral/PhD student	1	1	6	45	47	100
Postdoctoral researcher	2	3	10	42	44	100
Other researcher	2	2	11	37	49	100
Total	2	2	10	39	47	100

Source: The Mobility Survey of the Research Institutes Sector.

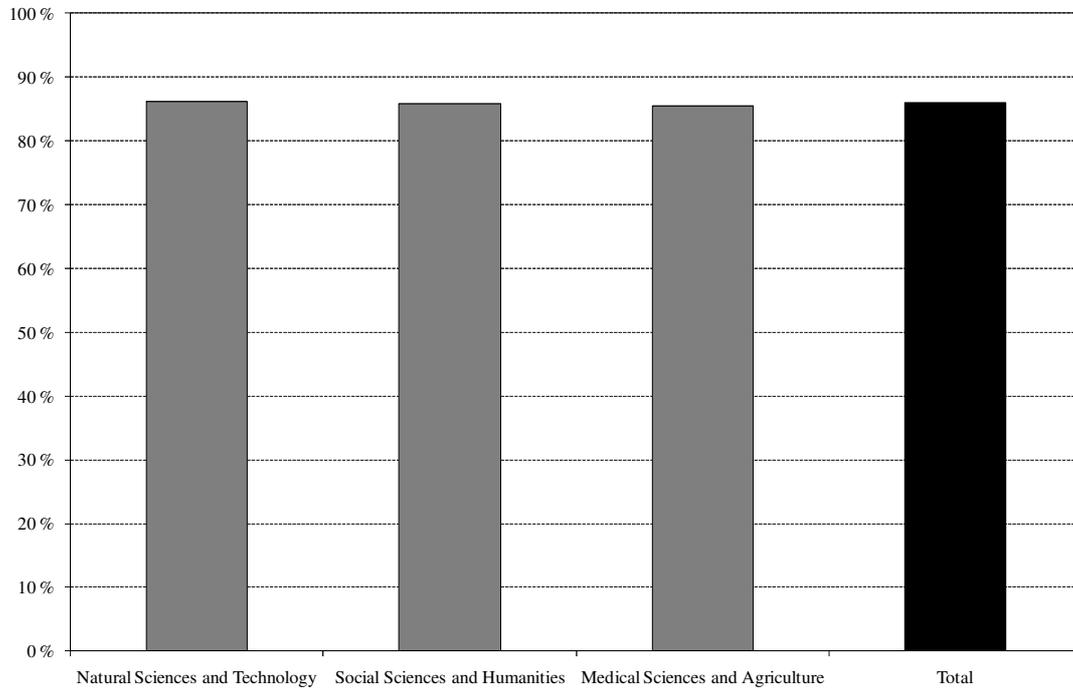
Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), and (ii) "Overall, what effect has your time as a mobile researcher had on your career progression?" (Question 64).

2) For this project, a person is considered as an "internationally mobile" researcher if (s)he answered yes to the following question: "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more?" (Question 53).

3) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 46: Shares of researchers in the research institutes sector in EU27 who answer that mobility has had positive or significant positive impacts on their career progression by field of education. Shares among all internationally mobile researchers. n=3,271.



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), and (ii) "Overall, what effect has your time as a mobile researcher had on your career progression?" (Question 64).
- 2) For this project, a person is considered as an "internationally mobile" researcher if (s)he answered yes to the following question: "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more?" (Question 53).
- 3) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Table 10: Shares of researchers in the research institutes sector in EU27 who answer that mobility has had significant negative, negative, positive, significant positive impacts or no impact on their career progression by field of education. Shares among all internationally mobile researchers. n=3,271.

Field of education	Significant negative impacts	Negative impacts	No impact	Positive impacts	Significant positive impacts	Total
Natural Sciences and Technology	2	2	10	39	47	100
Medical Sciences and Agriculture	1	3	11	41	45	100
Social Sciences and Humanities	1	3	10	37	48	100
Total	2	2	10	39	47	100

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), and (ii) "Overall, what effect has your time as a mobile researcher had on your career progression?" (Question 64).

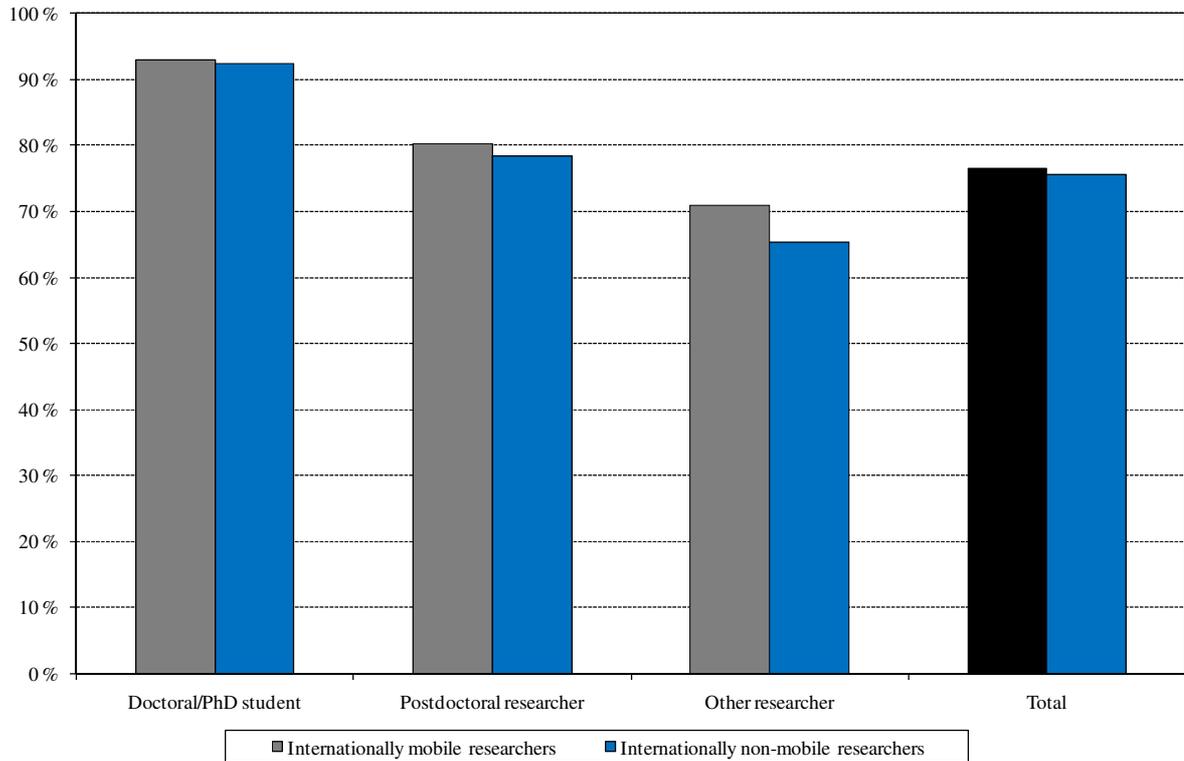
2) For this project, a person is considered as an "internationally mobile" researcher if (s)he answered yes to the following question: "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more?" (Question 53).

3) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 47 (see Table 11 for an overview of the overall distribution) shows that 77 per cent of previously internationally mobile respondents believe that further international mobility would have positive or significantly positive impacts on their future career progression. This share is highest for those in the doctoral/PhD student category (93%), and lowest for those respondents who placed themselves in the “other researcher” category (71%). Likewise, Figure 48 (see Table 12 for an overview of the overall distribution) shows that respondents in the Social Sciences and Humanities have the highest share (80%), while those in the Medical Sciences and Agriculture (75%) and in the Natural Sciences and Technology (76%) have the lowest shares.

Figure 47 and Figure 48 also show that 76 per cent of the internationally non-mobile researchers answer that they believe that international mobility would have positive or significantly positive impacts on their future career progression. Those in the doctoral/PhD student category have the highest share (92%), whilst respondents in the “other researcher” category have the lowest share (65%). Moreover, this share is highest for respondents in the Medical Sciences and Agriculture (79%), and lowest for those in the two other broad fields of education (both 75%).

Figure 47: Shares of researchers in the research institutes sector in EU27 who answer that mobility would have positive or significant positive impacts on their future career progression by mobility status (i.e. whether they have been internationally mobile at least once in their researcher career or not) and by current status as a researcher. *n*=3,271 for internationally mobile researchers (gray columns; and black column for the total). *n*=1,757 for internationally non-mobile researchers (blue columns).



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), (ii) "What effects do you think further international mobility would have on your future career progression?" (Question 69), and (iii) "What effects do you think international mobility would have on your future career progression?" (Question 79).
- 2) For this project, a person is considered as an "internationally mobile" researcher if (s)he answered yes to the following question: "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more?" (Question 53).
- 3) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Table 11: Shares of researchers in the research institutes sector in EU27 who answer that mobility would have significant negative, negative, positive, significant positive impacts or no impact on their future career progression by mobility status (i.e. whether they have been internationally mobile at least once in their researcher career or not) and by current status as a researcher. n=3,271 for internationally mobile researchers, and n=1,757 for internationally non-mobile researchers.

Current status as a researcher	Significant negative impacts	Negative impacts	No impact	Positive impacts	Significant positive impacts	Total
Internationally mobile researchers						
Doctoral/PhD student	0	1	5	51	42	100
Postdoctoral researcher	1	3	15	51	29	100
Other researcher	1	3	25	51	19	100
Total	1	3	20	51	25	100
Internationally non-mobile researchers						
Doctoral/PhD student	0	1	6	46	47	100
Postdoctoral researcher	1	3	18	49	29	100
Other researcher	2	4	28	46	20	100
Total	1	3	20	47	29	100

Source: The Mobility Survey of the Research Institutes Sector.

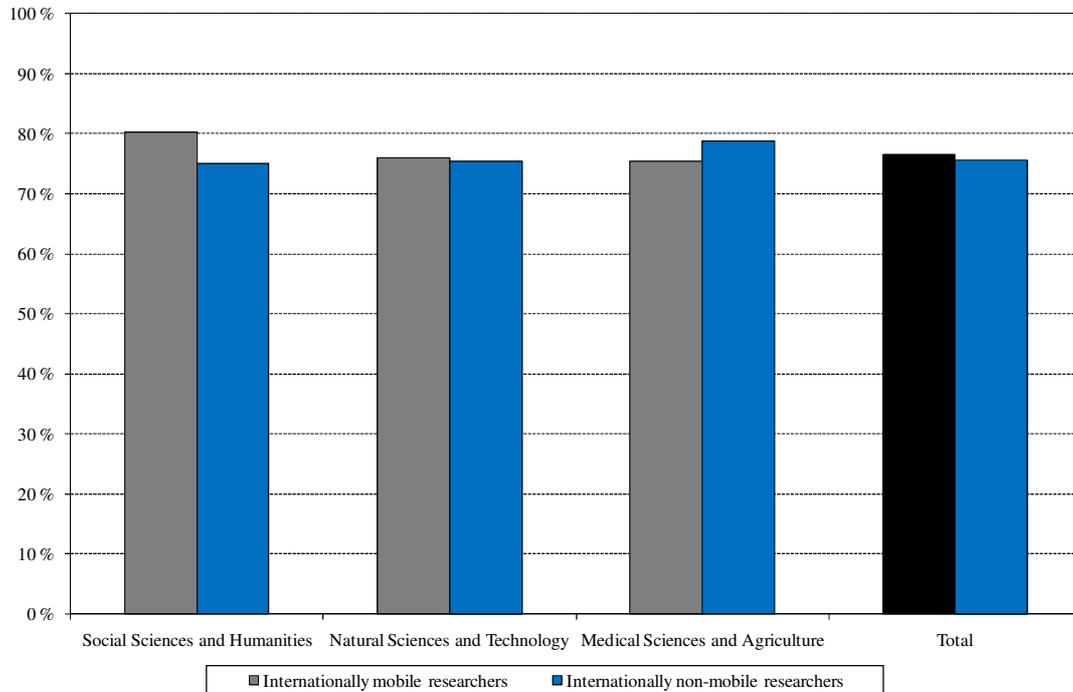
Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), (ii) "What effects do you think further international mobility would have on your future career progression?" (Question 69), and (iii) "What effects do you think international mobility would have on your future career progression?" (Question 79).

2) For this project, a person is considered as an "internationally mobile" researcher if (s)he answered yes to the following question: "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more?" (Question 53).

3) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Figure 48: Shares of researchers in the research institutes sector in EU27 who answer that mobility would have positive or significant positive impacts on their future career progression by mobility status (i.e. whether they have been internationally mobile at least once in their researcher career or not) and by field of education. n=3,271 for internationally mobile researchers (gray columns; and black column for the total). n=1,757 for internationally non-mobile researchers (blue columns).



Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The figure is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), (ii) "What effects do you think further international mobility would have on your future career progression?" (Question 69), and (iii) "What effects do you think international mobility would have on your future career progression?" (Question 79).
- 2) For this project, a person is considered as an "internationally mobile" researcher if (s)he answered yes to the following question: "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more?" (Question 53).
- 3) The figure is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

Table 12: Shares of researchers in the research institutes sector in EU27 who answer that mobility would have significant negative, negative, positive, significant positive impacts or no impact on their future career progression by mobility status (i.e. whether they have been internationally mobile at least once in their researcher career or not) and by field of education. n=3,271 for internationally mobile researchers, and n=1,757 for internationally non-mobile researchers.

Field of education	Significant negative impacts	Negative impacts	No impact	Positive impacts	Significant positive impacts	Total
Internationally mobile researchers						
Natural Sciences and Technology	1	3	20	52	24	100
Medical Sciences and Agriculture	1	3	21	47	28	100
Social Sciences and Humanities	1	2	17	50	30	100
Total	1	3	20	51	25	100
Internationally non-mobile researchers						
Natural Sciences and Technology	2	3	20	46	29	100
Medical Sciences and Agriculture	0	2	19	44	35	100
Social Sciences and Humanities	2	5	19	49	26	100
Total	1	3	20	47	29	100

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), (ii) "What effects do you think further international mobility would have on your future career progression?" (Question 69), and (iii) "What effects do you think international mobility would have on your future career progression?" (Question 79).

2) For this project, a person is considered as an "internationally mobile" researcher if (s)he answered yes to the following question: "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more?" (Question 53).

3) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

6.5 Main findings and conclusions

This chapter presents the main findings from the first systematic study ever on mobility patterns among researchers in the research institutes sector of the European Union.

About 2/3 of our respondents in the non-university research institutes sector have been employed as a researcher in a university or other higher education institution.

On the other hand, 16 per cent of our respondents report that they have been employed as researcher in the private for-profit sector.

We find that *65 per cent of the respondents* in the research institutes sector have been at least once in their *researcher careers* internationally mobile (including international job mobility and international research visits of three months or more). We also find that previous experience of international mobility as a student seems to be a major factor in influencing subsequent mobility during the researcher career.

Respondents in the Social Sciences and Humanities are less mobile than those in the Natural Sciences and Technology and those in the Medical Sciences and Agriculture (see Figure 23).

Research visits are by far the main form of international mobility among the respondents in the research institutes sector (see Figure 30). Cross-country changes of employer are also a surprisingly common phenomenon (see Figure 28). Respondents from United Kingdom and Germany are those who have the highest international job-to-job researcher mobility shares (see Figure 29), but this share is also high in quite a few of EU27 countries⁷.

Female researchers have been relatively less mobile over the course of their research careers than their male colleagues. This is true both in total and within the three broad fields of education (see Figure 24).

35 per cent of all respondents have been internationally mobile the last three years. Postdoctoral researchers have the highest share of those who have been internationally mobile the last three years, while respondents in the “*other researcher*” category have the lowest share. Respondents with a field of education in the Medical Sciences and Agriculture have the lowest share of researchers who have been internationally mobile the last three years, while there are small differences between those in the Natural Sciences and Technology and those in the Social Sciences and Humanities.

We find that 56 per cent of the non-mobile researchers plan to be mobile in the future, and that as much as 85 per cent of the non-mobile researchers are open to the possibility of being mobile in the future. These shares are higher for internationally mobile researchers; 67 per cent plan to be mobile in the future and 90 per cent are open to the possibility of being mobile in the future.

Furthermore, we find that 86 per cent of the internationally mobile researchers answer that their time as a mobile researcher has had positive or significant positive impacts to their career progression. 77 per cent of the internationally mobile researchers answer that they think further international mobility would have positive or significant positive impacts on their future career progression. About the same share of the internationally non-mobile researchers (76 per cent) answer that they think international mobility would have positive or significant positive impacts on their future career progression.

⁷ We remind again that PhD is considered as an integral part of a researcher’s career.

7 RESEARCHER PERCEPTIONS AND EXPERIENCES OF MOBILITY – MOTIVES, DRIVERS, OBSTACLES AND IMPACTS

7.1 Introduction

In the WP1 Scoping Report it was hypothesised that a range of personal and research-related motives and a set of personal and family life-related, career and work-life balance related, research-related (institution level and national level systemic) factors and labour market and immigration-related factors may all influence the decision of a researcher whether to be mobile or not. As with the HEI survey, in the research institutes sector survey questionnaire we were able to explore the role of some of these factors in relation to the respondent's past experience of mobility, although to a more limited extent given the decision to go for a shorter questionnaire in this instance.⁸ Our results confirm that many of these factors are important in understanding the mobility propensity of European researchers. As with the previous chapters this chapter follows exactly the structure and approach of the equivalent chapter in the WP3/4 HEI survey report, presenting a discussion of each factor drawing upon the detailed descriptive statistical analysis of motivating factors (including 'push' and 'pull' factors in the home and destination institutes and research, labour market and innovation systems), inhibiting factors (including 'stay' factors which persuade a researcher to remain in the home system) and obstacles in relation to past decisions about and experiences of mobility⁹ and from the systematic qualitative analysis of open-text comments received from respondents in relation to the factors.

7.2 Personal motives affecting the individual researcher's decision to become mobile

Personal and family factors

The literature (see WP1 Scoping Report) suggests that personal relationships and family ties are highly important factors in (and are significantly impacted by) a decision to become mobile and therefore we sought in our survey to explore the role such factors play in encouraging researchers to be mobile in the past - but also in dissuading them from being mobile. The HEI survey data suggested that a strong motivation regarding personal and family factors is an explanatory factor for lack of mobility across the European HEI researcher's research career. The descriptive analysis of the present research institutes survey data also supports this picture.

We find that personal and family factors were "important" or "highly important" in the past decisions *not* to become mobile of 75 per cent of all respondents defined in this study as being previously 'non-mobile'. Only 40 per cent of those respondents who indicated that they had spent more than three

⁸ Unlike in the HEI survey, we did not ask structured questions about these factors in relation to attitudes towards future mobility, nor did we collect information about 'pull factors' in relation to specific possible 'hotspots' for future mobility). It was reasoned that in this heterogeneous and under-researched sector it was of paramount importance to maximise the response rate at the cost of length and complexity of the questionnaire instrument.

