

# Research mobility – findings from a recent pan-European survey of University researchers<sup>1</sup>

## EXTENDED ABSTRACT

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*This paper presents key findings from the first systematic pan-European (EU 27) survey of university researchers to explore research career and researcher mobility issues. Research careers are considered within a framework that sees human resources as part of the 'research capacity' of a research performing organisation or system. International researcher mobility is seen as a complex phenomenon in which personal, scientific, career, and other considerations come together and which has positive and negative impacts on the individual researcher, their family, research-performing organisations, disciplinary or problem-oriented networks and national research systems.*

## RESEARCH CAPACITY AND HUMAN RESOURCES FOR RESEARCH

The phrase 'research capacity' is increasingly commonly used in the science and technology policy discourse but generally in the context of pragmatic concerns with policy to strengthen 'national systems' and with little attention paid to problematising the term. Nedeva and Flanagan (2005) suggest we can see research capacity as comprising: research performing organisations (departments, centres, research groups, institutes); disciplines and fields of research; networks of researchers and research organisations; research infrastructure (equipment and associated infrastructure in the sciences, data sets, collection infrastructure such as large-scale surveys in the social sciences); and finally, human resources - researchers themselves.

Of these, arguably the human resources element is the least systematically researched. Whilst a number of studies focus on labour mobility and researcher mobility in particular (see e.g. Mahroum, 2000), not all aspects of mobility are covered to the same extent and few systematic, empirical studies exist. Those that do exist tend not to address the issues 'pulling' and 'pushing' researchers from place to place (see for example Mahroum, 2000, Moguerou and Di Petrogiacommo, 2007, RINDICATE, 2008) and most empirical studies focus on the mobility of young researchers, such as PhD graduates and recent post-docs (LeMouillour et al., 2005).

Studying the human resources element of research capacity presents certain methodological challenges. 'Researcher' does not appear as a distinct category in the International Standard Classification of Occupations (ISCO), research being treated as an activity potentially carried out by many categories of personnel. There are two widely accepted international definitions of 'researcher', namely: the OECD (Canberra Manual, 1995) definition based around the concept of Human Resources in Science and Technology (HRST) and that given in the OECD Frascati Manual (2002), the basis on which OECD member state R&D statistics are collected. The present study adopts the (activity-based) Frascati definition of 'researcher'.

## MOBILITY AS A PHENOMENON

Researcher mobility, however defined, must be conceptualised as a phenomenon at the intersection of a number of interlinked but distinct dynamics: these include science dynamics and labour market dynamics but also reflect broader economic, social and political dynamics (RINDICATE, 2008). Researcher mobility is more problematic than other forms of highly-skilled worker mobility because it does not necessarily involve migration or cross-border working. Much 'researcher mobility' involves shorter or longer research visits to research institutions, collaborators or facilities elsewhere. Researcher mobility is thus a multi-dimensional phenomenon (researchers may simultaneously move from one 'system' to another, one sector to another, one location and working site to another, and from one team or research group to another, with or without a change of employer) having a potentially wide range of positive and negative impacts at a number of different levels from the micro-level of the individual researcher, their personal and family life and their career path, through the research group and institution to which they belong, to a macro-level of 'national' (and European) research or

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For the final report of the overall study see: [http://ec.europa.eu/euraxess/pdf/research\\_policies/MORE\\_final\\_report\\_final\\_version.pdf](http://ec.europa.eu/euraxess/pdf/research_policies/MORE_final_report_final_version.pdf)

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innovation systems, labour markets and even broader social, economic and business systems. There can also be impacts on the content of research – on scientific and technological knowledge and understanding, itself a multi-dimensional phenomenon only partly explicated in publications or patent and partly held by groups and networks of researchers organised by problem or discipline which are themselves generally trans-national. These positive and negative impacts of mobility may be unevenly distributed across all these levels or dimensions as well as geographically, sectorally and over time.

For the purposes of the present study we define international researcher mobility as the physical movement of an individual researcher from one country to another country (into, out of or within the EU) either to a new employment position or for a research visit - not involving a change in employer - of at least three months duration.

## **THE SURVEY**

The survey on which these results are based represents the first systematic study of international mobility of university researchers across the EU-27. Within the constraints of the data available to characterise the population of researchers working in European universities, a rigorous sampling methodology was developed in order to arrive at results which could meaningfully be extrapolated to the entire population of EU-27 university researchers. The population was characterised based upon Eurostat headcounts for 2006 supplemented where necessary by estimates (based on earlier years or from other statistics) made by the consortium. A two stage stratified cluster sampling strategy was adopted. Stratification was by country (27) and broad scientific 'domain' (3 – natural sciences and technology, medical sciences and agriculture, and social science & humanities) with the 'clusters' being individual university departments. Following this methodology 1,660 universities across the 27 EU member states were selected. University department websites were checked for researcher email addresses. In the case of one country (France) the lack of information on websites made it necessary to supplement the results of this search activity with additional emails (5,250) derived from the EC FP6 and FP7 databases. After cleaning, 41,857 individual researchers were identified as targets. The online survey was launched by email in June 2009 and closed at the end of September 2009. To be sure that only researchers meeting our definition were included in the sample, respondents were asked to confirm that they performed tasks equivalent to the Frascati definition as part of their normal work. Those who responded negatively were excluded from the analysis. After data cleaning, 4,538 responses were analysed.

## **FINDINGS**

Our results show that international mobility is a feature of the research career path of many European university researchers, with more than half (56%) of all EU 27 university researchers have experienced international mobility at least once during their research career. There also appears to be a strong link between previous experience of mobility as a student and the likelihood of being internationally mobile during the subsequent research career. International mobility is associated by researchers with positive impacts upon subsequent career progression.

Our findings suggest that personal/family factors are an explanatory factor for lack of mobility whilst quality of life motives, career progression goals, personal research agenda goals and training and development goals are all explanatory factors for mobility. Of these, all except quality of life factors seem to play a role in all kinds of mobility (quality of life issues seem to be less important in relation to research visits not involving a change of job). We also find that there are changes in perspective across the career and life-course of the researcher, with personal and family factors seem in general to be more important to considerations of future mobility for our previously-mobile respondents than they have been in relation to past decisions to become mobile.

We find that research and research capacity - 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 difficulties encountered by researchers in their own lived experience of mobility.

Generally, we find differences both between the perceptions of previously mobile versus those of researchers with no experience of mobility - but also between the perceptions held by all researchers and the reality experienced during specific instances of mobility. 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 present themselves as inhibiting factors for, or barriers to, future mobility to

the same extent as do caring and personal relationships, obtaining funding and finding a position. These findings have interesting policy implications.

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