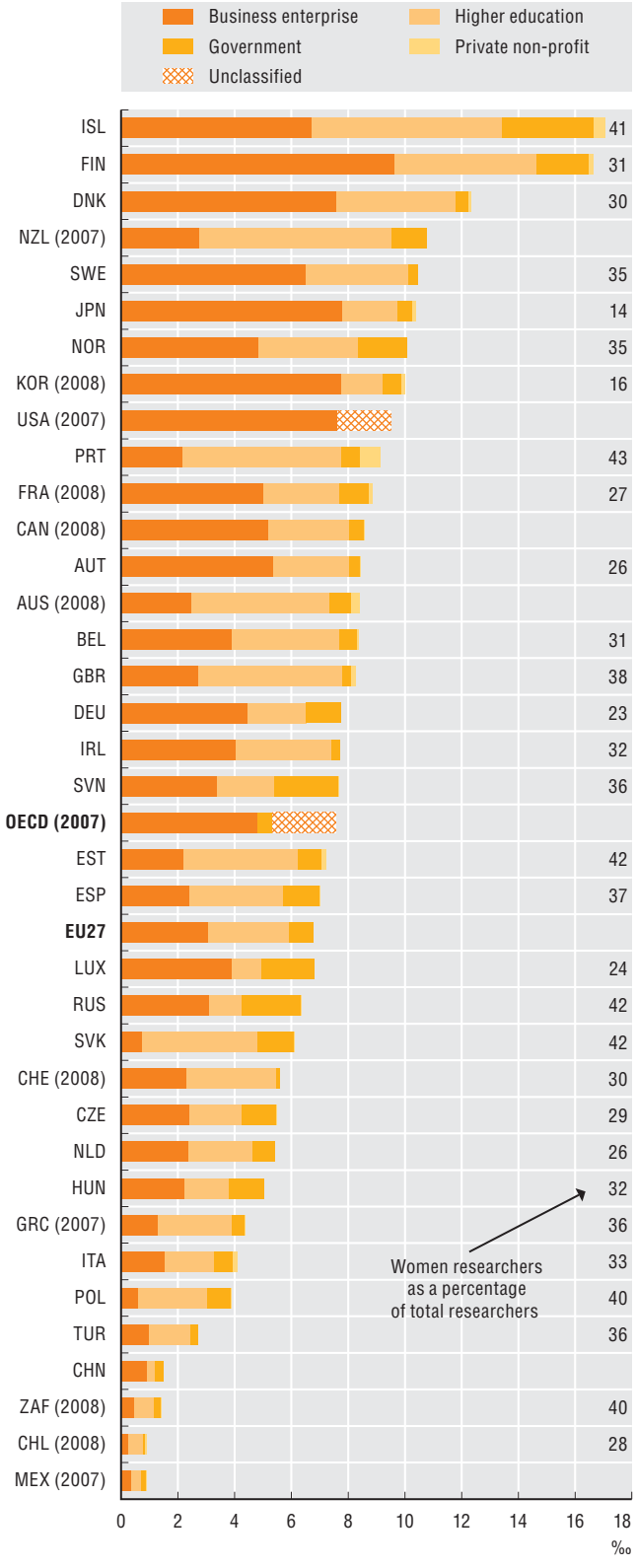
4. Researchers

Researchers by R&D performing sector, 2009

Per thousand employment



Source: OECD, Main Science and Technology Indicators Database, June 2011.

StatLink http://dx.doi.org/10.1787/888932485899

In 2009, more than 4.2 million researchers were engaged in R&D in the OECD area, about 7.6 researchers per 1 000 employees, a significant increase from 6.6 per 1 000 in 1999. The five Nordic countries (Denmark, Finland, Iceland, Norway and Sweden), Japan, Korea and New Zealand employed more than ten researchers per 1 000 employees.

The share of women varies but is generally below that of men, especially in the business sector. In Germany, Japan, Korea and Luxembourg, less than a quarter of researchers are women.

In 2009, the OECD-area business enterprise sector employed more than 2.7 million researchers (about 65% of the total). The higher education sector employed a quarter of OECD researchers and 40% of those in the European Union. The government sector employed at least 20% of the researchers in Central and Eastern European countries where the academies of sciences, which are traditionally separate from the universities, play a prominent role.

The share of business researchers in the national totals differs widely. In the United States, four out of five work in businesses, three out of four in Japan, but less than one out of two in the EU. In Denmark, Finland, Japan and the United States, business researchers exceed ten per 1 000 employees; they are respectively seven and six per 1 000 in France and Germany (close to the OECD average) and 3.5 per 1 000 in the United Kingdom (close to the EU average).

Chile, Mexico, Poland, the Slovak Republic and South Africa have a low intensity of business researchers (less than one per 1 000 employees in industry). In these countries, the business sector plays a much smaller role in the national R&D system than the higher education and government sectors.