⁹ As with the HEI report the underpinning tables are provided in Annex 3.

months as a researcher in another country than the country from which they achieved their highest educational attainment *did not* see personal and family factors as very important influences on their most recent experience of mobility (Annex 3, Table 13). The picture was broadly similar for male and female respondents (Annex 3, Table 14, Table 15).

More respondents who commented on motivating factors in the three main open-ended questions specified work / life-balance factors and other personal factors as their main motivation for past (and future) mobility – or for not being mobile – than mentioned training, development and other career-related or research-related factors. Motivations for mobility or immobility seem to be affected by the career stage, age and family situation of the respondent: “I was mobile before having a family, now I consider only short term visits abroad”; “With increasing age I felt a little bit uprooted with the effect of becoming tired establishing repeatedly social relationships. Family and personal relationships became more important.” Some respondents felt that mobility is not necessarily a result of personal motivation but it is rather forced upon researchers by the nature of their profession and the current situation in most research systems (lack of funding, short-term contracts etc) and is a precondition for career development.

Quality of life and work/life-balance factors

The HEI survey suggested that a strong motivation regarding quality of life factors is an explanatory factor for mobility (job mobility in particular). The present research institutes survey results support this, with a little more than two-thirds of those respondents who met the study definition of having previously been mobile viewing quality of life factors as an important or highly important influence on their personal motivation for their most recent experience of mobility (Table 16). 62 per cent of those who have not previously been mobile see such factors as having played an important or highly important role in dissuading them from mobility in the past.

In the open-text responses, learning about other cultures was mentioned as a motivation for mobility, some researchers also discussed a perceived need for change, a wish to live in and experience a different country or way of life and to learn a foreign language. For some researchers the motive for mobility is joining their partner/family: “I did move only because my husband got a professorship in Germany; my career was (still is) consolidated in Argentina”; “The fact that my wife is German had a significant influence on my decision to take up a position in Germany”. A further motivation relates to the return of a researcher to a place where he/she originates or to a previous hosting country. This may be based entirely on ‘non-scientific factors’ such as family and personal factors and sometimes this move may even be towards a research system that is not otherwise attractive from a research or career perspective: “the decision to return to my home country was made primarily based on personal factors. From the perspective of advancing my career, remaining in USA would have been the preferred alternative”; “The only reason I returned to my home country after my international experience was proximity to the family and quality of life, everything else was irrelevant”; “My final move was mostly due to personal considerations. This has had a negative impact on my career as regards funding...”.

Training and development goals

The HEI survey analysis suggested that training and development goals represent a very strong explanatory factor for mobility. The present research institutes survey results also suggest that training and development goals appear to be important motivating factors for mobility (Table 17). In contrast, they seem to have played less of a role in dissuading previously 'non-mobile' respondents from opting to be mobile, with just over half of these respondents stating that such goals were unimportant or only slightly important in relation to their past decisions not to become mobile (Table 17).

In the open-text responses we found that, where training and development goals were mentioned, they not surprisingly tended to be very closely bound up with career progression and research-related goals: "The aim was to gain research experience, good papers, and see 'the world'..."; "mobility increases learning/education/training, which for me was the most important reason". Other responses were related to the career path of the respondent and especially pursuing mobility in order to take advantage of a career opportunity, to advance the researcher's career and financial reasons. A few researchers stated that they moved in order to be able to apply for a permanent position upon return and thus progress their career. In turn, all these career and research-related goals themselves tended to be closely entwined with other personal and family motives, reminding us that for the individual researcher these issues are all ever-present and hard to disentangle.

Career progression goals

The HEI survey also suggested that career progression goals might represent an explanatory factor for researcher mobility. Exploring the present research institutes survey responses we find that career progression goals were important or highly important motivating factors for the most recent instance of mobility for 85% of previously mobile respondents but were important or highly important factors in deciding against mobility for less than half of our previously non-mobile respondents (Table 18).

Several open-text respondents mentioned stimulating their research or/and advancing their career as the main factors motivating them for future mobility. Goals included finding a better salary, a suitable or/and permanent position, new motivations for their research, other benefits for their research field, getting access to infrastructure, or a position with better working conditions including less administrative load. The desire to return to a previous host country for future collaboration was also mentioned. In a few cases, willingness to move in the future is related to a desire to continue working after the official retirement age in the 'home' country.

Personal research agenda

Finally, the HEI survey analysis suggested that personal research agenda-related motives are a strong explanatory factor in the mobility of European HEI researchers. Turning to the present research institutes survey, we also find that pursuing their own personal research agenda has been a key motivating factor in past decisions to become mobile (86 per cent of previously mobile respondents rated this factor as important or highly important in relation to their most recent instance of mobility). Once more, however, it seems that the personal research agenda has been less of a factor in the past decisions of 'non-mobile' respondents not to become mobile, with around half of all previously non-mobile respondents rating this factor as important or very important (Table 19).

7.3 “Push” and “Pull” factors influencing propensity to be mobile

7.3.1 Introduction

In the preceding section we have explored the role of personal motivations of varying kinds in decisions made by research institutes sector researchers about whether or not to be internationally mobile. Now we turn to the role played by a range of potentially important factors related to the employing or hosting research organisation and to the wider labour market, research and ‘innovation’ system to which that organisation belongs. In our questionnaire we asked previously mobile respondents to tell us how important various factors falling into these different categories have been both as “push” factors encouraging them to leave a particular organisation and system, and as “pull” factors encouraging them to go to a particular host or destination organisation and system (for the case of their most recent instance of mobility). We also asked our previously non-mobile respondents what role these various factors had played (if any) in their past decisions to remain in place. Detailed results for each “push” and “pull” factor in relation to past mobility are provided in Annex 3. Here we present an overview of the key findings.

7.3.2 Organisation level factors

Career-related factors

As with the HEI survey, we find that the **availability of career opportunities** in the host/destination research performing organisation and/or system seem to be slightly more likely (just over 65% of respondents rating these as important or very important) as ‘pull’ factors influencing mobility (Table 20) than is the relative lack of availability of such opportunities in the home institution or system is as a ‘push’ factor for mobility (with only half rating these as important or very important - Table 21). 55% of ‘non-mobile’ respondents indicate that availability of career opportunities at home was an important or very important factor in dissuading them from mobility in the past (Table 22).

Turning to **salary and incentives**, we find that poor financial rewards and incentives have not been a significant ‘push’ factor in the previous instances of mobility for the majority of our respondents (only 40% rating these factors as important or highly important - Table 23), though they do seem slightly more relevant as a ‘pull’ factor (Table 24). Again, good salaries and incentives at home seldom appear to have been an important factor in dissuading only a minority (about one-third) of previously non-mobile respondents from opting to become mobile in the past (Table 25)¹⁰.

Poor working conditions at home were important as a ‘push’ factor in just over one-third of the instances of recent mobility (Table 26). Again, better working conditions in an actual or potential host or destination location appear to have played a more important role as a ‘pull’ factor influencing past mobility (nearly 60 per cent of respondents) and future propensity to mobility (Table 27). In just over half of all cases, conditions at work seem to have played an important or highly important role in helping dissuade previously ‘non-mobile’ respondents from opting to become mobile in the past (Table 28).

¹⁰ Evidence from the more extensive HEI questionnaire suggested that salary and incentives may become more important motivating factors *later* in the career. The present survey, based as it is on a shorter questionnaire instrument, does not allow us to draw similar conclusions for the researchers in the research institutes sector.

Research-related factors

We begin our exploration of research-related 'push' and 'pull' influences on mobility by considering **access to research equipment and facilities**. For 43 per cent of our previously mobile respondents, lack of access to equipment and facilities at home played an important or highly important role as a 'push' factor in influencing the decision to move (Table 29)¹¹. By the same token, for almost 80 per cent of our previously mobile respondents access to equipment and facilities was a major 'pull' factor in relation to past mobility (Table 30). Equipment and facilities in the home lab or system seem to have played slightly less of a role as a 'stay' factor dissuading previously non-mobile respondents from having become mobile in the past with just under half – 47 per cent – saying that this was an important factor in their decision (Table 31).

This picture is broadly replicated for **access to research collaborators**, which presents itself as a major 'pull' factor in the past experience of previously mobile respondents (important in 80 per cent of cases -Table 32) but less so as a major 'push' factor (important in around 40 per cent of cases - Table 33). And once more those respondents who are classified as having not previously been mobile are almost evenly spread between those for whom access to the right network of research collaborators in the home institution or research system was (54%), and for those for whom it was not, an important or highly important factor in dissuading them from mobility in the past (Table 34).

Location-related factors

A desire to return to a country to/in which the researcher has previously visited/ worked was important or highly important to the previous mobility decision of just under one-third (31 per cent) of our previously-mobile respondents (Table 35).

7.3.3 Labour market factors

Unattractive **labour market regulations** at home seem only very rarely to be important as a 'push' factor influencing respondents to become mobile (just 16% of cases - Table 36), although such regulations were an important 'stay' factor in about forty per cent of the past decisions not to become mobile (Table 38). They appear seldom to have played a significant role as 'pull' factors in influencing the past mobility of our mobile respondents (only being important in 20 per cent of the cases – Table 37).

Immigration regulations are important as 'push' and 'pull' factors in only a very small minority (around 12 per cent in both instances) of the most recent mobility experiences of previously mobile researchers (Table 39, Table 40). They prove to have been important as 'stay' factors dissuading researchers from becoming mobile in the past in only about 18 per cent of cases (Table 41).

¹¹ A greater proportion than the just over one-third of HEI researchers who rated this as an important push factor for past mobility.

7.3.4 Pension and social care system factors

Pension and social care provisions seem to have played relatively a small role as 'push' or 'pull' factors influencing our respondents to become mobile (being important for both in only around 23 per cent of cases - Table 42, Table 43), although they appear to be slightly more important 'stay' factor (just over one-third of cases) in past decisions not to become mobile (Table 44).

7.3.5 Research "system" factors

The general level of research funding available in the national research system appears to have been an important 'push' factor in half of all most recent instances of mobility (Table 45¹²). The picture is stronger still for level of funding in the host or destination system as a 'pull' factor, at 62 per cent (Table 46¹³). Funding levels also appear to have been an important retention or 'stay' factor in dissuading 46 per cent of those respondents classed as 'non-mobile' from having moved in the past (Table 47).

The **ability to access research funding** for the respondent's own research proved to be important as a 'push' factor influencing previous mobility in half of all cases (Table 48). It was an important 'pull' factor in slightly more (57 per cent) cases of recent mobility (Table 50). It has also played an important or highly important role as a retaining 'stay' factor in dissuading researchers from becoming mobile in the past in half of all cases (Table 49).

7.3.6 Innovation "system" factors

In the closed, structured questions we explored the role of **company and user links** as a potential 'push' or 'pull' factor. The responses suggest that lack of such links in the home/sending system have not historically been important as 'push' factors for mobility except in only one-fifth of cases (Table 51). They have been important as 'pull' factors in the host or destination system in one-third of all cases (Table 52). They have also played some role in around a third of all past decisions to stay within the original home system of previously non-mobile respondents (Table 53).

7.3.7 Obstacles to mobility

The European Researcher's Partnership Study (RINDICATE, 2008) surveyed researchers about the roles played by a range of potential barriers or inhibiting factors for researcher mobility. It found that factors which are experienced as significant problems during the course of mobility events, such as issues relating to health care provision or pension contributions, do not necessarily act as *barriers* to mobility. In both the HEI survey and the present research institutes survey we have explored a range of potential barriers and inhibiting factors in relation to the previous experience of respondents and their previous life-decisions relating to mobility. The list of barriers and inhibiting factors explored in these surveys was slightly modified from the Partnership/RINDICATE study set on the basis of the findings of the conceptual and literature review work undertaken in WP1.

Looking at the actual difficulties experienced by previously mobile respondents it can be seen that the factors which most commonly caused trouble for

¹² This is a stronger result than in the HEI sector survey, where just around one-third of respondents rated this as an important push factor in the most recent instance of mobility.

¹³ Again this is rather higher than for the previously mobile HEI sector respondents.

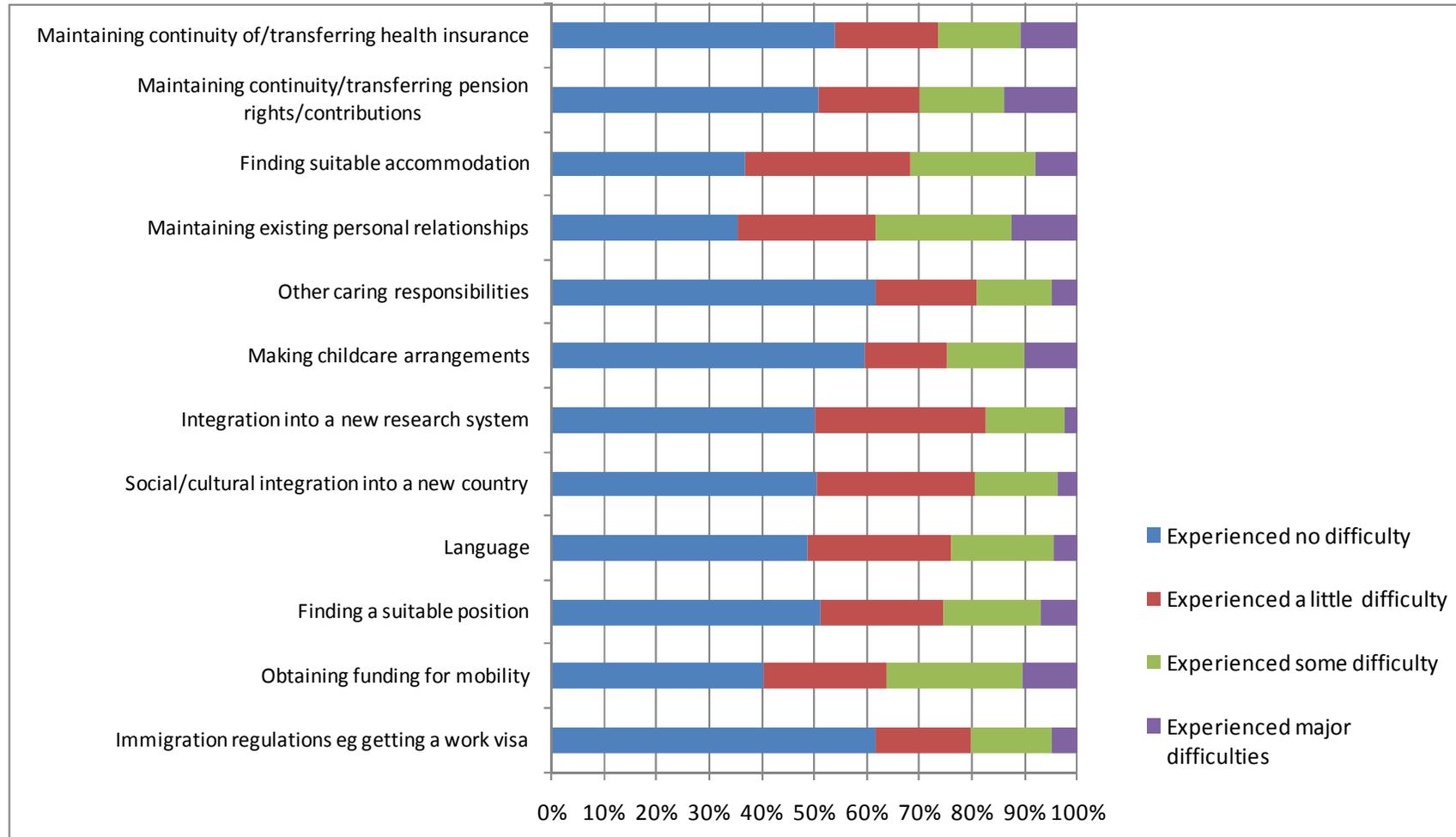
these respondents were maintaining existing personal relationships, finding suitable accommodation and obtaining funding for mobility. In terms of major difficulties, maintaining continuity of/transferring pension rights or contributions seem to have caused most problems (although even this was only in less than 15 per cent of cases). Making childcare arrangements and maintaining continuity of, or transferring health insurance, were also experienced as severe difficulties in around 10 per cent of cases. These results can be seen more clearly in Figure 50 which charts just the “severe obstacles”.

Turning to those researchers who have, in the definition of our study, never been mobile, we can explore the role the various factors have played in dissuading these researchers from being mobile in the past (Figure 51). Here we see an even greater role for concerns around personal relationships, childcare arrangements and caring responsibilities more generally, as well as concerns about finding a suitable position and obtaining funding for mobility. Relatively few ‘non-mobile’ researchers view health insurance, pension care and immigration regulations, finding suitable accommodation, language or integration into a new society or research system as having presented significant barriers to mobility in the past.

Looking across these various results it seems that, as with the HEI survey, there are some differences between the perceptions of non-mobile researchers and the reality experienced by mobile researchers. Factors such as obtaining funding, finding a suitable position and making childcare arrangements are both perceived as and experienced as obstacles, whilst other factors, such as healthcare and pensions arrangements, are experienced as obstacles by a sizeable minority of researchers but do not seem to have played much of a role as factors in the previous decisions of non-mobile researchers not to become mobile as have concerns around caring and personal relationships, obtaining funding and finding a position. In the next section we will explore these issues in some detail through a distillation of the open-text comments received from respondents concerning obstacles and barriers.

