

RESEARCHERS

Researchers are key actors in the research and development system. On average, in OECD countries, labour costs account for half of the R&D expenditure. Two-thirds of total R&D personnel are estimated to be researchers.

Definition

Researchers are professionals engaged in the conception and creation of new knowledge, products, processes, methods and systems, as well as those who are directly involved in the management of projects for such purposes. They include researchers working in both civil and military research in government, universities and research institutes as well as in the business sector.

Researchers are part of human resources devoted to R&D. Other categories of R&D personnel are technicians (and equivalent staff) who participate in R&D by performing scientific and technical tasks, and other supporting staff

Overview

In the OECD area, around 4.2 million persons were employed as researchers in 2007. There were about 7.6 researchers per thousand of employed people, compared with 5.9 per thousand employed in 1995. This indicator has steadily increased over the last two decades.

The Nordic countries (Denmark, Finland, Iceland, Norway and Sweden) top the table for the numbers of researchers per thousand persons employed, with Finland the highest in the group, and the OECD, recording 17.0 researchers per thousand persons employed in 2010. Among the remaining OECD countries, rates are highest in Korea (11.1), Japan (10.4) and New Zealand (12.4 in 2009). Conversely, researchers per thousand of employed people are low (below 1.0) in Chile and Mexico. Other countries with low rates, below 5.0 researchers per thousand of employed people, include Italy, Poland and Turkey.

In 2007, in the OECD, about 2.7 million researchers were engaged in the business sector. It represents approximately two-thirds of the total although there are differences across countries: four out of five researchers work in the business sector in the United States, about three out of four in Japan and Korea, but less than one out of two in the EU. 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.

(skilled and unskilled craftsmen, secretarial and clerical staff participating in R&D projects).

The number of researchers is measured in full-time equivalents (i.e. a person working half-time on R&D is counted as 0.5 person-year) and expressed per thousand people employed in each country. The number of researchers includes staff engaged in R&D during the course of one year.

Comparability

The data on researchers have been compiled on the basis of the methodology of the OECD *Frascati Manual*. Comparability over time is affected to some extent by improvements in the coverage of national R&D surveys and by the efforts of countries to improve the international comparability of their data.

For the United States beginning in 2000, the total numbers of researchers are OECD estimates. Data for the United States exclude military personnel in the government sector since 1985. For China, from 2009 researcher data are collected according to the OECD *Frascati Manual* definition of researcher.

Sources

- OECD (2012), Main Science and Technology Indicators, OECD Publishing.

Further information

Analytical publications

- OECD (2012), *OECD Science, Technology and Industry Outlook 2012*, OECD Publishing.
- OECD (2012), *OECD Science, Technology and Industry Working Papers*, OECD Publishing.
- OECD (2011), *OECD Science, Technology and Industry Scoreboard 2011*, OECD Publishing.
- OECD (2011), *Public Research Institutions, Mapping Sector Trends*, OECD Publishing.

Methodological publications

- OECD (2002), *Frascati Manual 2002: Proposed Standard Practice for Surveys on Research and Experimental Development*, The Measurement of Scientific and Technological Activities, OECD Publishing.

Online databases

- OECD Science, Technology and R&D Statistics

Websites

- OECD Main Science and Technology Indicators, www.oecd.org/sti/msti.
- OECD Research and Development Statistics, www.oecd.org/sti/rds.
- OECD Measuring Science and Technology, www.oecd.org/sti/measuring-scitech.



Researchers

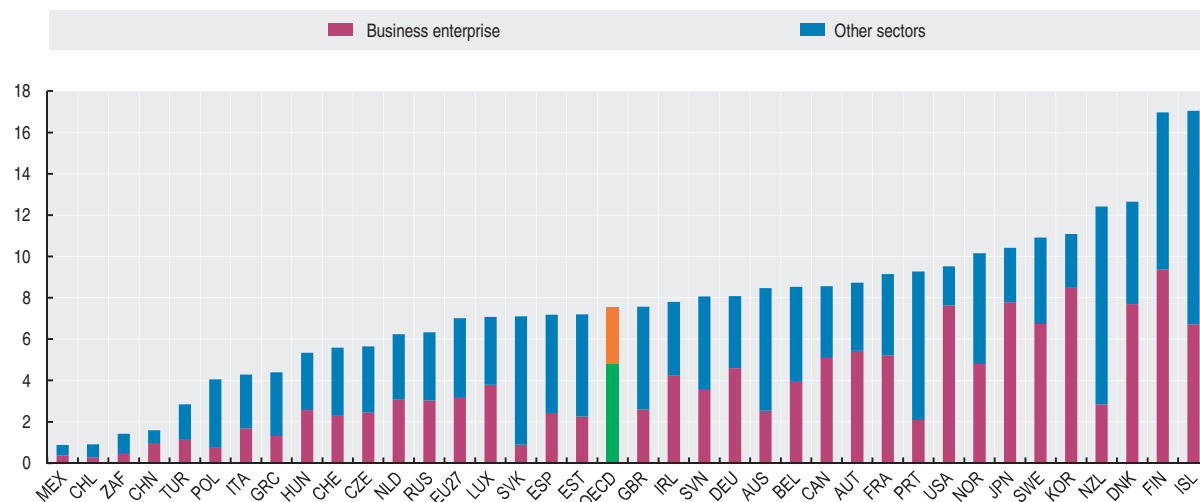
Per thousand employed, full-time equivalent