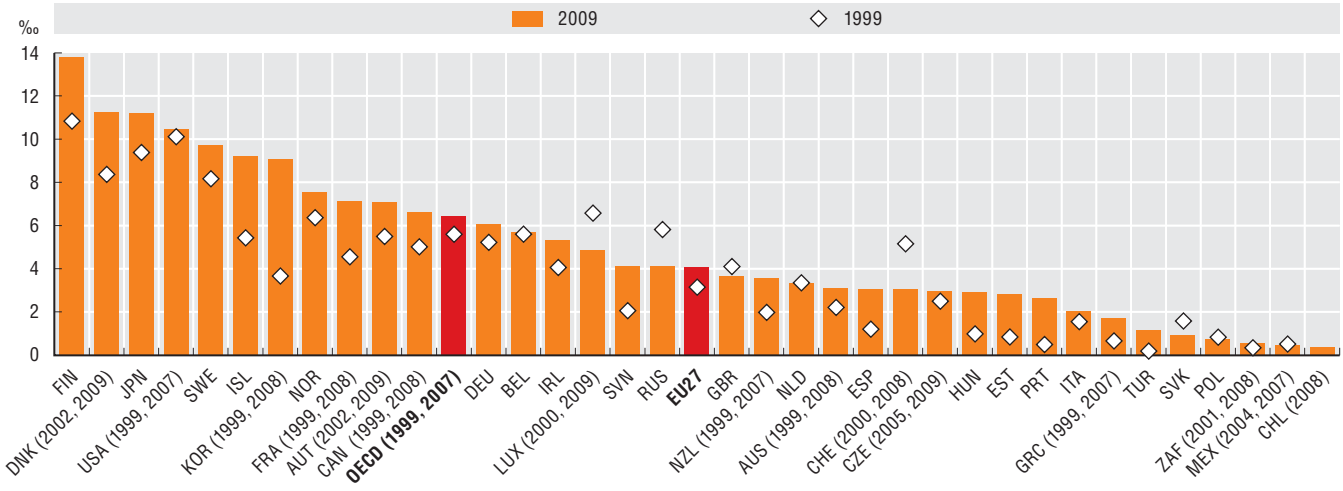
A non-negligible and increasing share of business researchers are employed in service industries owing to the growing importance of services in the knowledge economy.

Definitions

Researchers are defined as professionals engaged in the conception and creation of new knowledge, products, processes, methods and systems and are directly involved in the management of projects. The *number of researchers* is here expressed in full-time equivalent (FTE) units. A person working half-time on R&D is counted as 0.5 person year in FTE. FTE refers to staff engaged in R&D during the course of a given year. FTE data are a more accurate measure of the volume of research conducted by a country's researchers. Researchers are shown relative to total employment in the OECD National Accounts. Employment in industry excludes persons engaged in real estate, public administration and defence, education, health and social work and private households.

Business researchers, 1999 and 2009

Per thousand employment in industry

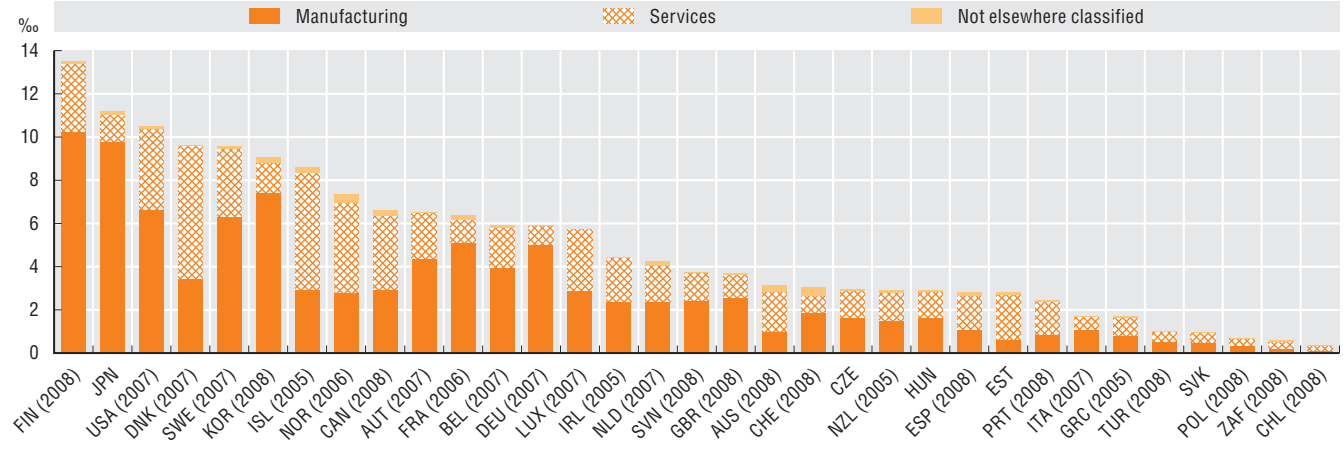


Source: OECD, Main Science and Technology Indicators Database, June 2011.

StatLink http://dx.doi.org/10.1787/888932485918

Researchers in manufacturing and services, 2009

Per thousand employment in industry



Source: OECD, Research and Development Database, May 2011. See chapter notes.

StatLink http://dx.doi.org/10.1787/888932485937

Measurability

Data on researchers suffer from a series of limitations which are currently the focus of OECD methodological work. For example, the methods used to calculate FTE (full-time equivalent) may vary not only from country to country but even from sector to sector. Estimating FTE is particularly challenging in the higher education sector, as researchers share their time with other activities such as teaching or administrative tasks. In addition, the demand for more detailed data on researchers by fields of science or other variables needs to be addressed. At present, the breakdown of researchers by gender is not available in countries such as Australia, Canada and the United States.

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