Figure 49: Summary: Difficulties/obstacles experienced by previously mobile researchers in relation to past mobility (Group A - previously mobile researchers), n= see reference table in Annex 3

Source: The Mobility Survey of the Research Institutes Sector



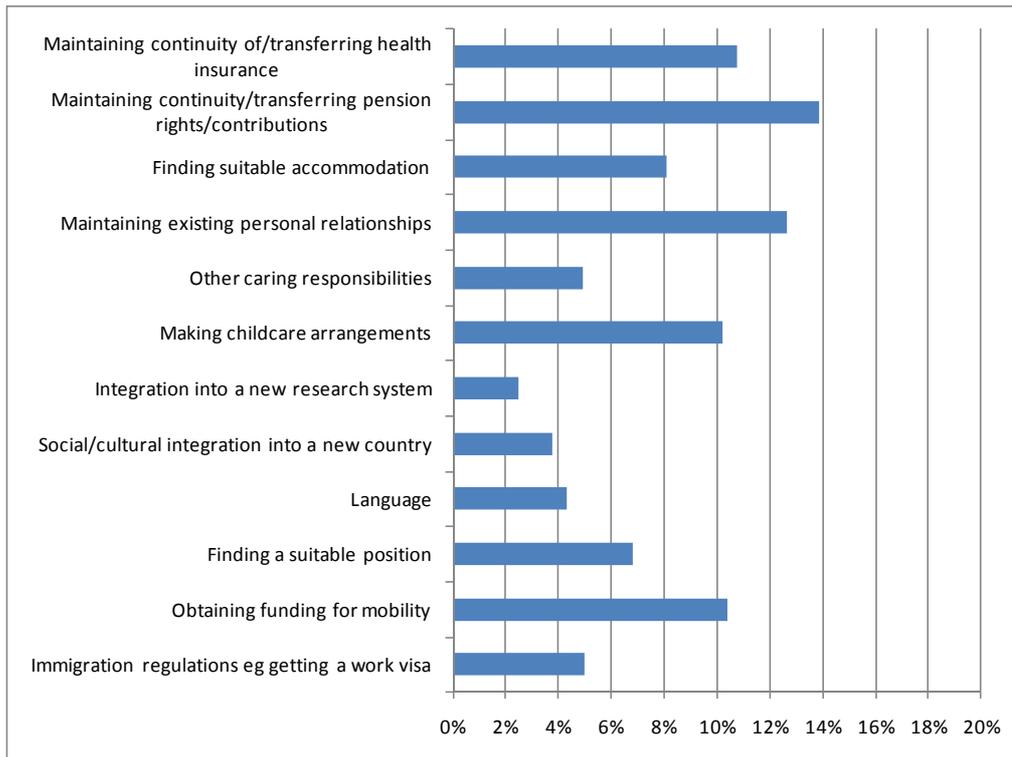


Figure 50 (above) Barriers to mobility: share of applicable previously mobile researchers who have experienced major difficulties with each factor in relation to past mobility (Group A researchers), n= see reference table in Annex 3

Source: The Mobility Survey of the Research Institutes Sector

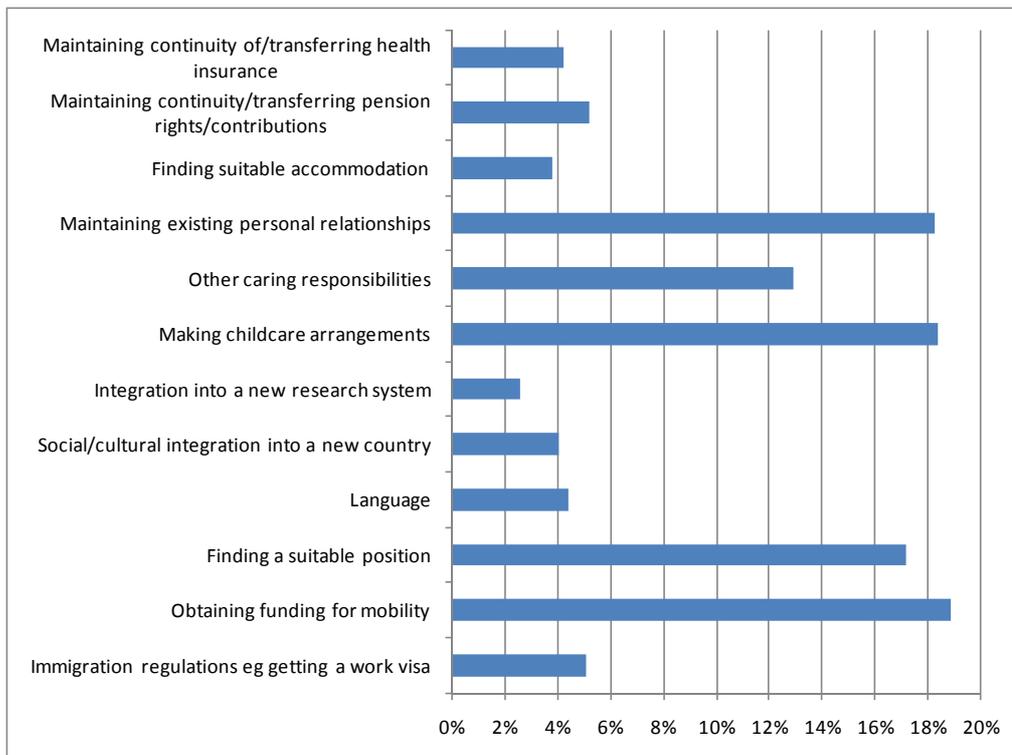


Figure 51 (above, previous page): *Barriers to mobility: share of applicable previously 'non-mobile' researchers who have experienced each factor as a severe obstacle to mobility in the past (Group B researchers) n=see reference table in Annex 3*

Source: *The Mobility Survey of the Research Institutes Sector*

7.4 Open-text comments regarding obstacles to mobility

7.4.1 Funding related issues

Funding for mobility was frequently discussed in the open ended questions: "The first problem is funding mobility"; "...funding should be easier"; "Funding of basic research as well as the mobility have been the greatest problems"; "... Then there are obstacles related to have enough funds to develop research in another place."; "...the main obstacle is the arrangement of the funding..."; "Getting a grant is the most problematic"; "... The main obstacle to mobility was to possibility the find some funding...".

Some respondents, often with mobility experience, felt that funding for mobility should cover relocation and other logistical costs. These are most often met by the researcher: "...Moving between countries costs some money, and usually the first pay check takes time. Switching jobs often brought me to the limit my financial possibilities..."; "Obstacles to mobility are often connected to available funds to easily cover expenses..."; "I have never got more help for my mobility than my own salary and one return flight."; "... In the end it cost me a lot of money to go abroad (double rent, less income because of stipend, no pension arrangements, travel costs)".

Sometimes the financial considerations dissuade a researcher from becoming mobile: "... it would ruin the stability of our life (mainly financial, but not only) if my husband would join me abroad"; "As the family provider and mother it is difficult to go abroad, because of paying additionally rent at home during this time, the education of children and so on...".

The lack of funding and the high cost of mobility was sometimes linked with the issue of relatively low researcher wages: "wages are not always very high and moving a whole family is expensive..."; "...Economically (mobility) is less interesting because of the large amount of money and time involved in travelling to my home country..."; "The financial amount given to the fellow moving with several young children should be revised to consider the significant expenses of the child caring system..."; "...major difficulties, when moving with a family, are: new house, new school...all this imply a substantial amount of extra money..."; "...salary for researchers is too low to be able to maintain personal relationships. On one salary you simply do not have the option of the partner joining with no employment...". This was felt to be especially true for female researchers: "...international mobility with such normal salaries does not allow women to provide a good living status to pursue their life-partner to move internationally. This makes (it) very difficult to have a family (partner+children) before you have a 'stable' position".

However, when the salary is good in the 'home' country this can be an inhibitor to mobility: "The conditions of research in my field in my current position/country (Denmark) are just too good at the moment to even consider going anywhere else. It would probably be difficult to get equally good funding possibilities, job security, salary etc. in another country".

A few complaints were expressed regarding the bureaucratic or competitive nature of EU funding, whilst others complained about the lack of information

regarding funding: "... It is my experience that the funds for going abroad (congresses, conferences etc.) (are) often limited... Besides COST, I do not know of any other funding mechanisms for exchange within Europe. Moreover, this mechanism it is subjected to fierce competition..."; "...The existing funding possibilities e.g. Marie Curie Fellowships are highly competitive and success rate of submitted proposal is low..."; "EU member countries still provide much-much less th(an) the US and on a much more bureaucratic way"; "Difficult access to European schemes of mobilities in the field of Humanities in my country... lack of regular information where and how to look for fellowships"; "Getting European funding is hard, and once obtained, managing it is awesome. Bureaucracy should be simplified."; "It is much easier to obtain mobility grants and research funds outside of the EU. While obtaining a Fulbright Grant is a simple procedure, applying for an EU grant (e.g. Marie Curie Grant, EEA Grant) is hopelessly difficult due to bureaucracy...China is my next target for this reason".

It was noted that securing funding might be more difficult in some fields than in others: "...mobility is great, but there are just little possibilities and the worst thing is to get a grant or scholarship, the technical and natural sciences are preferred, therefore the poor grants are also taken from humanities"; "The most important obstacle is the shortage of research fund in basic research in physics and other natural sciences"; "money in Earth sciences is not high"; "Nowadays it is very hard to receive EU grant on fundamental research (like mathematics)".

As with the HEI survey, some respondents commented on a possible age bias in existing mobility funding schemes: "I am already 48 and it is difficult to find funding for any future mobility... I am trying to find any funding schemes for future mobility with no positive result till now. With age, my chances for research visits abroad are decreasing"; "...flexibility in the available funding system is important. Visibility of any exchange programs is also important to attract senior tenure track scientists to get involved in exchange programs...".

Lack of funding for short-term visits was another barrier/inhibitor mentioned: "Not enough scope in EU funding for short-term visits for a project that is not directly associated with a COST action or other large scheme"; "...As for obstacles, I would point to the few funding programs of mobility I am aware of that contemplate stays abroad longer than a week or two and shorter than six months".

It was noted by one respondent that the financial incentives for US researchers coming to EU are poor: "There are basically no incentives for Americans to seek academic work in Europe, in particular permanent positions. Americans generally have a high student loan burden from their undergraduate years, which is something that Europeans do not have. This, coupled with the lower wages earned in Europe (compared to the USA) makes it even less appealing for Americans to take the already significant risk of trying to establishing a career in Europe".

At the same time some respondents commented on the lack of funding for mobility to the US, an issue linked with US immigration regulations: "a major obstacle is the funding - in my case funding for USA is very limited or funding policy is very restrictive, s.a. RETURN policy to Europe within 24-36 months, linked to the visa (or immigration status)...".

A small number of respondents complained about severe immigration-related problems: "immigration rules ...are usually a nightmare"; "I am a non EU citizen and this fact had a significant negative impact in being able to freely move around Europe (i.e. for UK you need a Visa which is not easily attainable)..."; "...I faced the biggest difficulties in immigration issues. Every time I

had moved I faced major problems and European countries did not seem to welcome foreign scientist...In clear contrast, I was always received very well in China...".

Moving with a partner or family can create severe problems, especially regarding obtaining visas etc.: "I am married with a woman from South America, which causes severe ... VISA-problems."; "securing visas for family members, crucial problem"; "If my present contract would end I would have severe problems to bring my family back to the Netherlands while looking for something else because my spouse has a Russian passport. This hinders my mobility"; "I have had and I am still experiencing many bureaucratic obstacles related to my girlfriend who is not an EU citizen. It is very difficult for us to have all the visa-related paperwork done...".

Finally it is worth repeating an exceptional case of immigration obstacles presented by one researcher:

"In moving from UK to Denmark in 2002 to take up post-doc position ... I experienced that the Danish Government demanded a fixed sum (~7000Euro) in order to accept my wife, who is British, as a Danish resident. At the time my wife was not working but taking care of our two kids. This demand was challenged, referring to an EU court ruling ... on labour mobility, but it took about 2 years for the Danish immigrant officials to accept my wife's residence despite the fact she had lived here before and spoke fluent Danish".

7.4.2 Finding suitable positions

A number of respondents commented on the lack of available positions, one suggesting that this is more pronounced in the non-university research institutes sector: "...It has been extremely difficult to find opportunities for undertaking overseas research..."; "Research visits are important but the opportunities are limited to a great extent. EU funding is available for university staff members, research institutes are less targeted. Age also matters..."; "...The mobility opportunities I've been offered so far have been far from both my tenure research and my PhD thesis, so they have not been attractive enough...". As noted above, when moving with one's partner, finding career opportunities for both can also be a barrier / inhibitor to mobility: "...the most difficult thing moving to another country is probably to find adequate positions for both partners".

Some national research systems were felt to be relatively 'closed' to mobile researchers i.e. not offering career opportunities or not allowing mobile researchers to progress their career: "the main obstacle are closed national research systems, where the most important factor for careers is personal connections and not scientific merits..."; "To find a job is not difficult, but to get promoted is not easy. As far as I know, most of the people in international mobility are post-docs."; "... Continental European countries (e.g. France, Germany, Italy) are very conservative and rarely allow newcomers, internationally mobile, young researchers to take up positions of responsibility early on in their career"; "I think in any foreign country as a foreigner your career can progress only to some limits. Above this limit it is very difficult to 'jump' because your foreign colleagues prefer to control you than to allow you to develop".

Some comments imply active discrimination between mobile / foreign researchers and home country nationals: "I experienced discrimination between national and international (including EU citizens) employees by my current employer in terms of contracts and benefits"; "The main problem I see concerning my mobility motivation is a slight national discrimination if the scien-

tists applied for position in public scientific and/or educational organizations”; “In the research world of astronomy...in Europe, many people get hired based on connections or nationalities. Coming from the outside of European connections/nationalities, I have found that it is very difficult to find a permanent position...”.

7.4.3 Health insurance, pensions and social care

The lack of complementarity between social security systems even within the EU, and difficulties in transferring pension rights and health insurance, is a serious concern for mobile or potentially mobile researchers: “pension transferability is a major worry”; “Continuity of pension is a major concern in the long term”; “I think I should be more worried about my pension. I am not sure it would be possible to merge all my contributions...”; “...the health care (health insurance) and pension regulations are chaotic, and do not work well for mobile people”; “...the situation regarding my pension is a bit of a mess and represents a major obstacle to further mobility”.

It seems that the more mobile a researcher is the more complicated the situation becomes regarding his/her pension: “We will see when the time comes how I will deal with the retirement (I have paid taxes 5 years in Portugal, 1 year in France, 6 years in Belgium, 3 years in Spain, ...), but it will not be easy for sure!”. Such problems are not only faced by EU citizens inside Europe but also from third-country nationals working in Europe: “I am a non EU citizen ... the discontinuity of the health and pension system between EU countries is a major negative factor. I was working full time for several years in Greece to find out that I cannot transfer the credits collected there in the Netherlands”; “...the incommensurability of pension and health care arrangements in the US and the European Union (and we are not even talking about the rest of the world) are major disincentives, especially for researchers who are no longer in their twenties or early thirties”.

Researchers can also be concerned about the pension rights of their partner: “...I am somewhat concerned about pension rights transition system between different countries of European Union. It is not entirely clear to me, if my wives and mine pension benefits for working in different countries of the Union will be available to us after the end of our working careers”.

Some researchers complained about post-doc positions / fellowships that do not allow them to have pension and health insurance rights: “...differently from my German colleagues, I have always lived with a fellowship, which was tax-free, and not including basic stuff, like health insurance, pension, maternity leave, etc. These are strong limitations for joining research mobility...”; “First, what makes mobility difficult even staying in Europe is that often to pursue research as a post-doc you can only get a fellowship. It means no social security, no retirement fund...And private insurances usually do not cover chronic disease (asthma, diabetes) which can make mobility difficult”; “...the post-doc position in many countries is a laboral limbo in which we are neither students nor proper employees. As an example, see the situation of the Max-Planck institutes where a vast number of post-docs cannot pay taxes and pay social security because they are not formally employees. The same applies to a number of people which hold EMBO, FEBS and other fellowships in a variety of countries”.

Problems can also occur with double affiliations: “...The biggest difficulty was a pension issue. Being employed at two different employers in two different countries (UK and Hungary) at the same I was charged for pension contribution in both countries. However, both the UK and Hungary were members of

the EU in that time and according to the idea of the EU one of these contribution(s), preferably in my home country, must have been enough.”

Sometimes the researcher has to make private arrangements that create an even greater financial burden of mobility: “I have to pay myself health insurance and pension schemes”. Age can also affect the extent to which pensions and health insurance are obstacles / inhibitors for mobility: “The closer to your retirement you are the more important will be the pension regulations”.

Some of the respondents that commented on pension and health insurance rights as obstacles / inhibitors of mobility also made suggestions regarding how the situation might be improved. Most suggested the establishment of a pan-European unified fund or system: “There needs to be a central fund and a central system that people have access to when working in research abroad that translates directly to the system in the country they chose to settle in. I believe that the EMBL has such a system in place”; “Hopefully you can devise an European wide system for researcher to clarify pension contribution issues (e.g. a single number per person which is easy to transfer between countries)”; “...Some good arrangements should urgently be made, in particular to make senior researchers more mobile (when one is young, pension is not on one's mind yet)”; “...A common healthcare regulation with the possibility of exporting the already existing healthcare insurance from one EU-country to another should be implemented”.

7.4.4 Career and employment issues

According to some respondents, mobility experience is not always recognised and valued during recruitment and does not necessarily translate into career progression: “Not everywhere the mobility is appreciated. there is still little consideration in scientific community for the abroad experience, especially in national research centers where local researchers are preferred”; “...having an international profile is well considered, however it is not quantified in the career progression”; “... Furthermore, as to my scientific career, this kind of experience was not considered at all during evaluations for a progression inside my Institution, despite the fact that each time I had also to pass selections to work abroad. I am sorry to say that I have always found more respect towards my work abroad (UK, Austria) than in my country”.

According to a very small number of respondents, the lack of competition-based internationally open recruitment can be a problem: “It is a pity that Europe do(es) not provide open positions ... generally contacts are need(ed) in order to get positions”. One commented that “often local candidates are better placed than people abroad to get permanent positions”. Once more it was suggested by one respondent that there are institutionalised patterns of discrimination within Europe: “The problem is that exists a firm discriminatory process of unwritten but effectuated differentiation regarding possibility of mobility. One is on the axis of former Eastern Europe in relation to West Europe (class and gender), the other is regarding race and class. Regarding East/West exists a firm set of prejudice and paternalism over the institutions and capabilities of researchers coming from the former East Europe... Regarding the process of discrimination based on race in the EU, it is possible to state that brilliant researchers from outside Europe provenience (mostly from Africa, Asia and Latin America, but not only from the context of former West European colonies!) that live and work in EU are not having the possibility of getting equal posts as their West European researcher colleagues. In short these are real obstacles...”.

7.5 Impacts of mobility

The impact of mobility depends on the context. It is a unique blend of the characteristics of the sending and hosting country, the sending and hosting institution, the person involved (career stage, age, family condition, research field, personal ambitions etc) and the characteristics of the mobility instance (duration etc.). An instance of mobility could have positive impact on some aspects of an individual's life e.g. career progression, but at the same time negative on others e.g. personal and family life. Whether these trade-offs lead to an overall positive or negative perception about mobility also depends on the wider context. For example, researchers from countries with under-developed research systems could perhaps more easily disregard any negative impacts of mobility. Common complaints about research careers and research environments (short-term contracts, few tenured positions, low salaries for young researcher, differences on the research infrastructures, research funding availability etc.) may make mobility a strong need rather than simply a possible option. And, of course, a decision to pursue mobility also depends on the personal priorities of the researcher.

