



Summary of Work Package 2

Policy Tensions in Relation to the Pursuit of Equality: Promoting Scientific Mobility and Balanced Growth

Introducing Work Package 2

The aim of WP 2 was to investigate the availability and effective utilization of human resources in science and technology between key 'donor' regions and a host region. In order to understand this process better the project concentrates on case studies that focus on different country contexts and different sectors. The WP 2 partner countries include Turkey and South Africa (identified as sending countries) and Germany and the United Kingdom (identified as receiving countries).

What is the problem?

The production, utilisation and commercialisation of scientific knowledge are underpinned by the availability, and effective use, of human resources. But human capital in science and technology is not equally distributed within and across countries and regions of the world. With the increasing globalisation of science and technology, longstanding concerns about the (unbalanced) flows of human capital moving from less developed countries to developed countries have become even more pronounced. The received wisdom on 'brain drain' and 'scientific migration' is increasingly being challenged with recent studies looking more systemically at notions of 'brain circulation', 'diaspora networks' and the like. Nevertheless, there are still important questions to be asked about the impact of researcher mobility on the sustainability of science and technology labour markets, in both 'sending' and 'receiving' countries. This study addresses these issues by considering the implications of mobility on:

- The production of scientific knowledge,
- The reproduction of knowledge in relation to the training of the next generation of researchers
- The sharing of knowledge through transfer across borders

Work package 2 builds upon a body of literature that promotes new ways of understanding the impact of highly skilled migration and blurs clear distinctions between the "winners" and "losers" of migration flows. The focus of much Highly Skilled Migration literature is on brain circulation and network approaches to understanding migration. Caution is expressed against applying these concepts whole sale to the experiences of developing countries which continue to experience a loss of skilled personnel. The importance of gaining a more accurate and nuanced understanding of the processes behind highly skilled migration is stressed.

Generating New Insights

The study sought to generate new insights through conducting fieldwork in four countries. The objectives of the research were as follows:

- To study human capital flows between EU Member States and 'Third Countries'
- To consider the impact this kind of scientific mobility has on the individuals and regions concerned both in terms of individual equity and regional equality;
- To identify the appropriate policy and resource environments capable of supporting sustainable and reciprocal human mobility;
- To encourage a closer alignment between policy in the fields of science and technology, and migration.

In order to promote in depth understanding of the migration motivations of scientific migrants themselves interviews were conducted with mobile scientists. Each of the four research teams involved in the study interviewed around 25 scientists generating a bank of 96 'case studies' of highly skilled migrants in total. The focus of the case studies was designated as follows:

- South African researchers in the health sciences in the UK
- South African researchers in the health sciences who have returned to South Africa
- Turkish researchers in the physical sciences and engineering in Germany and
- Turkish researchers in the physical sciences and engineering who have returned to Turkey

The Findings

The data was analysed thematically and four papers based on pertinent issues were produced (details below). The thematic papers look in depth at specific issues relating to migration decision making, knowledge transfer and exchange and the capacity of academic institutions in developing countries to generate and harness knowledge.

It is important to recognise the diversity of contexts in which migration occurs. Policy recommendations need to pay careful attention to national context: policies are rarely transferable in any direct or simplistic sense and may generate unintended consequences (backlash). Policy developed in areas distinct from science or migration, for example national employment policies, may generate important externality effects shaping the attractiveness of both sending and receiving regions and migration behaviour.

Looking at the sending countries, it is important to address factors that impact on emigration. Scientific mobility is shaped by push factors as well as the attraction of receiving countries. It is important to address factors relating to research environments such as access to facilities and resources as well as adequate working conditions and sufficient remuneration. In the context of developing countries and specifically African institutions, institutional capacity (and the deinstitutionalisation of universities) continues to have a marked effect on emigration and vice versa. Any attempt to stem or reverse the loss of scientific expertise will fail if it does not also consider interventions and initiatives that restore and eventually make academic institutions sustainable research institutions. Governments and international funders should be encouraged to support research centres and institutes which either have already achieved some critical mass or have the potential to do so. Such centres should be sufficiently resourced to enable them to undertake both basic and fundamental research in critical areas of national interest and not to become completely dependent on commissioned contract research.

Destination countries have a role to play in promoting return and contributing to capacity building within the donor countries. This study supports the view that effective return coupled with professional reintegration is seen by science professionals as the most important mechanism for knowledge transfer. However, prior to and in lieu of return, individual scientists often engage in knowledge exchange with colleagues and friends in the sending country. Such 'knowledge remittances' are generally individually motivated and directed. Moreover such knowledge exchanges occur in the context of international networks of resources involving sending, receiving and further countries. Innovative and flexible schemes supporting short term travel (such as 'Diaspora grants') encourage both return and continued professional links/knowledge transfer. Where established links exist between research teams in the sending and receiving countries, targeted capacity building will help to ensure that doctoral and professional exchanges do not result in knowledge and human resources being lost to the sending country. It is important to stress that the effectiveness of forms of knowledge contribution 'at a distance' is dependent on institutional capacity within the sending country.

Want to Know More?

The four thematic papers, which integrate the work of this work package, are available on the ResIST website at:

<http://www.resist-research.net/paperslibrary/full-and-final-results.aspx>

- Thematic Paper 1, *'Giving Something Back': Exploring Making a Contribution at a Distance*, Dr Liz Oliver (Deliverable # 9)
- Thematic Paper 2, *Scientific Fields, and Resourcing and Migration Decisions and Trajectories - Where have all the Health Scientists Gone? A South African question*, Simone Esau and Liezel de Waal (Deliverable # 10)
- Thematic Paper 3, *Excellence, Migration and Equality Policy: Managing Unintended Consequences*, Prof Louise Ackers (Deliverable # 11)
- Thematic Paper 4 *Scientific Mobility and Institution Building in Science in Developing Countries* Prof Johann Mouton, Nelius Boshoff and Roland Waast (Deliverable # 12)