HUMAN RESOURCES POLICIES FOR INNOVATION

Rationale and objectives

Human resources have an embodied stock of human capital – defined as the knowledge, skills, competences and attributes that facilitate the creation of personal, social and economic well-being – which is an essential input to innovation. Given the importance of human resources for innovation, key objectives of human resource policies have been to raise the level of knowledge and skills of the labour force. Particular policy objectives have included meeting the need for skills for innovation by enlarging the supply of the highly skilled workforce and by facilitating its mobility in order to optimise the use of human resources, to facilitate the cross-fertilisation of ideas and learning, and to address structural mismatches of demand for and supply of skills.

Major aspects

Policies for ensuring the supply of human resources for science, technology and innovation (HRSTI) include policy measures to increase student enrolments in science and technology disciplines in higher education and in postgraduate studies, so as to ensure an adequate supply of human resources to meet the anticipated future need for HRSTI. They are prompted by the combination of an observed decline in young people’s interest in studying S&T relative to other disciplines and an anticipated rise in the demand for human resources for STI, as OECD economies are increasingly knowledge-based and as public and private investments in R&D and innovation have intensified in OECD and non-OECD countries alike. Because national education policies play an essential role in the supply of HRSTI, the supply-side of human resource policy is also discussed in this chapter in the Policy Profile on Education, while policy measures for improving the attractiveness of research and entrepreneurial careers are discussed in the Policy Profile on building a Culture of Innovation.

Policies for increasing the mobility of human resources for STI include measures to facilitate mobility across sectors within the economy, notably between academic research and industry, as well as international mobility of HRSTI. Measures to increase domestic mobility typically aim at reducing regulatory barriers in labour markets (e.g. pension rights portability) and institutions (e.g. research grant portability) in order to allow human resources to move between universities and research labs and the business sector. Another important aspect of mobility policy is to facilitate the transition from higher education and training to employment for the highly skilled. In the wake of globalisation, the international dimension of human resource policies has gained in importance in recent years in many countries. Governments put in place policy measures to support the international mobility of highly skilled workers both to fill in gaps in skills and knowledge for innovation and to benefit from international exchanges of ideas and learning.

Recent years have seen an increasing need for lifelong learning owing to the acceleration of technological change and the need to renew the skills and knowledge of the existing workforce. Policy measures for lifelong learning focus on the provision of training by government or work organisations to raise the skills of the existing workforce and to improve the employability of the unemployed. Such measures are often part of active labour market policy.
Other policies aim to improve the match between supply and demand. Innovation draws on technical and soft skills acquired not only in universities, but also in technical colleges and vocational training. The major challenges are to identify important skills for innovation and then for society to know what skills are most valued in the workplace. Policy measures to encourage demand for the highly skilled in the business sector, especially in small and medium-sized enterprises (SMEs), may also play a role in bridging the supply and demand of skills.

Finally, since women account for more than one third of total researchers in many OECD and non-OECD countries, and nearly or more than half university students as future HRSTI supply, there is a need for measures to address bias against women in workplaces (Figure 8.1), such as lower shares of senior positions held by female researchers.

**Recent policy trends**

Governments in OECD and non-OECD countries continue to focus on addressing perceived future shortfalls in the highly skilled workforce through a range of measures covering the career development of the highly skilled from attracting the interest of youth in S&T studies, to assisting the transition from academic study to employment, to improving career development opportunities of S&T professionals, to facilitating their mobility domestically and internationally. As a result, the trend in numbers of researchers employed in the public sector (People’s Republic of China, Denmark, Germany, Italy, Korea, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia) and/or in the economy as a whole (China, Czech Republic, Luxembourg, Norway, Poland, Portugal, Slovenia, South Africa, Turkey) continues to rise in many countries. To reverse the impact of the economic crisis on HRSTI, the Netherlands created a special secondment programme for researchers facing unemployment to work temporarily in other knowledge institutions.

Recent years have seen a trend towards giving increasing importance to lifelong learning (LLL). Many governments attempt to address the rise in unemployment in the wake of the crisis by expanding capacity for training existing and future workforces. Austria adopted an LLL strategy in 2011, Finland sets out principles and objectives for lifelong learning in the government’s development plan for education and research 2011-16, and Turkey adopted an LLL Strategy Action Plan in 2011. For its part, Australia appropriated an additional USD 90 million (AUD 143 million) over four years to expand the Language, Literacy and Numeracy Program (LLNP).

Australia, Colombia, South Africa and Switzerland have adopted new or amended existing qualifications frameworks in an attempt to strengthen the institutional infrastructure for lifelong learning, and to facilitate the mobility of skilled workforce in the economy by certifying skills and competencies acquired through informal channels. Examples include recognition of prior learning in Estonia, accreditation of prior experience in France, and recognition of formal and informal learning in Norway. In this respect efforts by the EU members tend to be based on the EU Recommendations for the Establishment of the European Qualifications Framework for LLL.

To link supply and demand for HRSTI more effectively, countries are making greater efforts to identify future skill needs at the sectoral level (e.g. ICT Action Plan in Ireland, the UK Sector Skills Councils and identification of skills needs in grand challenge areas in South Africa) and at the regional level (e.g. Poland). Other measures aim to support the
transition from academic study to employment (e.g. Canada’s Industrial R&D Fellowships Programme) and to better guide youth in choosing the disciplines of higher learning (e.g. Finland), often through partnership between government agencies, education institutions and the business sector. To encourage the demand for the highly skilled, Korea subsidises up to 50% of salaries when SMEs recruit unemployed engineers and scientists, while France allows doubling the salaries of newly recruited PhDs in the R&D tax base.

Increasing the mobility of highly skilled workers remains a high priority in many countries. Countries that have traditionally been hotspots for international students and highly skilled personnel, such as Australia, Canada, France, Germany, and the United Kingdom, have a range of measures to strengthen their positions by reducing entry barriers and providing attractive conditions in terms of scholarships and fiscal incentives. Countries such as Belgium and Sweden are following suit. The mobilisation of diasporas continues to be a main policy objective especially for non-OECD countries such as Argentina, China, Colombia and South Africa.

Figure 8.1. Employment rate of university graduates by gender, 2009
Number of university graduates in employment as a % of the population of university graduates aged 25 to 64

Note: University graduates include tertiary A level and advanced research programmes. Employment rates show not only the spread of unemployment (mismatch between skills supply and demand) but also the degree of participation of highly skilled workers in the labour force (discouraged workers from entering the labour market). Non-employment involves a rapid obsolescence of skills resulting in a loss of public investments on education systems. EU21 includes Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden and the United Kingdom.


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References and further reading