Respondents in the open-ended questions commented on the impacts of mobility on different aspects of their personal and scientific life, including personal and family life, and also on their research agenda and their career track, prospects and progression. The majority of the respondents that commented on the impact of mobility in the open-ended questions attributed a positive or mixed impact on mobility, while fewer people reported just a negative impact or no impact. Summarising the responses provided on this issue in the three main open-ended questions, there seems to be a tendency from most of these respondents to regard mobility as beneficial scientifically but detrimental to one's family / personal life, however this is not necessarily the case.

There was also a tendency to attribute a "timing" factor to the impact of mobility. Some respondents regarded mobility at the early stages of a career or before the researcher has family obligations – or early in the family's life before children start school - as having more positive impacts; while mobility later in life as having mixed, no or negative impacts. Moreover, it was mentioned that later in the research career, shorter instances of mobility are also necessary. Also, the duration of the mobility instance seems to affect its impact, with respondents commenting that moves need to be of a particular time, neither too short, nor too long. Since, a very long mobility period might cause barriers for the return to the previous system if this is required, while if mobility periods are too short and frequent there will be no time to integrate into the new system, lab, country etc, and to create a local network thus causing negative effects.

The impact of mobility also depends on whether the researcher decides to be mobile for the rest of his/her career, decides to permanently stay in the receiving country after one instance of mobility or decides to return to the country of origin / sending country. The latter usually seems to have important implications making re-integration hard in some cases. This difficulty makes some researchers decide never to return.

7.5.1 On personal and family life

Although the impact of mobility on the personal and family life of researchers was a central feature of the conceptual review under WP1, no closed questions on the topic remain in the final questionnaires, and so our insights into such impacts must come entirely from the open-ended responses.

Several of those that commented on the impacts of mobility in the three open-ended questions supported the view that mobility has or would have positive impacts on their personal life. Fewer researchers suggested that mobility also has or would have positive impacts on family life. Respondents praised the impact of mobility on personal development, opening the researcher's mind and his/her horizons, not only scientifically, but also culturally. As part of this cultural experience, researchers discover foreign countries, people and cultures, acquire new knowledge and new skills including new language and establish new networks. Another positive impact for some is that the researcher leaves his/her everyday routine, becoming more creative and thus mobility contributes to job satisfaction and future motivation.

Where negative impacts of mobility were expressed through the open text responses these were generally related to the researchers' personal and family life and / or on their career progression. If the family follows the researcher abroad, problems of social integration can occur. Issues about moving families or finding a job for a partner have already been mentioned. Financial strains caused by mobility have also been mentioned, as have the negative impacts of problems with pensions, health insurance and other social benefits. Finally, one respondent complained that mobile researchers can lose their right to vote.

7.5.2 On the individual researcher's career

As part of the work reported in Chapter 5 we have already provided an estimate of the impact of mobility upon a researcher's career for the respondents as a whole. Here we concentrate on the open-ended comments on the career impacts of mobility. A significant number of the respondents that commented on the impact of mobility in the open-ended questions attributed a positive impact of mobility on the researcher's career track and career prospects. According to some respondents, mobility enhances one's competitiveness making the researcher more attractive at least to some employers. Mobility has helped respondents in winning better positions. In some countries a period of mobility abroad may be a formal precondition or at least a tacit expectation in order to get a permanent tenured-position. Mobility also provides new links and relationships that can lead to further mobility and future collaborations. However, some respondents, mainly older and more senior researchers (at or near retirement) commented that the positive impact mainly applies for younger researchers.

Several respondents reported negative impacts of mobility on career progression since in many countries international experience is not valued or does not translate into salary and promotion. It was pointed out that in some countries a researcher leaving their post for a long time risks losing their position in the career ladder and generally that mobility is not valued in career progression. As a result, upon return your career needs to be "restarted". Those who have never left and stayed in the system have more potential for promotion and thus it may be difficult to win back your tenure position. Generally, it was noted that different research systems don't communicate well e.g. regarding the recognition of degrees. Moreover, respondents reported that mobility can lead to losing contact with colleagues and other partners in the home or originating country, making return difficult. Finally, it was suggested that mobility may threaten the further career progression of already senior researchers.

7.5.3 On the individual researcher's research agenda

Although the impact of mobility on the actual science performed by researchers was a central feature of the conceptual review under WP1, no closed questions on the topic remain in the final versions of the questionnaires, and so our insights into such impacts must come entirely from the open-ended responses. A significant number of the respondents that commented on mobility's impact in the open-ended questions of the questionnaire attributed positive impact of mobility on the individual's research content and trajectory. It was noted that mobility contributes to acquiring research skills and thus enhances his/her research experience. The researcher can learn about new research methodologies and acquire access to new infrastructure and new research skills that might not be available in his/her country of origin. According to some respondents it broadens the scope of research and provides new ways of thinking and new ideas. Mobility was also characterised as beneficial for sharing experience and improving communication through collaborations. According to respondents being exposed to a new research system can lead to improved research quality, but also increased output and efficiency e.g. through a higher number of international publications etc. Conversely, losing one's network of contacts in the home or originating country can affect, not just the researcher's career progression upon return, but also the content and trajectory of his/her research. Losing contacts means losing potential collaborators that are necessary for applying for EU and national funding when back from the mobility period.

7.6 Future motivation towards mobility

Over half (55.5%) of all previously 'non-mobile' respondents (in our survey definition) have actively considered or are actively considering mobility in the future. This rises to 63 per cent for all respondents (Table 54). The great majority of respondents, regardless of whether they have had past experience of mobility and whether or not they have actively considered mobility in the future, indicated themselves to be open to the possibility of mobility in the future (Table 55), with even 71 per cent of those who have not actively considered mobility in the future reporting themselves as being open to mobility in the future (Table 56). Across all respondents, the breakdown for male and female researchers is broadly similar (Table 57 - Table 60) although the shares (of those who reported their marital status) are different for married/co-habiting respondents and single ones (Table 61,

Table 62). Single researchers are more likely to have actively considered future mobility (Annex 3, Table 61 - Table 64) though the share of single and married/co-habiting researchers who are open to mobility in the future is broadly similar (Table 63, Table 64). Perhaps unsurprisingly, researchers with children are somewhat less likely to have actively considered future mobility than those without (Table 65, Table 66). Once more the shares are much closer for openness to future mobility (Table 69, Table 70). Finally, the picture is much the same for female researchers with children as for all researchers with children (Table 65 and Table 67, Table 69 and Table 71).

7.7 Country “hotspots” for mobility

In the longer HEI survey questionnaire we asked respondents about the relationship between various pull factors and their interest in mobility to a specific “hotspot” country that they had nominated as a first preference for mobility. In the present research institutes survey we were only able to collect the nominated “hotspots” themselves. Below we present the most popular hotspot countries as nominated by those respondents who answered this question.

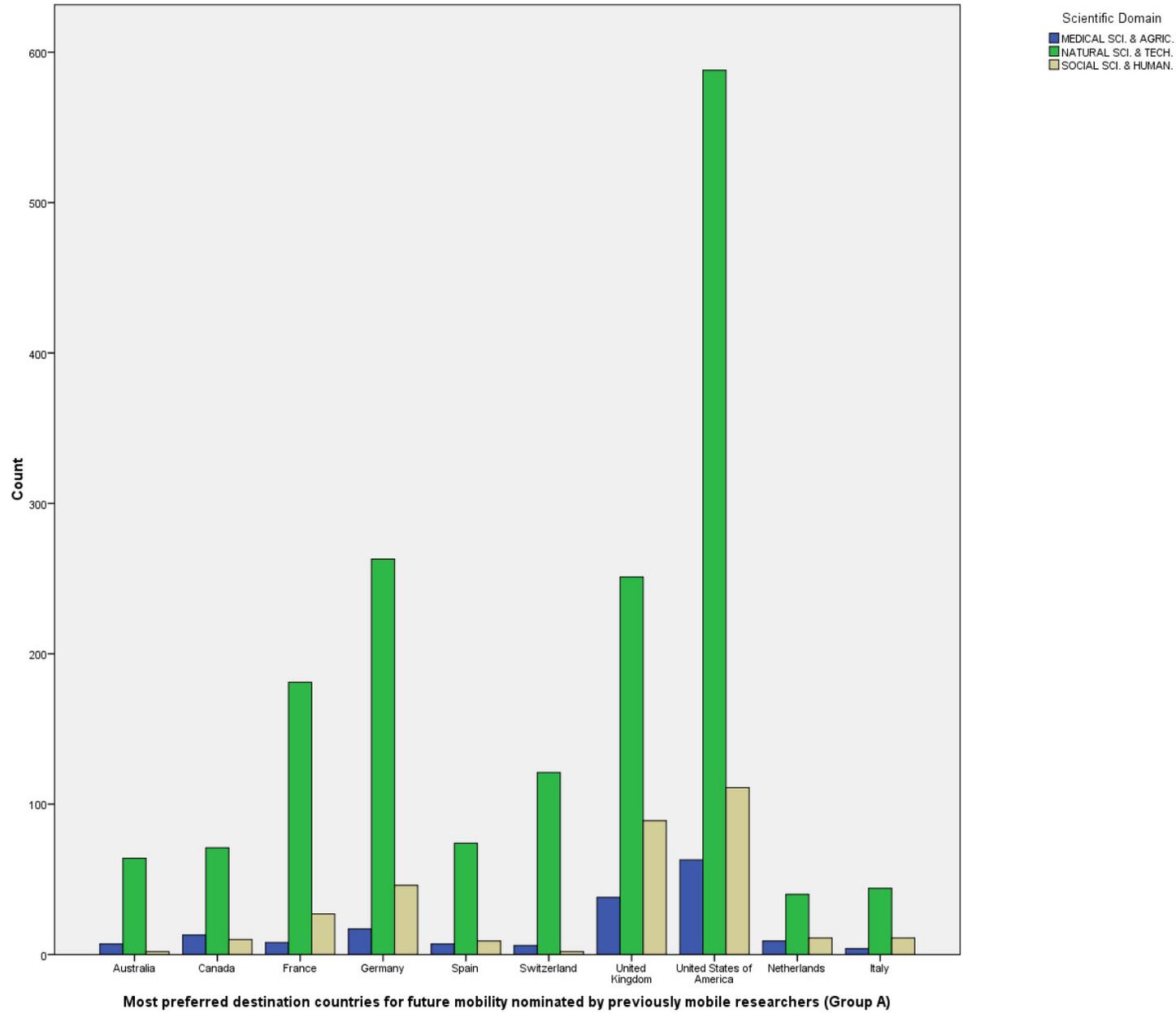
7.7.1 “Hotspots” identified as attractive targets for future mobility

The figures overleaf show the most commonly nominated preferred “hotspot” countries for possible future mobility identified by both ‘previous mobile’ and previously ‘non-mobile’ respondents. These results are shown for each of the three broad scientific domains into which respondents assigned themselves. It can be seen from Figure 52 that, for those with previous experience of mobility, from all fields of science, the United States of America was the most commonly nominated country of preference for future mobility, followed by Germany, the UK and France, with the exception that the UK is the second most frequently nominated destination for researchers in the broad medical sciences and agricultural sciences domain. Interestingly, Figure 52 shows that, for the previously ‘non-mobile’ group of respondents, the United Kingdom becomes the second most nominated destination country across all broad domains. One of our open text respondents suggested that the USA is particularly attractive because it offers not only an excellent research environment but, from the point of view of European researchers, a different culture to experience. A small number of respondents nominated whole geographical areas as “hotspots” in their open-text responses, namely South America, Europe (mentioned twice) and North America. “Certain Asian destinations (Singapore, Hong Kong)” were also suggested since Europe has only “a limited offer of very well endowed positions for top researchers”.

Figure 52 (overleaf): *Most preferred destination countries for future mobility nominated by previously mobile researchers (Group A) by researcher’s broad scientific domain*

Notes:

1)The graph shows only countries accounting for at least 2 per cent of valid nominations for that question, with the ‘other’ category representing the remaining countries.



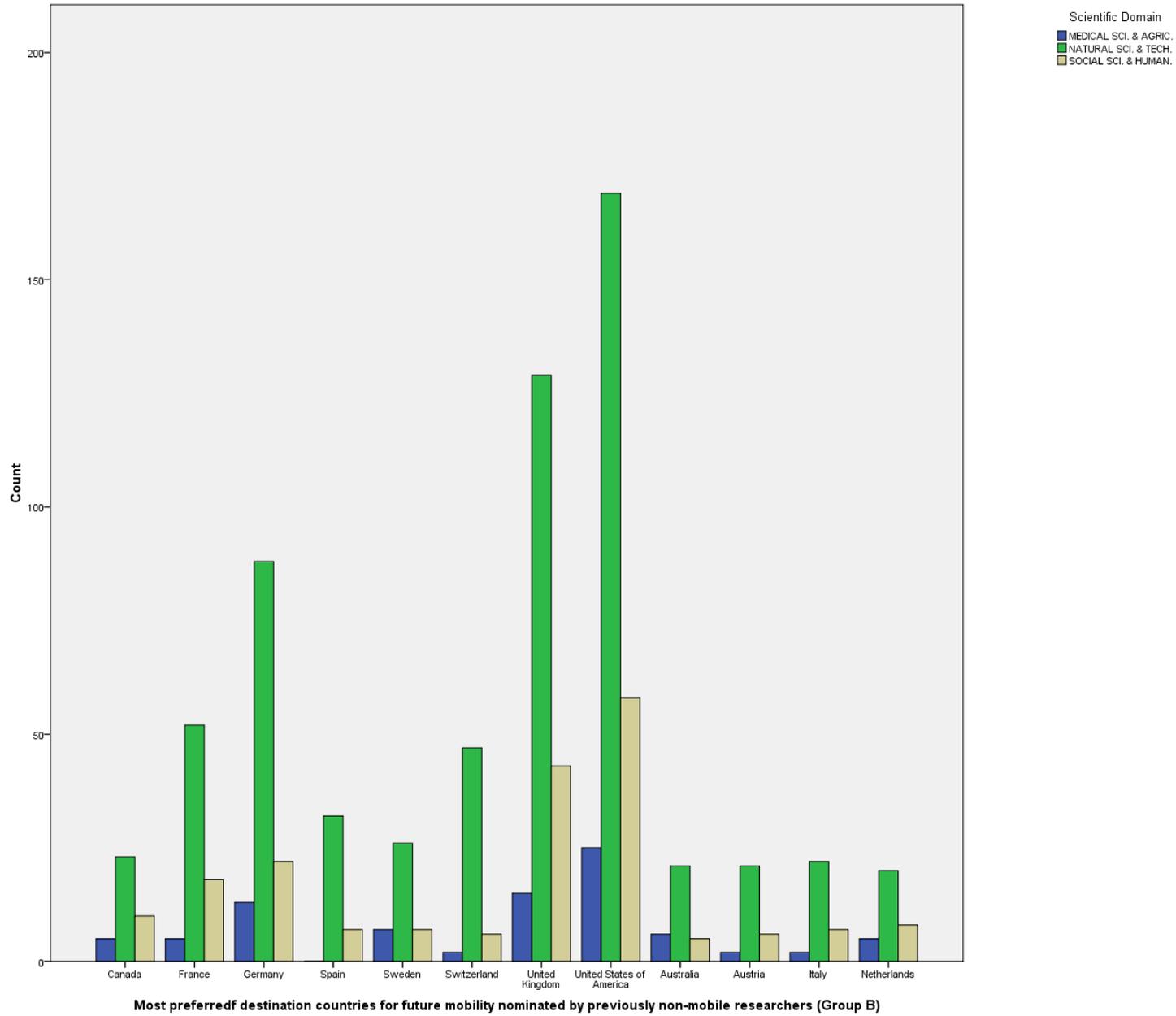


Figure 53 (above, previous page): *Most preferred destination countries for future mobility nominated by previously 'non-mobile' researchers (Group B) by researcher's broad scientific domain*
Notes:

1)The graph shows only countries accounting for at least 2 per cent of valid nominations for that question, with the 'other' category representing the remaining countries.

7.8 New issues emerging from the survey

In the above sections we have explored the global survey results in relation to the key factors hypothesised as being relevant to researcher mobility based on review of previous studies and associated literature. There are also some new issues emerging from the survey results. These concern the mobility of older and more senior researchers, the issue of short-term mobility, and specific issues relating to post-communist countries.

Mobility of older researchers

As with the HEI survey, a number of respondents identified themselves as retired or nearly retired researchers. Older respondents stressed that mobility issues vary over the course of a life and career: "I am close to retirement age and younger people have different problems from the ones I have encountered. But, in my experience, mobility is extremely important for a researcher independently of his/her age". Some noted that mobility was much less common in the past: "Twenty and more years ago there were fewer possibilities to study or work abroad. Now it is much easier to go...". The political and economic situation of several European countries was such that it hampered mobility, according to some. Mobility for researchers in former communist countries was practically impossible until 1990 and for older researchers in these countries that can mean very little experience of mobility: "Note, that I am relatively old (64) and the beginning of my carrier I spent in a communist country (Poland). Going abroad to work at that time was very difficult, unless you wanted to emigrate forever..."; "In Poland, in communistic time, contacts with other countries, western and also eastern, were limited and controlled". It was also noted by some respondents that mobility is easier now, especially as it can be assisted by the use of ICT: "... This is much easier these days with internet and so forth, but did not exist when I was mobile in the 80s".

An interesting issue is the desire or plan of some senior researchers to work on after retirement in another country: "Future mobility will be applicable only after my retirement". This is mainly motivated not by their desire to improve their career, but in order to share their experience or simply to continue being active after retirement "...Having reached the age of 50, for me personally it might be more an enriching experience than a boost to my career"; "The reason for my considering being mobile in the future is that I'll be pensioned this year from my work in Germany and perhaps shall continue working afterwards as a guest researcher at a university in Sweden"; "Since I am at the fall of my scientific carrier I would like to move to the country with nice climate and rich history"; "In my case, reaching formal retirement age with my UK full-time employer allowed me move to part-time working, and to take up an overseas invitation as a visiting researcher. I expect to fully retire in the next few years".

Shorter mobility periods (see also below) seem to be more attractive for some senior researchers "I am 76 years old, what you called mobility (more than 3 months) is not relevant for me, just short term - conferences, international project meetings etc"; "...I am only open for short (few months) visits, but I am too old for longer relocation"; "I retired this year, so mobility is not of crucial importance for me anymore. I

foresee short visits abroad according to the needs of my research work (libraries, archives, terrain)...". Some respondents stated that they are "forced" to become mobile after retirement: "Germany has a system of forced retirement. In this respect I see the US as more attractive than the UK because the US has voluntary retirement"; "As a Max Planck Director there is little motivation to become mobile except for continuing work past German retirement age"; "...I would like to see a profound change of perspective within the diverse European systems with attracting, practical incentive for mobility, like, for one, abolishing the 65 compulsory retirement age among others".

