Mobility of researchers and engineers

The mobility of researchers and engineers can occur within national or international universities, PRIs and enterprises in the same industry or the same sector of the economy. Mobility of researchers and engineers is driven by a variety of job related, academic, personal and family reasons. The evidence on international mobility suggests that it could be a contributing factor to higher quality research, increased international joint publishing and invention, and contributions to the national research system. Mobility of researchers and engineers is closely related to other issues, such as career opportunities, pay, working conditions, R&D in firms and open science. Public policy can foster the mobility of researchers and engineers by implementing international research strategies, funding for international research projects, talent attraction programmes to enhance research and innovation capacities, and coherent and efficient migration regimes.

Why is the mobility of researchers and engineers important?

The mobility of scientists and engineers can be a catalyst for innovative research and development, knowledge spillovers between foreign and domestic firms, and can become an important source of economic growth.

Potential benefits of mobility of researchers and engineers

- Opening up international opportunities for universities and PRIs to participate in international knowledge discoveries (e.g. co-authorship and co-patents).
- Improving research and administrative perspectives of universities and PRIs through providing them with international researchers.
- Attracting and possibly retaining highly skilled scientists and engineers through international exchange opportunities and access to higher quality research facilities, such as specialized laboratories, working with “star scientists” or in prestigious institutions.
- Improving research and administrative practices of universities and PRIs by providing them with international benchmarks and new perspectives on procedures through feedback from international researchers.
- Generating new opportunities for academic and professional development and fostering an open, dynamic, personal and professional urban environment (Flordia, 2002).
- Helping middle-income, development and emerging countries build their research capacities overseas work experience (OECD, 2008).

Incentives for the mobility of researchers and engineers

- Working conditions: strong drivers of international research mobility include research opportunities, job opportunities, opportunities to work with the best scientists and engineers, opportunities to work with “star scientists” or in prestigious institutions.
- Career advancement: international mobility allows researchers to gain necessary international experience.
- University-industry collaboration opportunities are also a factor in international mobility explaining the mobility of scientists from academia to industry (the other was stage of life).
Economic performance of the native country and the foreign country can have an impact on the decision of scientists and engineers to relocate abroad. Scientists and engineers could mirror the international flow of people in general, from countries with low GDP per capita to countries with high GDP per capita (Freeman, 2006).

Cultural and linguistic factors could have a significant impact on the international mobility of the building of trust (Gertler, 2003).

Barriers to mobility of researchers and engineers

- Family responsibilities: researchers with young children and/or who care for elderly parents and/or elderly parents.
- Priorities regarding the research-teaching trade-off between countries: researchers with significant teaching responsibilities, due to the regulations of their country or research organization, could have fewer opportunities for participating in international mobility programmes if the selection criteria are solely based on research.

What is the evidence on the mobility of researchers and engineers?

The measurement of mobility poses a real challenge to statisticians, mainly because of the difficulty of tracking a moving target. In recent years, OECD has developed better statistics on international mobility. The Careers of Doctorate Holders (CDH) project has introduced new ways of capturing mobility by introducing, on the one hand, a new definition of “internationally mobile doctorate holders” and, on the other, a series of questions on national origin, e.g. the list of countries in which doctorate holders have studied, worked or carried out research and the reasons for mobility (OECD, 2011).

Data also show that international mobility makes a significant contribution to the science workforce in many countries. For example, UK universities have pointed out the importance of international staff in ensuring the continued provision of teaching and research at appropriate levels in key subjects in which there are declining numbers of nationals. In fact, the share of science professionals in the tertiary-educated workforce is frequently higher for migrants in some OECD countries, especially those of Asian origin, than for the native population. In the United States, for instance, over 20% of tertiary-educated migrants from Asia are science professionals, compared with 7.7% of tertiary-educated natives. The international mobility of academic staff may also help countries meet the challenge of aging academic workforces (e.g. in the Netherlands, 47% of the applied science teaching staff in universities were age 50 or more in 2005) (OECD, 2008).

There is also some evidence that the mobility of academics is associated with higher quality output. A study of highly cited researchers suggested that relative national mobility and international research performance may be related (Evidence, 2005). This high-quality international research collaboration is likely to become a key feature of research systems and research labour markets (OECD, 2008). However, the link between increased mobility and increased international joint publishing is not yet empirically proven. There is, however, some support for the link. For example, Bell et al. (2007) suggested that increased collaboration in American academic research was driven by advances in electronic communication and improvements in travel that allowed more conference attendance, enabling academics to meet potential collaborators and initiate working relationships.

What other topics are related to the mobility of researchers and engineers?

International R&D linkages are closely related to:

- Researcher careers, pay and conditions: such factors as earnings, working conditions, and visa regulations and procedures that reduce delays or waive certain requirements for researchers and their families can influence the mobility career choices of doctoral graduates. As this issue is often pertinent to female researchers, recruitment and retention programmes should be monitored from a gender equality perspective. Actions should be taken if the gender proportions of international mobility schemes are heavily skewed towards...
one gender.

- R&D in firms: the development of formal and informal networks of researchers, including partnerships between researchers in firms and in universities, could facilitate the sectoral mobility of researchers.

- Services and information: information and support systems for international researchers (e.g. administrative, legal, linguistic, social, and educational) should be developed at national and institutional levels (universities, PRIs).

What policies can influence the mobility of researchers and engineers?

Public policies can play an important role in stimulating the demand for and supply of internationally mobile researchers and engineers. For example, policy and institutional initiatives to attract foreign and expatriate researchers can have a significant bearing on researchers' decisions to move. The regulatory environment, including immigration rules and research ethics legislation, may also affect where researchers choose to work. A very preliminary comparison of national and organisational budgets and targets suggests important differences in the scale of countries’ resources dedicated to mobility, and in the number of human resources in science and technology affected by mobility policies (OECD, 2008). Table 1 shows a range of programmes and strategies that could help to encourage the mobility of scientists and engineers.

References


- Jonkers (2008), A Comparative Study of Return Migration Policies Targeting the Highly Skilled in Four Major Sending Countries, European University Institute, San Domenico di Fiesole.

- OECD (2010), Higher Education in Regional and City Development: The Autonomous Region of Catalonia, Spain, OECD, Paris.

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