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Australia	7.3	..	7.3	..	7.8	..	8.3	..	8.5	..	8.5	..	..
Austria	5.1	..	..	..	6.3	..	6.7	7.3	7.3	..	8.4	8.5	8.7
Belgium	6.9	7.4	7.4	7.7	7.4	7.4	7.7	7.8	8.1	8.3	8.3	8.6	8.5
Canada	6.6	6.7	7.2	7.5	7.4	7.7	8.1	8.3	8.4	8.8	8.9	8.6	..
Chile	..	..	..	..	..	..	..	..	..	0.9	0.9	..	..
Czech Republic	2.5	2.7	2.8	3.0	3.0	3.2	3.3	4.8	5.2	5.3	5.6	5.5	5.6
Denmark	..	6.9	..	7.0	9.2	9.0	9.6	10.2	10.2	10.4	12.1	12.6	12.6
Estonia	4.9	5.2	4.7	4.6	5.2	5.1	5.7	5.5	5.4	5.6	6.1	7.3	7.2
Finland	13.9	14.5	15.2	15.9	16.5	17.8	17.4	16.6	16.6	15.7	16.2	16.6	17.0
France	6.7	6.8	7.1	7.2	7.5	7.7	8.1	8.1	8.3	8.6	8.8	9.1	..
Germany	6.3	6.6	6.6	6.7	6.8	6.9	6.9	7.0	7.2	7.3	7.5	7.9	8.1
Greece	..	3.5	..	3.4	..	3.5	..	4.3	4.2	4.4	..	..	..
Hungary	2.9	3.0	3.4	3.5	3.5	3.6	3.6	3.8	4.2	4.2	4.5	5.0	5.3
Iceland	9.6	10.3	..	11.7	..	12.2	..	13.4	14.2	12.5	12.9	17.0	..
Ireland	5.1	4.9	5.0	5.1	5.3	5.5	5.9	5.9	6.0	6.0	6.9	7.5	7.8
Israel	..	..	..	..	..	..	..	..	..	..	..	..	..
Italy	2.9	2.9	2.9	2.9	3.0	2.9	3.0	3.4	3.6	3.7	..	4.1	4.3
Japan	9.8	10.0	9.9	10.1	9.8	10.3	10.3	10.6	10.7	10.6	10.2	10.4	10.4
Korea	4.6	4.9	5.1	6.3	6.4	6.8	6.9	7.9	8.6	9.5	10.0	10.4	11.1
Luxembourg	..	..	6.2	..	..	6.7	6.8	7.2	6.4	6.6	6.6	6.8	7.1
Mexico	0.6	0.6	..	..	..	0.9	1.0	1.1	0.9	0.9	..	..	..
Netherlands	5.1	5.3	5.2	5.5	5.3	5.3	5.9	5.8	6.3	5.9	5.8	5.4	6.2
New Zealand	..	6.2	..	9.1	..	10.4	..	10.5	..	10.8	..	12.4	..
Norway	..	7.9	..	8.5	..	8.9	8.9	9.0	9.3	9.6	9.8	10.1	10.1
Poland	3.7	3.8	3.8	4.0	4.1	4.3	4.4	4.4	4.1	4.0	3.9	3.9	4.1
Portugal	3.0	3.2	3.3	3.5	3.7	4.0	4.0	4.1	4.8	5.5	7.8	8.8	9.3
Slovak Republic	4.8	4.5	4.9	4.7	4.5	4.7	5.2	5.2	5.5	5.7	5.6	6.1	7.1
Slovenia	4.9	5.0	4.8	4.9	5.0	4.1	4.4	5.7	6.3	6.5	7.1	7.7	8.1
Spain	4.0	3.9	4.7	4.7	4.8	5.2	5.5	5.7	5.8	5.9	6.4	7.0	7.2
Sweden	..	9.5	..	10.5	..	11.0	11.2	12.7	12.6	10.1	11.0	10.5	10.9
Switzerland	..	..	6.4	..	..	..	6.1	..	..	..	5.6	..	..
Turkey	1.0	1.0	1.2	1.2	1.2	1.7	1.7	2.0	2.1	2.4	2.5	2.7	2.9
United Kingdom	5.5	5.7	5.8	6.1	6.6	7.1	7.5	8.0	8.1	8.0	8.0	8.3	7.6
United States	..	9.3	9.3	9.5	9.7	10.2	9.8	9.6	9.6	9.5	..	..	..
EU 27	5.0	5.1	5.2	5.4	5.6	5.8	6.0	6.2	6.4	6.4	6.6	6.9	7.0
OECD	..	6.6	6.7	6.9	7.0	7.4	7.3	7.5	7.6	7.6	..	..	..
Brazil	..	..	..	..	..	..	..	..	..	..	..	..	..
China	0.7	0.7	1.0	1.0	1.1	1.2	1.2	1.5	1.6	1.9	2.1	1.5	1.6
India	..	..	..	..	..	..	..	..	..	..	..	..	..
Indonesia	..	..	..	..	..	..	..	..	..	..	..	..	..
Russian Federation	8.4	7.9	7.8	7.8	7.4	7.3	7.1	6.8	6.7	6.6	6.4	6.4	6.3
South Africa	1.3	..	1.2	1.5	1.4	1.5	1.5	1.4

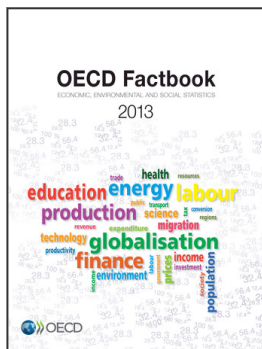
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Researchers

Per thousand employed, full-time equivalent



StatLink <http://dx.doi.org/10.1787/888932708902>



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