Respondents pointed to a lack of opportunities for senior researchers. There seems to be an age bias in much mobility funding (and perhaps research funding in general): "Since I am over 40, there are many negative discriminations against my international mobilities"; "Note, that I am relatively old (64)... At that age you have not too many possibilities to go abroad, because most of the programs are directed towards young people"; "there are little possibilities of mobility for senior researchers in Humanities"; "Consider my age (64)! There are very few opportunities for the people at my age to be mobile"; "Research visits are important but the opportunities are limited to a great extent. EU funding is available for university staff members, research institutes are less targeted. Age also matters, over 50 years of age opportunities decrease further"; "The main obstacle to mobility for me is the fact that I'm almost 45 years old and usually there is no possibility for post-doctoral positions for people above 35"; "The quality of my research is not acknowledged in present research formats, where solely young age and quick results are preferred. At my age, 49, the most creative period I have ever experienced, I am considered dead, according to present formats of 'innovative research' as age limits is rule".

Other senior researchers are not willing to move now or continue working after retirement, or otherwise consider their age as an obstacle to mobility: "I'm too old now to think (of) mobility"; One problem is age; when one gets over 50 it is harder to move"; "My age is an obstacle". Some mention the loss of pension rights as a result of mobility in early years: "I am quickly approaching my retirement. I have come in France at the age about 50 years. Here in France my 25 years of experience in Russia can't be taken into account for retirement. That's why my pension will be very small. If it was possible to return back 15 years ago when I have taken a decision to accept the French invitation to come here I would not agreed". Senior researchers also consider family and personal issues, caring responsibilities, and deterioration of their health as barriers for mobility in their age, as barriers: "...Unfortunately I'm getting to old besides I have a disabled girl, which makes it almost impossible for me to move around"; "With increasing age I felt a little bit uprooted with the effect of becoming tired establishing repeatedly social relationships. Family and personal relationships became more important"; "Being emerita... I could have considered mobility to England or USA for one or two months in a row but it is impossible for health reasons"; "...I retired in 2008, nevertheless I continue to work as volunteer in the same position I had before retirement (research director). Moreover I cannot take into account any mobility due to my bad health as I am in dialysis and in the kidney transplant waiting list"; "I am 59, being both researcher and science administrator - no chance for international mobility except conferences and lectures".

Very short term mobility

Although the focus of the survey was on substantial period of research mobility of three months or more, several respondents that provided comments in the four main open-ended questions stressed that mobility for less than 3 months can be very attractive. This is especially the case for women, researchers with family obligations, more senior researchers and researchers with professional obligations in one country (e.g. teaching) that do not allow for long periods of absence. International conference visits and short visits of a few weeks appear to be regarded as particularly beneficial

by these respondents. It was also suggested that ICTs (virtual mobility) and cheap travel makes long-term mobility less necessary (or in other words increases the impact of short-term mobility). A few respondents specifically complained about the lack of funding for short-term mobility and about the bureaucracy involved in applying for such funding: "Not enough scope in EU funding for short-term visits for a project that is not directly associated with a COST action or other large scheme. Too much paperwork involved in applying for person-specific short-term visits"; "...As for obstacles, I would point to the few funding programs of mobility I am aware of that contemplate stays abroad longer than a week or two and shorter than six months". This is especially hard for older researchers: "... At my present situation (I am 53, doing research and teaching at university, taking care for elder parents) longer visits to other laboratories are no more possible. However shorter visits to other labs, like 1-3 months a year, would substantially help me to upgrade my experience ... I hardly see funding for such short time exchange in my age group."

7.9 Summary

This chapter has summarised our findings regarding some of the issues surrounding mobility and the decisions regarding mobility made by individual researchers working in the non-university research institutes sector. In what we are convinced to be the first survey of its kind we have asked researchers about their personal motives as they affected decisions to become mobile, about factors which acted to 'push' them away from one system and 'pull' them towards another, about barriers and obstacles experienced in the past, and about impacts of mobility (real and expected). Finally we asked about the future orientation of respondents towards mobility and collected data about likely 'hotspots' for future mobility.

The findings presented above suggest that personal/family factors are an important factor in decisions *not* to become mobile, whilst quality of life motives, career progression goals, personal research agenda goals and training and development goals are all important factors in decisions to become mobile. Open-text responses support the finding of the HEI researcher survey that there are changes in perspective across the career and life-course of the researcher.

We find that research-related factors such as access to appropriate research facilities and collaborators, or levels of and ability to access research funding are more important factors in determining the attractiveness of a potential 'target' country for international mobility than are salary and incentives. Labour market and immigration policy factors seldom seem to be important either as 'push' factors encouraging researchers to leave a particular national system or as 'pull' factors attracting researchers to a particular system. However they do register as sources of (sometimes serious) difficulties encountered by researchers in their own experiences of mobility.

Much as with the HEI researcher survey, factors such as obtaining funding, finding a suitable position and making childcare arrangements are both perceived as important concerns and are experienced as obstacles by a (sizeable) minority of mobile researchers. Other factors, such as healthcare and pensions arrangements, are similarly experienced as obstacles by a (sizeable) minority of researchers but do not seem to have dissuaded non-mobile researchers from becoming mobile in the past to the same extent as have caring and personal relationships, obtaining funding and the challenge of finding a suitable position.

As with the HEI survey, a number of respondents identified themselves as retired or nearly retired researchers. Older respondents stressed that mobility issues vary over the course of a life and career. Some noted that mobility was generally less common in the past and political and economic situation of a number of member states made

opportunities for mobility very limited. This is especially true of the former communist countries prior to 1990.

An interesting issue is the desire or plan of some senior researchers to work on after retirement in another country. Some even feel that they are “forced” to become mobile after retirement in order to continue their research because of fixed retirement ages for public servants in some member states. On the other hand shorter mobility periods seem to be more attractive to some senior researchers, whilst still others considered their own ageing (or that of a partner) as a practical obstacle to mobility. Respondents pointed to a lack of opportunities for senior researchers, suggesting that there is an age bias in much mobility funding (and perhaps research funding in general).

Although the focus of the survey was on substantial period of research mobility of three months or more, a number of respondents took the opportunity to stress that mobility for less than 3 months can be very useful and attractive. This seems to be especially the case for women, researchers with family obligations, more senior researchers and researchers with professional obligations in one country (e.g. teaching) that do not allow for long periods of absence. International conference visits and short visits of a few weeks were regarded as particularly beneficial by these respondents. It was also suggested that ICTs (virtual mobility) and cheap travel makes long-term mobility less necessary (or in other words increases the impact of short-term mobility). A few respondents specifically complained about the lack of funding for short-term mobility and about the bureaucracy involved in applying for such funding.

Finally, as we have noted before, mobility is an event in the personal, family and social life of a researcher as well as a step which may have impacts on the content and direction of their research, on the progression (for good or for ill) of their research career, and on the research institution(s) and networks in which they work - as one researcher put it “Mobility is a mixed blessing...”. It is these impacts which, in turn, have effects upon the broader national research and innovation “systems” in which researchers and research performing institutions act.

BIBLIOGRAPHY

- Bekkers, R. and Bodas Freitas, I. M., 2008. Analysing knowledge transfer channels between universities and industry: To what degree do sectors also matter. *Research Policy*, 37 (10), pp. 1837–1853.
- Cervantes, M. and Guellec, D., 2002, “The Brain Drain: Old Myths, New Realities”, OECD Observer, available at: http://www.oecdobserver.org/news/fullstory.php/aid/673/The_brain_drain:_Old_myths,_new_realities.html.
- Commission of the European Communities, 2001. *Communication from the Commission to the Council and the European Parliament. A Mobility Strategy for the European Research Area*.
- Criscuolo, P., 2005. On the road again: Researcher mobility inside the R&D network. *Research Policy*, 34 (9), pp. 1350–1365.
- Debackere, K. and Rappa, M., 1995. Scientists at major and minor universities: mobility along the prestige continuum. *Research Policy*, 24 (1), pp. 137–150.
- Dunnewijk, T., 2008. Global Migration of the highly skilled: a tentative and quantitative approach. *UNU Merit Working Paper*, WP 070.
- Dupuis, M-J., Haines, V., III and Saba, T., 2009. Gender, family ties, and international mobility: Cultural distance matters. *The International Journal of Human Resource Management*, 19 (2), pp. 274–295.
- ERAWATCH Network ASBL, 2007a. *Collection and analysis of existing data on Researchers Careers (RESCAR) and implementation of new data collection activities - the Research Team Survey. Draft Report Work Package 2 (WP2)*. Framework Service Contract Nr -150176-2005-F1SC-BE. Bonn: European Commission, IPTS.
- ERAWATCH Network ASBL, 2007b. *Collection and analysis of existing data on researchers careers (RESCAR) and Implementation of new data collection activities. Report Work Package 1 (WP1)*. Framework Service Contract Nr -150176-2005-F1SC-BE. Brussels: European Commission, IPTS.
- European Commission, 2006. *Mobility of Researchers between Academia and Industry - 12 Practical Recommendations*. Office for Official Publications of the European Communities.
- Faegri K. et al., 2002. Benchmarking National R&D Policies: Human Resources in RTD (Including Attractiveness of S&T Professions). STRATA-ETAN Expert Working Group. Final report 21 August 2002. Chairman Professor Knot Faegri. Commission of the European Communities.
- Ferro, A., 2006. Desired mobility and Satisfied Immobility. *Journal of Education and Work*, 19(2).
- Finn M.G., 2007. Stay rates of foreign doctorate recipients from U.S. Universities, 2005; Oak Ridge Institute for Science and Education.
- Fontes, M., 2007. Scientific mobility policies: how Portuguese scientists envisage the return home. *Science and Public Policy*, 34 (4), pp. 284.
- Gaillard, J. and Gaillard A-M., 1998. *International Migration of the Highly Qualified: A Bibliographic and Conceptual Itinerary*. New York: Center for Migration Studies.
- Gaughan, M. and Robin, S., 2004. National science training policy and early scientific careers in France and the United States. *Research Policy*, 33, pp. 569–581.

- Georgiou, L., Cox, D., Barker, K., Keenan, M. & Flanagan K., 2003, *A Comparative Analysis of Public, Semi-Public and Recently Privatised Research Centres*, Summary Final Report (European Commission, DG Research EUR 20805), ISBN 9289460431.
- Giannoccolo, P., 2005. Brain Drain Competition Policies in Europe: a Survey. *Working Papers* 20060201, Università degli Studi di Milano-Bicocca, Dipartimento di Statistica, revised Feb 2006.
- Graversen, K. E., 2000. *Human Capital Mobility into and out of Research Sectors in the Nordic Countries*. OECD NIS project (Phase III): Focus Group on Human Resources and Mobility meeting. Rome: The Danish Institute for Studies in Research and research Policy.
- Graversen, K. E., 2002. Job mobility among researchers in Denmark. *Working papers* 2002/8 Analyseinstitut for Forskning.
- Hauknes, J. and Ekeland, A., 2002. Mobility of researchers – policy, models and data. *STEP Report Series*, 200204.
- Johnson, J. M. and Regets, M., 1998. International Mobility of Scientists and Engineers To the US- Brain Drain or Brain Circulation?, *NSF Issue Brief*, 98-316, June 22, 1998.
- Laudel, G., 2005. Migration currents among the scientific elite. *Minerva*, 43.
- LeMouillour, I., Lenecke, K. and Schomburg, H., 2005. *Dynamics of Researchers' Career Paths and Mobility*. (Draft of Report 11). Human Resources in Research & Development: Monitoring System on Career Paths and Mobility Flows (MOMO Project) - Contract number - 22478-2004-11 F1ED SEV DE.
- Mahroum, S., 2000. Highly Skilled Globetrotters: Mapping the International Migration of Human Capital. *R&D Management*, 30.
- Martin, B.R., 2003. The changing social contract for science and the evolution of the university. In Geuna A., Salter A. J. and Steinmueller W. E. (eds) *Science and innovation: rethinking the rationales for funding and governance*. Edward Elgar.
- Mény, Y., 2008. Higher Education in Europe: National Systems, European Programmes, Global Issues: can they be reconciled?. *Fifth HEPI Annual Lecture, Higher Education Policy Institute*, Oxford, 15 January 2008. Available at: <http://www.hepi.ac.uk/>
- Moguéro, P. and Di Pietrogiacomo, M. P., 2007. *Deliverables 1, 2 & 3 (Draft) WP 1, 2 & 3: Indicators on researchers' stock, career and mobility*. FP6 Specific Support Action: Integrated Information System on European Researchers II. JRC, IPTS.
- Moguéro, P., Di Pietrogiacomo, M. P., Da Costa, O., Laget, P., Barjak, F., Robinson, S. and Mentrup, A., 2006. The dynamics of doctoral candidates and postdoctorates in life sciences in Europe and the United States. *PRIME-ENIP International Conference on Science, Technology and Innovation Indicators. History and New Perspectives*. Lugano, Switzerland.
- Moguéro P. (2007), La mobilité internationale des docteurs, Institute for Prospective Technological Studies, European Commission, Joint Research Centre, *Matinée ANDÈS "Expatriation des docteurs: un choix de carrière"* 10 novembre 2007, Institut de l'Ens Paris.
- Morano-Foadi, S., 2005. Scientific Mobility, Career Progression, and Excellence in the European Research Area. *International Migration*, 43, pp. 133-162.
- OECD, 1995. The measurement of Scientific and Technological Activities. Manual on the Measurement of Human Resources Devoted to S&T: Canberra manual. Paris: OECD.
- OECD, 1999. *University Research in Transition*. OECD STI Outlook, Paris: OECD.
- OECD, 2002. *Proposed Standard Practice for Surveys on Research and Experimental Development, Frascati Manual*. Paris: OECD.

- OECD, 2004. Why do we need indicators on Careers of Doctorate holders?. *Workshop on user needs for indicators on careers of doctorate holders*. OECD Paris La Défense, OECD, Directorate for Science, Technology and Industry, Committee of Scientific and Technological Policy. Working Party of National Experts on Science and Technology Indicators.
- OECD, 2006. *Education Policy Analysis: Focus on Higher Education 2005-2006*. Paris: OECD.
- OECD, 2008. *The Global Competition for Talent: Mobility of the highly skilled*, OECD, Paris, 165p.
- Peixoto, J., 2001. Migration and policies in the European Union: Highly Skilled Mobility, Free Movement of Labour and Recognition of Diplomas. *International Migration*, 39 (1).
- Polt, W., Rammer, C., Gassler, H., Schibany, A. and Scharfetter, D., 2001. Benchmarking industry–science relations: the role of framework conditions. *Science and Public Policy*, 28, pp. 247–258.
- Radosevic S and Auriol L, 1999, Patterns of restructuring in research, development and innovation activities in central and eastern European countries: an analysis based on S&T indicators, *Research Policy*, Volume 28, Issue 4, April 1999, Pages 351-376.
- RINDICATE, 2008, *Evidence on the main factors inhibiting mobility and career development of researchers* (RINDICATE Consortium for the European Commission DG Research: ISBN 978-92-79-09258-9).
- Rip, A. and Van der Meulen, B., 1996. The post-modern research system. *Science and Public Policy*, 23 (6), pp343-352.
- Robinson, S., Mentrup, A., Barjak, F. and Thelwall, M., 2007. *Collection and analysis of existing data on RESEARCHERS CAREERS and implementation of new data collection activities - the Research Team Survey*. Draft Final Report. Framework Service Contract Nr - 150176-2005-F1SC-BE. Bonn: European Commission, IPTS.
- Saxenian, A. 2006, *The New Argonauts: Regional Advantage in a Global Economy* (2006) Cambridge MA: Harvard University Press.
- Saxenian, A., 2002, "Brain Circulation: How High-Skill Immigration Makes Everyone Better Off" *The Brookings Review*, Winter 2002 Vol.20 No.1 pp. 28-31.
- Song, J., Almeida, P. and Wu, G., 2003. Learning-by-Hiring: When Is Mobility More Likely to Facilitate Interfirm Knowledge Transfer. *Management Science*, 49 (4).
- Thorn, K. and Holm-Nielsen, B. L., 2006. International Mobility of Researchers and Scientists Policy Options for Turning a Drain into a Gain. *UNU-WIDER Research Paper No. 2006/83*. UNU-WIDER.
- Tomlinson, M. and Miles, I., 1999. The career trajectories of knowledge workers. *OECD workshop on science and technology labour markets*. Paris: OECD.
- Toole, A. A. and Czarnitzki, D., 2007. Life Scientist Mobility from Academe to Industry: Does Academic Entrepreneurship Induce a Costly "Brain Drain" on the Not-for-Profit Research Sector?. *ZEW Discussion Paper*, No. 07-072.
- Valcour, P. and Tolbert, P., 2003. Gender, family and career in the era of boundarylessness: determinants and effects of intra- and inter-organizational mobility. *The International Journal of Human Resource Management*, 14 (5), pp. 768.
- Van de Sande, D., Ackers, H. L. et al., 2005. Impact assessment of the Marie Curie fellowships under the 4th and 5th Framework Programmes of Research and Technological Development of the EU (1994-2002). Report of IMPAFEL 2, Contract No. IHP-D2-2003-01: 95.
- van Raan, A.F.J., 1997, Science as an international enterprise. *Science and Public Policy* 24 5 (1997), pp. 290–300.

Weinberg, A. M., 1967. *Reflections on Big Science*. Oxford: Pergamon Press.

Whitley, R., 2008a. Constructing Universities as Strategic Actors: Limitations and Variations. *Manchester Business School Working Paper* No. 557, June 2008, Manchester Business School, University of Manchester.

Whitley, R., 2008b. Changing authority relations in public science systems and their consequences for the direction and organisation of research", *Manchester Business School Working Paper* No. 556, June 2008, Manchester Business School, University of Manchester.

Zellner, C., 2003. The economic effects of basic research: evidence for embodied knowledge transfer via scientists' migration. *Research Policy*, 32 (10), pp. 1881.

Zucker, L., Darby, M. and Torero, M., 2002. Labor Mobility from Academe to Commerce. *Journal of Labor Economics*, 20 (3), pp. 629–660.

LIST OF ABBREVIATIONS

Country	Abbreviation
Belgium	BE
Bulgaria	BG
Czech Republic	CZ
Denmark	DK
Germany	DE
Estonia	EE
Ireland	IE
Greece	GR
Spain	ES
France	FR
Italy	IT
Cyprus	CY
Latvia	LV
Lithuania	LT
Luxembourg	LU
Hungary	HU
Malta	MT
Netherlands	NL
Austria	AT
Poland	PL
Portugal	PT
Romania	RO
Slovenia	SI
Slovakia	SK
Finland	FI
Sweden	SE
United Kingdom	UK
Total	EU27

ANNEX 1 CAREER PATHS AND INTERNATIONAL MOBILITY: ADDITIONAL TABLES FOR CHAPTER 6

Table A1-1: Shares of researchers in the research institutes sector in EU27 who have been employed as a researcher in a university or other HEI by country of affiliation and by field of education. n=4,856.

Country	Acronym	Natural Sciences and Technology	Medical Sciences and Agriculture	Social Sciences and Humanities	Total
Belgium	BE	60	70	60	62
Bulgaria	BG	57	62	68	59
Czech Republic	CZ	66	80	69	67
Denmark	DK	50	36	50	47
Germany	DE	71	74	70	71
Greece	GR	76	100	80	78
Spain	ES	75	73	78	75
France	FR	80	78	85	80
Italy	IT	65	63	54	64
Hungary	HU	64	60	69	66
Netherlands	NL	66	57	76	69
Austria	AT	58	67	56	57
Poland	PL	69	43	76	67
Romania	RO	40	0	65	54
Slovenia	SI	29	0	38	32
Slovakia	SK	60	42	47	57
Finland	FI	74	51	75	65
United Kingdom	UK	75	71	54	72
Total	EU27	68	62	66	67

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), and (ii) "During the course of your research career, have you ever been employed as a researcher in a university or other HEI?" (Question 50).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.

4) In the table we measure the share of EU27 researchers by the country a person's email address refers to, and by field of education.

Table A1-2: Shares of researchers in the research institutes sector in EU27 who have been employed as a researcher in the private, for-profit sector by country of affiliation and by field of education. n=3,997.

Country	Acronym	Natural Sciences and Technology	Medical Sciences and Agriculture	Social Sciences and Humanities	Total
Belgium	BE	17	25	20	18
Bulgaria	BG	18	20	39	22
Czech Republic	CZ	9	0	4	8
Denmark	DK	32	36	15	29
Germany	DE	12	10	13	12
Greece	GR	21	25	67	24
Spain	ES	14	13	21	15
France	FR	17	18	19	17
Italy	IT	18	20	19	18
Hungary	HU	16	25	29	21
Netherlands	NL	6	7	16	10
Austria	AT	24	0	18	21
Poland	PL	10	11	35	13
Romania	RO	5	0	46	28
Slovenia	SI	7	0	8	7
Slovakia	SK	11	0	6	10
Finland	FI	16	17	33	18
United Kingdom	UK	16	16	21	17
Total	EU27	15	16	21	16

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), and (ii) "During the course of your research career, have you ever been employed as a researcher in the private, for-profit sector?" (Question 50).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.

4) In the table we measure the share of EU27 researchers by the country a person's email address refers to, and by field of education.

Table A1-3: Shares of researchers in the research institutes sector in EU27 having experience of at least one move to a new employer in another country in their researcher career by country of affiliation and by field of education. n=3,285.

Country	Acronym	Natural Sciences and Technology	Medical Sciences and Agriculture	Social Sciences and Humanities	Total
Belgium	BE	89	50	25	73
Bulgaria	BG	30	56	24	30
Czech Republic	CZ	57	17	58	56
Denmark	DK	54	36	27	46
Germany	DE	82	65	69	79
Greece	GR	56	33	25	52
Spain	ES	63	53	50	60
France	FR	77	56	43	73
Italy	IT	31	40	16	31
Hungary	HU	56	40	35	50
Netherlands	NL	92	67	48	73
Austria	AT	83		67	77
Poland	PL	59	27	25	55
Romania	RO	15		29	21
Slovenia	SI	41		25	33
Slovakia	SK	43	43	29	41
Finland	FI	57	24	25	41
United Kingdom	UK	81	70	69	79
Total	EU27	61	48	45	58

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), and (ii) "Did any of these instances of international mobility involve a move to a new employer in another country?" (Question 55).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are excluded from the table, since there are few (or no) respondents from these countries.

4) In the table we measure the share of EU27 researchers by the country a person's email address refers to, and by field of education.

Table A1-4: Shares of researchers in the research institutes sector in EU27 having experience of at least one research visit to another country in their researcher career by country of affiliation and by field of education. n=3,285.

Country	Acronym	Natural Sciences and Technology	Medical Sciences and Agriculture	Social Sciences and Humanities	Total
Belgium	BE	39	100	100	58
Bulgaria	BG	91	89	98	92
Czech Republic	CZ	78	83	79	78
Denmark	DK	68	55	80	68
Germany	DE	48	65	80	54
Greece	GR	64	33	75	63
Spain	ES	74	78	81	76
France	FR	58	63	83	61
Italy	IT	84	88	96	86
Hungary	HU	85	100	83	85
Netherlands	NL	47	42	83	58
Austria	AT	58		79	66
Poland	PL	93	100	100	94
Romania	RO	90		100	94
Slovenia	SI	82		81	82
Slovakia	SK	84	71	100	85
Finland	FI	70	82	75	75
United Kingdom	UK	49	50	69	51
Total	EU27	70	75	84	73

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), and (ii) "Did any of these instances of international mobility involve a research visit to another country without a change of employer?" (Question 55).
- 2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Ireland, Malta, Portugal and Sweden are not included in the figure because there are few (or no) respondents from these countries.
- 4) In the table we measure the share of EU27 researchers by the country a person's email address refers to, and by field of education.

ANNEX 2 THE MOBILITY QUESTIONNAIRE OF THE NON-UNIVERSITY RESEARCH INSTITUTES SECTOR

1. Welcome to the Researcher Mobility Survey of the Research Institutes Sector

2. Besides a number of simple but important questions about you and your education and research career, we will ask you a series of questions on the role of certain factors (personal life, working and/or country related conditions etc.) in influencing your attitudes to mobility. We will also ask you about the possibility of being mobile in the future, and moreover about the (expected) impacts of international mobility on your research career. It should take no more than 10-15 minutes to complete the questionnaire but you can save your response and return to the survey at any time. Your responses will remain strictly confidential and will only be used for the purposes of this mobility study. Thank you very much for your time and support. Please start with the survey now by clicking on the Continue button below. For the purposes of this survey the Research Institutes sector consists of non-university owned public or government research institutes and independent, not-for-profit research institutes such as Academy of Sciences institutes, research foundation institutes etc.

3. ABOUT YOU

4. The following 3 questions serve the purpose of screening researchers from non-researchers. Please note that according to Eurostat definitions all postgraduate students at the PhD level engaged in R&D activities are considered as researchers. Therefore, if you hold a PhD degree (or equivalent) or are studying towards one, we will ask you to consider the period of your PhD education as the period you started a researcher career.

5. In the context of your present job do you carry out research?

Yes

No

6. In the context of your present job do you supervise research?

Yes

No

7. In the context of your present job do you improve or develop new products/processes/services?

Yes

No

8. What is your gender?

Male

Female

9. What is your year of birth?

Drop-down list

10. What is your country of birth?

Drop-down list

11. Please list the country or countries of your citizenship. (You can choose more than one country by using the Ctrl button.)

Drop-down list

12. What is your marital status?

- Married or cohabiting
- Single
- Prefer not to disclose

13. Do you have children?

- Yes
- No

14. Number of children:

Drop-down list

15. What is the age of your eldest child? (Please round up to the nearest year)

Drop-down list

16. YOUR EDUCATION AND TRAINING

17. What is your highest educational attainment?

- Postgraduate degree (PhD or equivalent)
- Graduate degree (master degree or equivalent)
- Undergraduate degree (bachelor degree or equivalent)
- Secondary education (i.e. high school, gymnasium, grammar school, lyceum or equivalent)

18. In which country did you obtain your postgraduate degree (PhD or equivalent)?

Drop-down list

19. In which year did you obtain your postgraduate degree (PhD or equivalent)?

Drop-down list

20. Do you have a graduate degree (master degree or equivalent)?

Yes

No

21. In which country did you obtain your graduate degree (master degree or equivalent)?

Drop-down list

22. In which year did you obtain your graduate degree (master degree or equivalent)?

Drop-down list

23. Do you have an undergraduate degree (bachelor degree or equivalent)?

Yes

No

24. In which country did you obtain your undergraduate degree (bachelor degree or equivalent)?

Drop-down list

25. In which year did you obtain your undergraduate degree (bachelor degree or equivalent)?

Drop-down list

26. During your post-secondary education (i.e. in further or higher education, excluding your PhD if you have one) did you spend time (minimum 3 months) as an 'exchange student' (e.g. Erasmus or similar) in a different country from the country in which you were conducting your studies?

Yes

No

27. During your post-secondary education (i.e. in further or higher education, excluding your PhD if you have one) did you spend time working in industry on a formal placement, internship, apprenticeship or similar? Please exclude part-time or vacation jobs unrelated to your programme of study.

Yes

No

28. In which country did you obtain your secondary education (i.e. high school, gymnasium, grammar school, lyceum or equivalent)?

Drop-down list

29. In which year did you complete your secondary education (i.e. high school, gymnasium, grammar school, lyceum or equivalent)?

Drop-down list

30. If applicable, in which country did you obtain a second educational attainment equivalent to your highest educational attainment (for example a second Masters)?

Drop-down list

31. In which year did you obtain this second attainment?

Drop-down list

32. Please indicate in which field of research you have obtained your highest educational attainment.

Drop-down list

33. YOUR CURRENT EMPLOYMENT AS A RESEARCHER

34. Which of the following categories do you consider best describes your current status as a researcher?

- Doctoral/PhD student
- Postdoctoral researcher
- Other researcher

35. What is the name of your current employer? If you are employed by more than one employer, please give the name of the organisation that you consider to be your principal employer as a researcher.

36. In which country is this principal employer located?

Drop-down list

37. Is this also your current country of residence?

- Yes
- No

38. Please indicate your country of residence.

Drop-down list

39. How long (years) have you been employed by this principal employer?

Drop-down list

40. Is your principal employer:

- A public or government research institute
- Academy of Sciences institute
- An independent, not-for-profit research institute (e.g. research foundation)
- A private firm
- A university or other higher education institution (HEI)
- Other

41. What is your employment contract status?

- Fixed term contract, less than 1 year
- Fixed term contract, 1-2 years
- Fixed term contract, > 2 years
- Open ended (tenure) contract
- Self-employed service provider
- Other, please specify _____

42. How long (years) have you been working under this contract status?

Drop-down list

43. Does this contract involve full- or part-time work?

- Full-time
- Part-time

44. If you have a secondary employer is this:

- A public or government research institute
- Academy of Sciences institute
- An independent, not-for-profit research institute (e.g. research foundation)
- A private firm
- A university or other higher education institution (HEI)
- Other

45. Is your secondary employer in the same country as your principal employer?

- Yes
- No

46. Do you hold an honorary position/unpaid position (affiliation) in a University or other HEI?

- Yes
- No

47. Is this honorary/unpaid position in the same country as your principal employer?

- Yes
- No

48. YOUR EXPERIENCE OF MOBILITY

This section focuses on your experience of mobility during your research career. Please consider the entire period of your PhD education, if you hold or studying towards one, as an integral part of your career as researcher.

49. a) Career path

50. During the course of your research career, have you ever:

	Yes	No
Been employed as a researcher in a university or other HEI?	<input type="checkbox"/>	<input type="checkbox"/>
Been employed as a researcher in the private, for-profit sector?	<input type="checkbox"/>	<input type="checkbox"/>

51. During your employment career as a researcher, for how many public or not-for-profit research performing organisations (e.g. public research institutes, not-for-profit research institutes, higher education institutions or other public research institutes) have you worked?

52. b) Geographic mobility

Please consider the entire period of your PhD education (if you have a PhD or are studying towards one) as an integral part of your career as researcher.

53. In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as a previously "internationally mobile" researcher.)

Yes

No

54. Please feel free to provide any additional comments below.

55. Did any of these instances of international mobility involve:

	Yes	No
A move to a new employer in another country?	<input type="checkbox"/>	<input type="checkbox"/>
A research visit to another country without a change of employer?	<input type="checkbox"/>	<input type="checkbox"/>

56. Have you been internationally mobile in the last three years?

Yes

No

57. A: FOR RESEARCHERS WHO HAVE BEEN INTERNATIONALLY MOBILE

58. Was your most recent instance of international mobility a research visit which did not involve a change of job?

Yes

No

59. Did this international mobility also involve a change of sector (that is from the public or not-for-profit sector to the private sector)?

Yes

No

60. To what extent were the following factors important in influencing your personal motivation to become mobile? If a factor was not a consideration please select 'unimportant'.

	Unimportant	Not very important	Important	Highly important
Personal/family factors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My quality of life (or that of my family)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My training and development goals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My career progression goals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My personal research agenda (i.e. the content and direction of my research)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Desire to return to a country in which I have previously lived/worked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

61. To what extent were the following factors important in your decision to leave the country you had previously been working in? If a factor was not a consideration please select 'unimportant'.

	Unimportant	Not very important	Important	Highly important
Lack of access to the facilities / equipment necessary to my research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of suitable research collaborators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of links with companies and users of research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General level of research funding nationally	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to access funding for your own research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of availability of career opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor salary and incentives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor conditions at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor pension and social care provision	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unattractive labour regulations (e.g. working week, health and safety laws)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Immigration regulations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

62. To what extent were the following factors in the host or destination country to which you moved important in your decision to become mobile?

	Unimportant	Not very important	Important	Highly important
Access to the facilities / equipment necessary to my research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Access to suitable research collaborators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Possibility of links with companies and users of research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General level of research funding nationally	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to access funding for your own research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Availability of career opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More attractive salary and incentives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More attractive working conditions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More attractive pension and social care provision	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More attractive labour regulations (e.g. working week, health and safety laws)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Immigration regulations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

63. In opting to be a mobile researcher, did you experience difficulties in relation to any of the following factors?

	Experienced no difficulty	Experienced a little difficulty	Experienced some difficulty	Experienced major difficulties	Not applicable
Immigration regulations (e.g. getting a work visa)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Obtaining funding for mobility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Finding a suitable work/visitor position	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Language	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Social/cultural integration in the host/destination country	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Integration into a new 'research system'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Making child care arrangements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other caring responsibilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintaining existing personal relationships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Finding suitable accommodation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintaining continuity of / transferring pension rights or contributions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintaining continuity of/ transferring health insurance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

64. Overall, what effect has your time as a mobile researcher had on your career progression?

- Mobility has had significant negative impacts on my career progression
- Mobility has had negative impacts on my career progression
- Mobility has had no impact on my career progression
- Mobility has had positive impacts on my career progression
- Mobility has had significant positive impacts to my career progression

65. Have you actively considered being internationally mobile in the future?

- Yes
- No

66. Are you open to the possibility of being mobile in the future?

- Yes
- No

67. Which country location is the most attractive to you in terms of potential future mobility?

Drop-down list

68. Have you ever worked in or undertaken a research visit to this country?

- Yes
- No
- Not applicable

69. What effects do you think further international mobility would have on your future career progression?

- Further mobility would have significant negative impacts on my career progression
- Further mobility would have negative impacts on my career progression
- Further mobility would have no impact on my career progression
- Further mobility would have positive impacts on my career progression
- Further mobility would have significant positive impacts on my career progression

70. Could you please provide any other comment or information you wish to share regarding your experience of international mobility, any obstacles to mobility you have encountered and the impacts mobility has had on your career?

71. B: FOR THOSE WHO HAVE NEVER BEEN INTERNATIONALLY MOBILE AS A RESEARCHER

72. To what extent have the following personal factors been important in dissuading or preventing you from being internationally mobile during your research career so far? If a factor has not been relevant please select 'unimportant'.

	Unimportant	Not very important	Important	Highly important
Personal/family factors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My quality of life (or that of my family)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My training and development goals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My career progression goals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My personal research agenda (i.e. the content and direction of my research)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

73. To what extent have the following factors in your current position/country of work been important in influencing your decision not to become mobile so far?

	Unimportant	Not very important	Important	Highly important
Access to the facilities / equipment necessary to my research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Access to suitable research collaborators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Possibility of links with companies and users of research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General level of research funding nationally	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to access funding for your own research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Availability of career opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attractive salary and incentives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attractive conditions at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attractive pension and social care provision	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attractive labour regulations (e.g. working week, health and safety laws)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Immigration regulations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

74. To what extent have the following considerations been important in dissuading or preventing you from being internationally mobile so far? If a factor has not been relevant please select 'unimportant'.

	Have not influenced me so far	Have been a minor consideration	Have been a major consideration	Have been a severe obstacle to mobility	Not applicable
Immigration regulations (e.g. getting a work visa)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Obtaining funding for mobility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Finding a suitable work/visitor position	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Language	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Social/cultural integration in the host/destination country	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Integration into a new 'research system'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Making child care arrangements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other caring responsibilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintaining existing personal relationships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Finding suitable accommodation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintaining continuity of / transferring pension rights or contributions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintaining continuity of/ transferring health insurance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

75. Have you actively considered being internationally mobile in the future?

- Yes
- No

76. Are you open to the possibility of being mobile in the future?

- Yes
- No

77. To what extent are the following factors in your current position/country of work important in motivating you to consider mobility in the future?

	Unimportant	Not very important	Important	Highly important
Lack of access to the facilities / equipment necessary to my research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of suitable research collaborators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of links with companies and users of research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General level of research funding nationally	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to access funding for your own research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of availability of career opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor conditions at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor salary and incentives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor pension and social care provision	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unattractive labour regulations (e.g. working week, health and safety laws)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Immigration regulations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

78. Which country location is the most attractive to you in terms of potential future mobility?

Drop-down list

79. What effects do you think international mobility would have on your future career progression?

- Mobility would have significant negative impacts on my career progression
- Mobility would have negative impacts on my career progression
- Mobility would have no impact on my career progression
- Mobility would have positive impacts on my career progression
- Mobility would have significant positive impacts on my career progression

80. Could you please provide any other comment or information you wish to share regarding international mobility and especially the costs and benefits of mobility?

81. Thank you for your participation in the survey

ANNEX 3: DETAILS OF THE CHAPTER 7 ANALYSIS

SUMMARY REFERENCE TABLES

OBSTACLES TO MOBILITY EXPERIENCED IN THE PAST BY PREVIOUSLY MOBILE RESEARCHERS (GROUP A)

	Experienced no difficulty	Experienced a little difficulty	Experienced some difficulty	Experienced major difficulties		n=	Not applicable
Immigration regulations	61.6%	18.0%	15.4%	5.0%	100%	2835	234
Obtaining funding for mobility	40.2%	23.4%	26.0%	10.4%	100%	2826	220
Finding a suitable position	51.3%	23.4%	18.5%	6.8%	100%	2926	150
Language	48.8%	27.3%	19.6%	4.3%	100%	3016	71
Social/cultural integration into a new country	50.6%	29.9%	15.8%	3.8%	100%	3034	52
Integration into a new research system	50.0%	32.5%	15.0%	2.5%	100%	3015	79
Making childcare arrangements	59.5%	15.8%	14.4%	10.2%	100%	1749	938
Other caring responsibilities	61.5%	19.2%	14.4%	4.9%	100%	1924	847
Maintaining existing personal relationships	35.4%	26.3%	25.7%	12.7%	100%	2924	139
Finding suitable accommodation	36.9%	31.2%	23.8%	8.1%	100%	2984	70
Maintaining continuity/transferring pension rights/contributions	51.0%	19.0%	16.2%	13.9%	100%	2247	605
Maintaining continuity of/transferring health insurance	53.9%	19.6%	15.7%	10.8%	100%	2504	450

INHIBITING FACTORS AND BARRIERS TO MOBILITY IN THE PAST FOR ‘NON-MOBILE’ RESEARCHERS (GROUP B)

	Have not influenced me so far	Have been a minor consideration	Have been a major consideration	Have been a severe obstacle to mobility		n=	Not applicable
Immigration regulations	72.5%	15.1%	7.4%	5.0%	100%	1387	156
Obtaining funding for mobility	31.0%	23.0%	27.2%	18.9%	100%	1453	79
Finding a suitable position	24.2%	22.0%	36.6%	17.2%	100%	1461	72
Language	45.9%	33.6%	16.1%	4.4%	100%	1478	53
Social/cultural integration into a new country	52.5%	30.0%	13.4%	4.0%	100%	1460	68
Integration into a new research system	44.7%	35.8%	16.9%	2.6%	100%	1480	58
Making childcare arrangements	45.8%	13.7%	22.1%	18.4%	100%	1290	241
Other caring responsibilities	43.6%	21.5%	22.0%	12.9%	100%	1334	184
Maintaining existing personal relationships	22.0%	26.7%	33.0%	18.3%	100%	1456	72
Finding suitable accommodation	46.6%	32.7%	16.9%	3.8%	100%	1456	69
Maintaining continuity/transferring pension rights/contributions	54.2%	25.8%	14.7%	5.2%	100%	1417	109
Maintaining continuity of/transferring health insurance	54.3%	25.6%	15.9%	4.2%	100%	1430	98

Table 13: Personal and family factors as an influence on past mobility decisions

	On most recent instance of mobility (A - Previously mobile researchers) (n=3234)	On decision not to be mobile (B - Not previously mobile researchers) (n=1651)
Unimportant	19.0%	11.1%
Not very important	19.6%	14.1%
Important	33.4%	34.4%
Highly important	28.0%	40.5%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 60 and 72.

Table 14: Personal and family factors as an influence on most recent instance of mobility by gender (Group A - previously mobile researchers),

	Male (n=2076)	Female (n=1157)
Unimportant	19.9%	17.5%
Not very important	19.7%	19.3%
Important	35.1%	30.4%
Highly important	25.3%	32.8%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 8 and 60.

Table 15: Personal and family factors as an influence on mobility (Group B – non-mobile respondents)

	Male (n=942)	Female (n=709)
Unimportant	12.0%	9.9%
Not very important	14.9%	13.0%
Important	36.1%	32.2%
Highly important	37.0%	45.0%

Source: The Mobility Survey of the Research Institutes Sector

1) The table is based on Questions 8 and 72.

Table 16: Quality of life factors as an influence on mobility

	On most recent instance of mobility (A - Previously mobile researchers) (n=3229)	On decision not to be mobile (B - Not previously mobile researchers) (n=1626)
Unimportant	13.7%	17.2%
Not very important	17.6%	21.6%
Important	44.4%	39.9%
Highly important	24.2%	21.3%

Source: The Mobility Survey of the Research Institutes Sector

Notes: 1) The table is based on Questions 60 and 72.

Table 17: Training and development goals as an influence on mobility

	On most recent instance of mobility (A - Previously mobile researchers) (n=3243)	On decision not to be mobile (B - Not previously mobile researchers) (n=1607)
Unimportant	1.9%	25.3%
Not very important	5.1%	26.6%
Important	39.8%	35.1%
Highly important	53.2%	13.0%

Source: The Mobility Survey of the Research Institutes Sector

Notes: 1) The table is based on Questions 60 and 72.

Table 18: Career progression goals as an influence on mobility

	On most recent instance of mobility (A - Previously mobile researchers) (n=3242)	On decision not to be mobile (B - Not previously mobile researchers) (n=1611)
Unimportant	2.2%	26.8%
Not very important	11.1%	26.8%
Important	39.8%	34.5%
Highly important	44.9%	11.9%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 60 and 72.

Table 19: Personal research agenda (content and direction of research) as an influence on mobility

	On most recent instance of mobility (A - Previously mobile researchers) (n=3241)	On decision not to be mobile (B - Not previously mobile researchers (n=1609)
Unimportant	2.7%	23.6%
Not very important	10.9%	24.2%
Important	41.1%	34.9%
Highly important	45.4%	17.3%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 60 and 72.

Table 20: Lack of availability of career opportunities at home as a PUSH factor for mobility (Group A - previously mobile researchers)

	On most recent instance of mobility (n=3044)
Unimportant	28.4%
Not very important	18.5%
Important	29.4%
Highly important	23.8%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Question 61.

Table 21: Availability of career opportunities elsewhere as a PULL factor for mobility (Group A - previously mobile researchers)

	On most recent instance of mobility (n=3056)
Unimportant	15.5%
Not very important	19.1%
Important	37.6%
Highly important	27.8%

Source: The Mobility Survey of the Research Institutes Sector

Notes: 1) The table is based on Question 62.

Table 22: Availability of career opportunities at home as a STAY factor in past decisions not to be mobile (Group B – non-mobile researchers)

On decision not to be mobile (n=1545)	
Unimportant	19.4%
Not very important	25.1%
Important	38.4%
Highly important	17.1%

Source: The Mobility Survey of the Research Institutes Sector
 Notes: 1) The table is based on Question 73.

Table 23: Poor salary and incentives at home as a PUSH factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3045)	
Unimportant	37.1%
Not very important	23.3%
Important	23.9%
Highly important	15.7%

Source: The Mobility Survey of the Research Institutes Sector
 Notes: 1) The table is based on Question 61.

Table 24: More attractive salary and incentives elsewhere as a PULL factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3060)	
Unimportant	26.5%
Not very important	23.8%
Important	32.2%
Highly important	17.5%

Source: The Mobility Survey of the Research Institutes Sector
 Notes: 1) The table is based on Question 62.

Table 25: Salary and incentives at home as a STAY factor in past decisions not to be mobile (Group B – non-mobile researchers)

On decision not to be mobile (n=1542)	
Unimportant	30.6%
Not very important	33.4%
Important	27.4%
Highly important	8.6%

Source: The Mobility Survey of the Research Institutes Sector
 Notes: 1) The table is based on Question 73.

Table 26: Poor working conditions in home country as a PUSH factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3039)	
Unimportant	42.4%
Not very important	21.9%
Important	22.3%
Highly important	13.4%

Source: The Mobility Survey of the Research Institutes Sector
 Notes: 1) The table is based on Question 61.

Table 27: More attractive working conditions elsewhere as a PULL factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3061)	
Unimportant	21.4%
Not very important	21.3%
Important	37.7%
Highly important	19.6%

Source: The Mobility Survey of the Research Institutes Sector
 Notes: 1) The table is based on Question 62.

*Table 28: Working conditions at home as a STAY factor in past decisions not to be mobile
(Group B – non-mobile researchers)*

On decision not to be mobile (n=1544)	
Unimportant	20.4%
Not very important	22.5%
Important	39.4%
Highly important	17.7%

Source: The Mobility Survey of the Research Institutes Sector
Notes: 1) The table is based on Question 73.

Table 29: Lack of access to necessary research equipment or facilities as a PUSH factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3073)	
Unimportant	38.3%
Not very important	18.8%
Important	27.9%
Highly important	15.0%

Source: The Mobility Survey of the Research Institutes Sector
Notes: 1) The table is based on Question 61.

Table 30: Access to necessary research equipment or facilities as a PULL factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3090)	
Unimportant	11.6%
Not very important	9.6%
Important	45.2%
Highly important	33.7%

Source: The Mobility Survey of the Research Institutes Sector
Notes: 1) The table is based on Question 62.

Table 31: Access to necessary research equipment or facilities as a STAY factor in past decisions not to be mobile (Group B – non-mobile researchers)

On decision not to be mobile (n=1552)	
Unimportant	26.7%
Not very important	26.1%
Important	31.9%
Highly important	15.3%

Source: The Mobility Survey of the Research Institutes Sector
 Notes: 1) The table is based on Question 73.

Table 32: Lack of suitable research collaborators as a PUSH factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3059)	
Unimportant	37.0%
Not very important	24.0%
Important	27.8%
Highly important	11.3%

Source: The Mobility Survey of the Research Institutes Sector
 Notes: 1) The table is based on Question 61.

Table 33: Access to suitable research collaborators as a PULL factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3089)	
Unimportant	9.0%
Not very important	10.4%
Important	45.3%
Highly important	35.3%

Source: The Mobility Survey of the Research Institutes Sector
 Notes: 1) The table is based on Question 62.

Table 34: Access to suitable research collaborators as a STAY factor in past decisions not to be mobile (Group B – non-mobile researchers)

On decision not to be mobile (n=1552)	
Unimportant	20.6%
Not very important	25.2%
Important	39.4%
Highly important	14.8%

Source: The Mobility Survey of the Research Institutes Sector
Notes: 1) The table is based on Question 73.

Table 35: A desire to return to a country in which the researcher has previously lived or worked as an influence on mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3220)	
Unimportant	39.9%
Not very important	28.4%
Important	22.3%
Highly important	9.3%

Source: The Mobility Survey of the Research Institutes Sector
Notes: 1) The table is based on Question 60.

Table 36: Unattractive labour regulations as a PUSH factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3024)	
Unimportant	57.9%
Not very important	26.0%
Important	11.6%
Highly important	4.5%

Source: The Mobility Survey of the Research Institutes Sector
Notes: 1) The table is based on Question 61.

Table 37: More attractive labour regulations as a PULL factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3042)	
Unimportant	49.2%
Not very important	30.6%
Important	15.5%
Highly important	4.6%

Source: The Mobility Survey of the Research Institutes Sector
Notes: 1) The table is based on Question 62.

Table 38: Labour regulations as a STAY factor in past decisions not to be mobile (Group B - non-mobile researchers)

On decision not to be mobile (n=1537)	
Unimportant	30.5%
Not very important	29.9%
Important	31.0%
Highly important	8.5%

Source: The Mobility Survey of the Research Institutes Sector
Notes: 1) The table is based on Question 73.

Table 39: Immigration regulations as a PUSH factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3040)	
Unimportant	68.9%
Not very important	18.8%
Important	8.2%
Highly important	4.0%

Source: The Mobility Survey of the Research Institutes Sector
Notes: 1) The table is based on Question 61.

Table 40: Immigration regulations as a PULL factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3042)	
Unimportant	64.8%
Not very important	22.4%
Important	9.6%
Highly important	3.2%

Source: The Mobility Survey of the Research Institutes Sector
Notes: 1) The table is based on Question 62.

Table 41: Immigration regulations as a STAY factor in past decisions not to be mobile (Group B - non-mobile researchers)

On decision not to be mobile (n=1542)	
Unimportant	58.2%
Not very important	23.9%
Important	10.9%
Highly important	7.0%

Source: The Mobility Survey of the Research Institutes Sector
Notes: 1) The table is based on Question 73.

Table 42: Pension and social care provision as a PUSH factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3031)	
Unimportant	51.4%
Not very important	25.5%
Important	16.4%
Highly important	6.8%

Source: The Mobility Survey of the Research Institutes Sector
Notes: 1) The table is based on Question 61.

Table 43: Pension and social care provision as a PULL factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3030)	
Unimportant	45.0%
Not very important	31.6%
Important	17.3%
Highly important	6.1%

Source: The Mobility Survey of the Research Institutes Sector
Notes: 1) The table is based on Question 62.

Table 44: Pension and social care provision as a STAY factor in past decisions not to be mobile (Group B - non-mobile researchers)

On decision not to be mobile (n=1531)	
Unimportant	31.3%
Not very important	32.6%
Important	28.1%
Highly important	8.0%

Source: The Mobility Survey of the Research Institutes Sector
Notes: 1) The table is based on Question 73.

Table 45: General level of research funding nationally as a PUSH factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3060)	
Unimportant	33.0%
Not very important	16.7%
Important	31.2%
Highly important	19.1%

Source: The Mobility Survey of the Research Institutes Sector
Notes: 1) The table is based on Question 61.

Table 46: General level of research funding nationally as a PULL factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3059)	
Unimportant	19.1%
Not very important	19.0%
Important	42.8%
Highly important	19.2%

Source: The Mobility Survey of the Research Institutes Sector
Notes: 1) The table is based on Question 62.

Table 47: General level of research funding nationally as a STAY factor in past decisions not to be mobile (Group B – non-mobile researchers)

On decision not to be mobile (n=1547)	
Unimportant	24.4%
Not very important	29.3%
Important	32.6%
Highly important	13.6%

Source: The Mobility Survey of the Research Institutes Sector
Notes: 1) The table is based on Question 73.

Table 48: Ability to access funding for respondent's own research as a PUSH factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3043)	
Unimportant	30.6%
Not very important	17.8%
Important	33.0%
Highly important	18.5%

Source: The Mobility Survey of the Research Institutes Sector
Notes: 1) The table is based on Question 61.

Table 49: Ability to access funding for respondent's own research as a STAY factor in past decisions not to be mobile (Group B – non-mobile researchers)

On decision not to be mobile (n=1543)	
Unimportant	23.3%
Not very important	24.5%
Important	35.4%
Highly important	16.8%

Source: The Mobility Survey of the Research Institutes Sector

Notes: 1) The table is based on Question 73.

Table 50: Ability to access funding for respondent's own research as a PULL factor for mobility (Group A – previously mobile researchers)

On most recent instance of mobility (n=3057)	
Unimportant	21.8%
Not very important	21.2%
Important	36.9%
Highly important	20.2%

Source:

Notes: 1) The table is based on Question 62.

Table 51: Links with companies and users of research as a PUSH factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3035)	
Unimportant	53.4%
Not very important	26.4%
Important	15.3%
Highly important	4.9%

Source: The Mobility Survey of the Research Institutes Sector

Notes: 1) The table is based on Question 61.

Table 52: Links with companies and users of research as a PULL factor for mobility (Group A - previously mobile researchers)

On most recent instance of mobility (n=3045)	
Unimportant	37.3%
Not very important	29.0%
Important	24.8%
Highly important	8.8%

Source: The Mobility Survey of the Research Institutes Sector
 Notes: 1) The table is based on Question 62.

Table 53: Links with companies and users of research as a STAY factor in past decisions not to be mobile (Group B – non-mobile researchers)

On decision not to be mobile (n=1540)	
Unimportant	34.5%
Not very important	30.4%
Important	26.6%
Highly important	8.4%

Source: The Mobility Survey of the Research Institutes Sector
 Notes: 1) The table is based on Question 73.

Table 54: Have you actively considered being mobile in the future?

	Previously mobile researchers (n=3308)	Previously 'non-mobile' researchers (n=1767)	All researchers
Yes	66.9%	55.5%	63%
No	33.1%	44.5%	37%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 65 and 75.

Table 55: Are you open to the possibility of being mobile in the future?

	Previously mobile researchers (n=3308)	Previously 'non-mobile' researchers (n=1767)	All researchers
Yes	90%	85.1%	88.3%
No	10%	14.9%	11.7%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 66 and 76.

 Table 56: Openness to future mobility by active consideration of future mobility
(all researchers)

	Open to future mobility	Not open to future mobility
Have actively considered future mobility (n=3196)	98%	2%
Have not actively considered future mobility (n=1880)	71%	29%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 65,66, 75 and 76.

Table 57: Male researchers who have actively considered future mobility

	Previously mobile researchers (n=2117)	Previously 'non-mobile' researchers (n=859)	All male researchers
Yes	67.1%	49.4%	62%
No	32.9%	50.6%	38%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 8, 65 and 75.

Table 58: Female researchers who have actively considered future mobility

	Previously mobile researchers (n=1190)	Previously 'non-mobile' researchers (n=769)	All female researchers
Yes	66.6%	55.1%	62.1%
No	33.4%	44.9%	37.9%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 8, 65 and 75.

Table 59: Male researchers who are open to the possibility of being mobile in the future

	Previously mobile researchers (n=2117)	Previously 'non-mobile' researchers (n=999)	All male researchers
Yes	90%	84.5%	88.2%
No	10%	14.2%	11.8%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 8, 66 and 76.

Table 60: Female researchers who are open to the possibility of being mobile in the future

	Previously mobile researchers (n=1190)	Previously 'non-mobile' researchers (n=769)	All female researchers
Yes	90%	85.8%	88.4%
No	10%	14.2%	11.6%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 8, 66 and 76.

Table 61: Married or co-habiting researchers who have actively considered future mobility

	Previously mobile researchers (n=2362)	Previously 'non-mobile' researchers (n=1207)	All married or co-habiting researchers
Yes	63.3%	50%	58.8%
No	36.7%	50%	41.2%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 12, 65 and 75.

Table 62: Single researchers who have actively considered future mobility

	Previously mobile researchers (n=815)	Previously 'non-mobile' researchers (n=496)	All single researchers
Yes	76.6%	68.3%	73.5%
No	23.4%	31.7%	26.5%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 12, 65 and 75.

Table 63: Married or co-habiting researchers who are open to the possibility of being mobile in the future

	Previously mobile researchers (n=2362)	Previously 'non-mobile' researchers (n=1207)	All married or co-habiting researchers
Yes	88.7%	81.9%	86.4%
No	11.3%	18.1%	13.6%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 12, 66 and 76.

Table 64: Single researchers who are open to the possibility of being mobile in the future

	Previously mobile researchers (n=815)	Previously 'non-mobile' researchers (n=496)	All single researchers
Yes	93.4%	92.5%	93.1%
No	6.6%	7.5%	6.9%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 12, 66 and 76.

Table 65: Researchers with children who have actively considered future mobility

	Previously mobile researchers (n=1885)	Previously 'non-mobile' researchers (n=924)	All researchers with children
Yes	60.5%	45.8%	55.7%
No	39.5%	54.2%	44.3%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 13, 65 and 75.

Table 66: Researchers without children who have actively considered future mobility

	Previously mobile researchers (n=1423)	Previously 'non-mobile' researchers (n=844)	All researchers without children
Yes	75.4%	66.2%	72%
No	24.6%	33.8%	28%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 13, 65 and 75.

Table 67: Female researchers with children who have actively considered future mobility

	Previously mobile researchers (n=559)	Previously 'non-mobile' researchers (n=366)	All female researchers with children
Yes	60.3%	44.5%	54.1%
No	39.7%	55.5%	45.9%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 8, 13, 65 and 75.

Table 68: Female researchers without children who have actively considered future mobility

	Previously mobile researchers (n=631)	Previously 'non-mobile' researchers (n=403)	All female researchers without children
Yes	72.1%	64.8%	69.2%
No	27.9%	35.2%	30.8%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 8, 13, 65 and 75.

Table 69: Researchers with children who are open to the possibility of being mobile in the future

	Previously mobile researchers (n=1885)	Previously 'non-mobile' researchers (n=924)	All researchers with children
Yes	87.8%	79.5%	85.1%
No	12.2%	20.5%	14.9%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 13, 66 and 76.

Table 70: Researchers without children who are open to the possibility of being mobile in the future

	Previously mobile researchers (n=1423)	Previously 'non-mobile' researchers (n=844)	All researchers without children
Yes	92.9%	91.1%	92.2%
No	7.1%	8.9%	7.8%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 13, 66 and 76.

Table 71: Female researchers with children who are open to the possibility of being mobile in the future

	Previously mobile researchers (n=559)	Previously 'non-mobile' researchers (n=366)	All female researchers with children
Yes	88.2%	81.4%	85.5%
No	11.8%	18.6%	14.5%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 8, 13, 66 and 76.

Table 72: Female researchers without children who are open to the possibility of being mobile in the future

	Previously mobile researchers (n=631)	Previously 'non-mobile' researchers (n=403)	All female researchers without children
Yes	91.6%	89.8	90.9%
No	8.4%	10.2	9.1%

Source: The Mobility Survey of the Research Institutes Sector

Notes:

1) The table is based on Questions 8, 13, 66 and 76.

ANNEX 4: STATISTICS ON INTERSECTORAL AND INTERNATIONAL MOBILITY PATTERNS BETWEEN RESPONDENTS WITH A CITIZENSHIP FROM A COUNTRY INSIDE OR OUTSIDE EU27

Experience of mobility: Intersectoral mobility

Intersectoral mobility to and from higher education institutions

Table A4-1: Shares of researchers in the research institutes sector in EU27 who have been employed as a researcher in a university or other HEI by field of education and by citizenship from a country inside or outside EU27.

Field of education	Citizenship from a country outside EU27	Citizenship from a country inside EU27	Total
Natural Sciences and Technology	69 %	68 %	68 %
Medical Sciences and Agriculture	71 %	62 %	62 %
Social Sciences and Humanities	68 %	66 %	66 %
Total	69 %	67 %	67 %
Number of respondents	342	4 514	4 856

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please list the country or countries of your citizenship" (Question 11), (ii) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), and (iii) "During the course of your research career, have you ever been employed as a researcher in a university or other HEI?" (Question 50).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Note that a person can have more than one country of citizenship. The group with a "citizenship from a country inside EU27" consists of all persons with a citizenship from a least one EU27 country, otherwise a person is included in the group with a "citizenship from a country outside EU27".

Table A4-2: Shares of researchers in the research institutes sector in EU27 who have been employed as a researcher in a university or other HEI by current status as a researcher and by citizenship from a country inside or outside EU27.

Current status as a researcher	Citizenship from a country outside EU27	Citizenship from a country inside EU27	Total
Doctoral/PhD student	51 %	49 %	49 %
Postdoctoral researcher	77 %	71 %	72 %
Other researcher	78 %	70 %	70 %
Total	69 %	67 %	67 %
Number of respondents	342	4 514	4 856

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please list the country or countries of your citizenship" (Question 11), (ii) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), and (iii) "During the course of your research career, have you ever been employed as a researcher in a university or other HEI?" (Question 50).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Note that a person can have more than one country of citizenship. The group with a "citizenship from a country inside EU27" consists of all persons with a citizenship from a least one EU27 country, otherwise a person is included in the group with a "citizenship from a country outside EU27".

Table A4-3: Shares of researchers in the research institutes sector in EU27 who have been employed as a researcher in a university or other HEI by gender and by citizenship from a country inside or outside EU27.

Gender	Citizenship from a country outside EU27	Citizenship from a country inside EU27	Total
Female	70 %	61 %	62 %
Male	69 %	71 %	70 %
Total	69 %	67 %	67 %
Number of respondents	342	4 514	4 856

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "What is your gender?" (Question 8), (ii) "Please list the country or countries of your citizenship" (Question 11), and (iii) "During the course of your research career, have you ever been employed as a researcher in a university or other HEI?" (Question 50).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Note that a person can have more than one country of citizenship. The group with a "citizenship from a country inside EU27" consists of all persons with a citizenship from a least one EU27 country, otherwise a person is included in the group with a "citizenship from a country outside EU27".

Intersectoral mobility to and from private for-profit sector

Table A4-4: Shares of researchers in the research institutes sector in EU27 who have been employed as a researcher in the private, for-profit sector by field of education and by citizenship from a country inside or outside EU27.

Field of education	Citizenship from a country outside EU27	Citizenship from a country inside EU27	Total
Natural Sciences and Technology	12 %	15 %	15 %
Medical Sciences and Agriculture	0 %	16 %	16 %
Social Sciences and Humanities	19 %	21 %	21 %
Total	12 %	16 %	16 %
Number of respondents	288	3 709	3 997

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please list the country or countries of your citizenship" (Question 11), (ii) "Please indicate in

which field of research you have obtained your highest educational attainment" (Question 32), and (iii) "During the course of your research career, have you ever been employed as a researcher in the private, for-profit sector?" (Question 50).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Note that a person can have more than one country of citizenship. The group with a "citizenship from a country inside EU27" consists of all persons with a citizenship from a least one EU27 country, otherwise a person is included in the group with a "citizenship from a country outside EU27".

Table A4-5: Shares of researchers in the research institutes sector in EU27 who have been employed as a researcher in the private, for-profit sector by current status as a researcher and by citizenship from a country inside or outside EU27.

Current status as a researcher	Citizenship from a country outside EU27	Citizenship from a country inside EU27	Total
Doctoral/PhD student	8 %	14 %	13 %
Postdoctoral researcher	10 %	14 %	13 %
Other researcher	19 %	18 %	18 %
Total	12 %	16 %	16 %
Number of respondents	288	3 709	3 997

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please list the country or countries of your citizenship" (Question 11), (ii) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), and (iii) "During the course of your research career, have you ever been employed as a researcher in the private, for-profit sector?" (Question 50).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Note that a person can have more than one country of citizenship. The group with a "citizenship from a country inside EU27" consists of all persons with a citizenship from a least one EU27 country, otherwise a person is included in the group with a "citizenship from a country outside EU27".

Table A4-6: Shares of researchers in the research institutes sector in EU27 who have been employed as a researcher in the private, for-profit sector by gender and by citizenship from a country inside or outside EU27.

Gender	Citizenship from a country outside EU27	Citizenship from a country inside EU27	Total
Female	9 %	15 %	15 %
Male	14 %	16 %	16 %
Total	12 %	16 %	16 %
Number of respondents	288	3 709	3 997

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "What is your gender?" (Question 8), (ii) "Please list the country or countries of your citizenship" (Question 11), and (iii) "During the course of your research career, have you ever been employed as a researcher in the private, for-profit sector?" (Question 50).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Note that a person can have more than one country of citizenship. The group with a "citizenship from a country inside EU27" consists of all persons with a citizenship from a least one EU27 country, otherwise a person is included in the group with a "citizenship from a country outside EU27".

Experience of international mobility

International mobility during the researcher career

Table A4-7: Shares of researchers in the research institutes sector in EU27 with international mobility experience at least once in their researcher career by field of education and by citizenship from a country inside or outside EU27.

Field of education	Citizenship from a country outside EU27	Citizenship from a country inside EU27	Total
Natural Sciences and Technology	69 %	67 %	67 %
Medical Sciences and Agriculture	78 %	63 %	63 %
Social Sciences and Humanities	71 %	56 %	57 %
Total	70 %	65 %	65 %
Number of respondents	363	4 686	5 049

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please list the country or countries of your citizenship" (Question 11), (ii) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), and (iii) "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as a previously "internationally mobile" researcher.)" (Question 53).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Note that a person can have more than one country of citizenship. The group with a "citizenship from a country inside EU27" consists of all persons with a citizenship from a least one EU27 country, otherwise a person is included in the group with a "citizenship from a country outside EU27".

Table A4-8: Shares of researchers in the research institutes sector in EU27 with international mobility experience at least once in their researcher career by current status as a researcher and by citizenship from a country inside or outside EU27.

Current status as a researcher	Citizenship from a country outside EU27	Citizenship from a country inside EU27	Total
Doctoral/PhD student	55 %	44 %	46 %
Postdoctoral researcher	80 %	69 %	70 %
Other researcher	70 %	68 %	68 %
Total	70 %	65 %	65 %
Number of respondents	363	4 686	5 049

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please list the country or countries of your citizenship" (Question 11), (ii) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), and (iii) "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as a previously "internationally mobile" researcher.)" (Question 53).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Note that a person can have more than one country of citizenship. The group with a "citizenship from a country inside EU27" consists of all persons with a citizenship from a least one EU27 country, otherwise a person is included in the group with a "citizenship from a country outside EU27".

Table A4-9: Shares of researchers in the research institutes sector in EU27 with international mobility experience at least once in their researcher career by gender and by citizenship from a country inside or outside EU27.

Gender	Citizenship from a country outside EU27	Citizenship from a country inside EU27	Total
Female	69 %	60 %	61 %
Male	70 %	68 %	68 %
Total	70 %	65 %	65 %
Number of respondents	363	4 686	5 049

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "What is your gender?" (Question 8), (ii) "Please list the country or countries of your citizenship" (Question 11), and (iii) "In your researcher career have you worked in another country than the country where you attained your highest educational attainment, including research visits of 3 months or more? (NOTE: For this project, if you answer yes to this question you are considered as a previously "internationally mobile" researcher.)" (Question 53).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Note that a person can have more than one country of citizenship. The group with a "citizenship from a country inside EU27" consists of all persons with a citizenship from a least one EU27 country, otherwise a person is included in the group with a "citizenship from a country outside EU27".

Table A4-10: Number of researchers in the research institutes sector in EU27 with a citizenship from a country outside EU27. Only countries with above 10 persons.

Country	Number of respondents
Australia	14
Brazil	13
Canada	14
China	39
India	39
Mexico	17
Russia	32
Switzerland	14
Ukraine	24
United States of America	42
Total	248

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The table is based on the following question in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): "Please list the country or countries of your citizenship" (Question 11).
- 2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Note that a person can have more than one country of citizenship.

Table A4-11: Shares of researchers in the research institutes sector in EU27 having at least once in their careers experienced a move to a new employer in another country by field of education and by citizenship from a country inside or outside EU27. Shares among all respondents.

Field of education	Citizenship from a country outside EU27	Citizenship from a country inside EU27	Total
Natural Sciences and Technology	52 %	40 %	41 %
Medical Sciences and Agriculture	39 %	30 %	30 %
Social Sciences and Humanities	41 %	25 %	25 %
Total	50 %	36 %	37 %
Number of respondents	363	4 686	5 049

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please list the country or countries of your citizenship" (Question 11), (ii) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), and (iii) "Did any of these instances of international mobility involve a move to a new employer in another country?" (Question 55).
- 2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.
- 3) Note that a person can have more than one country of citizenship. The group with a "citizenship from a country inside EU27" consists of all persons with a citizenship from a least one EU27 country, otherwise a person is included in the group with a "citizenship from a country outside EU27".

Table A4-12: Shares of researchers in the research institutes sector in EU27 having at least once in their careers experienced a move to a new employer in another country by current status as a researcher and by citizenship from a country inside or outside EU27. Shares among all respondents.

Current status as a researcher	Citizenship from a country outside EU27	Citizenship from a country inside EU27	Total
Doctoral/PhD student	29 %	20 %	21 %
Postdoctoral researcher	63 %	42 %	44 %
Other researcher	56 %	38 %	38 %
Total	50 %	36 %	37 %
Number of respondents	363	4 686	5 049

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

- 1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please list the country or countries of your citizenship" (Question 11), (ii) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), and (iii)

"Did any of these instances of international mobility involve a move to a new employer in another country?" (Question 55).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Note that a person can have more than one country of citizenship. The group with a "citizenship from a country inside EU27" consists of all persons with a citizenship from a least one EU27 country, otherwise a person is included in the group with a "citizenship from a country outside EU27".

Table A4-13: Shares of researchers in the research institutes sector in EU27 having at least once in their careers experienced a move to a new employer in another country by gender and by citizenship from a country inside or outside EU27. Shares among all respondents.

Gender	Citizenship from a country outside EU27	Citizenship from a country inside EU27	Total
Female	52 %	32 %	33 %
Male	50 %	39 %	40 %
Total	50 %	36 %	37 %
Number of respondents	363	4 686	5 049

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "What is your gender?" (Question 8), (ii) "Please list the country or countries of your citizenship" (Question 11), and (iii) "Did any of these instances of international mobility involve a move to a new employer in another country?" (Question 55).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Note that a person can have more than one country of citizenship. The group with a "citizenship from a country inside EU27" consists of all persons with a citizenship from a least one EU27 country, otherwise a person is included in the group with a "citizenship from a country outside EU27".

Table A4-14: Shares of researchers having at least once in their careers experienced at least one research visit to another country by field of education and by citizenship from a country inside or outside EU27. Shares among all respondents.

Field of education	Citizenship from a country outside EU27	Citizenship from a country inside EU27	Total
Natural Sciences and Technology	37 %	48 %	47 %
Medical Sciences and Agriculture	50 %	48 %	48 %
Social Sciences and Humanities	56 %	47 %	48 %
Total	39 %	48 %	47 %
Number of respondents	363	4 686	5 049

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please list the country or countries of your citizenship" (Question 11), (ii) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), and (iii) "Did any of these instances of international mobility involve a research visit to another country without a change of employer?" (Question 55).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Note that a person can have more than one country of citizenship. The group with a "citizenship from a country inside EU27" consists of all persons with a citizenship from a least one EU27 country, otherwise a person is included in the group with a "citizenship from a country outside EU27".

Table A4-15: Shares of researchers having at least once in their careers experienced at least one research visit to another country by current status as a researcher and by citizenship from a country inside or outside EU27. Shares among all respondents.

Current status as a researcher	Citizenship from a country outside EU27	Citizenship from a country inside EU27	Total
Doctoral/PhD student	29 %	31 %	31 %
Postdoctoral researcher	43 %	49 %	48 %
Other researcher	45 %	52 %	52 %
Total	39 %	48 %	47 %
Number of respondents	363	4 686	5 049

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please list the country or countries of your citizenship" (Question 11), (ii) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), and (iii) "Did any of these instances of international mobility involve a research visit to another country without a change of employer?" (Question 55).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Note that a person can have more than one country of citizenship. The group with a "citizenship from a country inside EU27" consists of all persons with a citizenship from a least one EU27 country, otherwise a person is included in the group with a "citizenship from a country outside EU27".

Table A4-16: Shares of researchers having at least once in their careers experienced at least one research visit to another country by gender and by citizenship from a country inside or outside EU27. Shares among all respondents.

Gender	Citizenship from a country outside EU27	Citizenship from a country inside EU27	Total
Female	36 %	45 %	44 %
Male	41 %	50 %	49 %
Total	39 %	48 %	47 %
Number of respondents	363	4 686	5 049

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "What is your gender?" (Question 8), (ii) "Please list the country or countries of your citizenship" (Question 11), and (iii) "Did any of these instances of international mobility involve a research visit to another country without a change of employer?" (Question 55).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Note that a person can have more than one country of citizenship. The group with a "citizenship from a country inside EU27" consists of all persons with a citizenship from a least one EU27 country, otherwise a person is included in the group with a "citizenship from a country outside EU27".

International mobility during the last three years

Table A4-17: Shares of researchers who have been internationally mobile the last three years among all researchers in the research institutes sector in EU27 by field of education and by citizenship from a country inside or outside EU27. Shares among all researchers in the research institutes sector in EU27.

Field of education	Citizenship from a country outside EU27	Citizenship from a country inside EU27	Total
Natural Sciences and Technology	52 %	34 %	36 %
Medical Sciences and Agriculture	67 %	28 %	30 %
Social Sciences and Humanities	54 %	34 %	35 %
Total	53 %	34 %	35 %
Number of respondents	363	4 686	5 049

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please list the country or countries of your citizenship" (Question 11), (ii) "Please indicate in which field of research you have obtained your highest educational attainment" (Question 32), and (iii) "Have you been internationally mobile in the last three years?" (Question 56).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Note that a person can have more than one country of citizenship. The group with a "citizenship from a country inside EU27" consists of all persons with a citizenship from a least one EU27 country, otherwise a person is included in the group with a "citizenship from a country outside EU27".

Table A4-18: Shares of researchers who have been internationally mobile the last three years among all researchers in the research institutes sector in EU27 by current status as a researcher and by citizenship from a country inside or outside EU27. Shares among all researchers in the research institutes sector in EU27.

Current status as a researcher	Citizenship from a country outside EU27	Citizenship from a country inside EU27	Total
Doctoral/PhD student	46 %	36 %	37 %
Postdoctoral researcher	65 %	44 %	46 %
Other researcher	42 %	28 %	29 %
Total	53 %	34 %	35 %
Number of respondents	363	4 686	5 049

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "Please list the country or countries of your citizenship" (Question 11), (ii) "Which of the following categories do you consider best describes your current status as a researcher?" (Question 34), and (iii) "Have you been internationally mobile in the last three years?" (Question 56).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Note that a person can have more than one country of citizenship. The group with a "citizenship from a country inside EU27" consists of all persons with a citizenship from a least one EU27 country, otherwise a person is included in the group with a "citizenship from a country outside EU27".

Table A4-19: Shares of researchers who have been internationally mobile the last three years among all researchers in the research institutes sector in EU27 by gender and by citizenship from a country inside or outside EU27. Shares among all researchers in the research institutes sector in EU27.

Gender	Citizenship from a country outside EU27	Citizenship from a country inside EU27	Total
Female	49 %	34 %	35 %
Male	55 %	34 %	36 %
Total	53 %	34 %	35 %
Number of respondents	363	4 686	5 049

Source: The Mobility Survey of the Research Institutes Sector.

Notes:

1) The table is based on the following questions in the Mobility Questionnaire of the Research Institutes Sector (see Annex 2): (i) "What is your gender?" (Question 8), (ii) "Please list the country or countries of your citizenship" (Question 11), and (iii) "Have you been internationally mobile in the last three years?" (Question 56).

2) The table is only based on persons less than or equal to 70 years old, in order to exclude retired researchers from the sample.

3) Note that a person can have more than one country of citizenship. The group with a "citizenship from a country inside EU27" consists of all persons with a citizenship from a least one EU27 country, otherwise a person is included in the group with a "citizenship from a country outside EU27".