

RESEARCHERS

Researchers are the central element of the research and development system.

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. They include researchers working in both civil and military research in government, universities and research institutes as well as in the business sector.

The number of researchers is measured in full-time equivalent (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 2000, the total numbers of researchers are OECD estimates. Also, data for the United States since 1985 exclude military personnel. For China, researcher data are collected according to the OECD *Frascati Manual* definition of researcher from 2009.

Overview

In the OECD area, around 4.2 million persons were employed as researchers in 2007. Approximately two-thirds of these were engaged in the business sector.

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

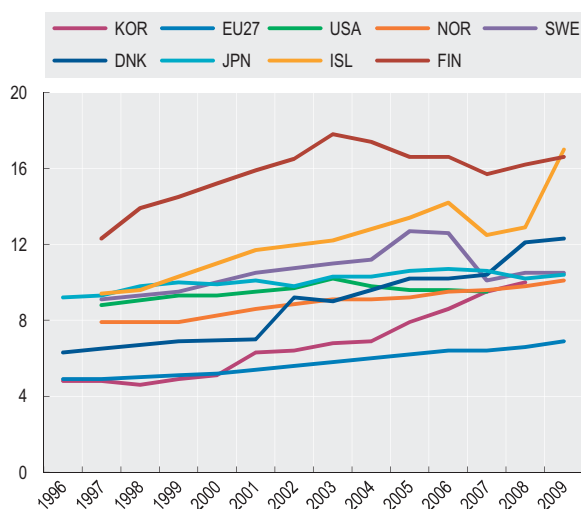
Among the major OECD areas, Japan has the highest number of researchers relative to total employment, followed by the United States and the European Union.

Finland, Iceland, Denmark and New Zealand have the highest number of research workers per thousand persons employed. Rates are also high in Japan, Korea, Sweden, Norway and the United States. Conversely, research workers per thousand of employed people are low in Chile, Mexico and Turkey.

Among the major non-member countries, growth in the number of researchers has been steady in China although the overall level, at 1.5 per thousand of people employed in 2009, still remains well below the OECD average. The number of researchers per thousand of people employed for the Russian Federation has been falling since 1994 but this level, at 6.4 researchers per thousand employed in 2009, is similar to that of EU countries.

Researchers

Per thousand employed, full-time equivalent



StatLink <http://dx.doi.org/10.1787/888932535109>

Sources

- OECD (2011), *Main Science and Technology Indicators*, OECD Publishing.

Further information

Analytical publications

- OECD (2010), *OECD Science, Technology and Industry Outlook 2010*, OECD Publishing.
- OECD (2011), *OECD Science, Technology and Industry Scoreboard 2011*, OECD Publishing.

Statistical publications

- OECD (2011), *OECD Science, Technology and R&D Statistics*, 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.

Websites

- OECD Measuring Science and Technology, www.oecd.org/sti/measuring-scitech.
- OECD Science, Technology and Industry, www.oecd.org/sti.
- OECD Science, Technology and Industry Scoreboard (supplementary material), www.oecd.org/sti/scoreboard.



Researchers

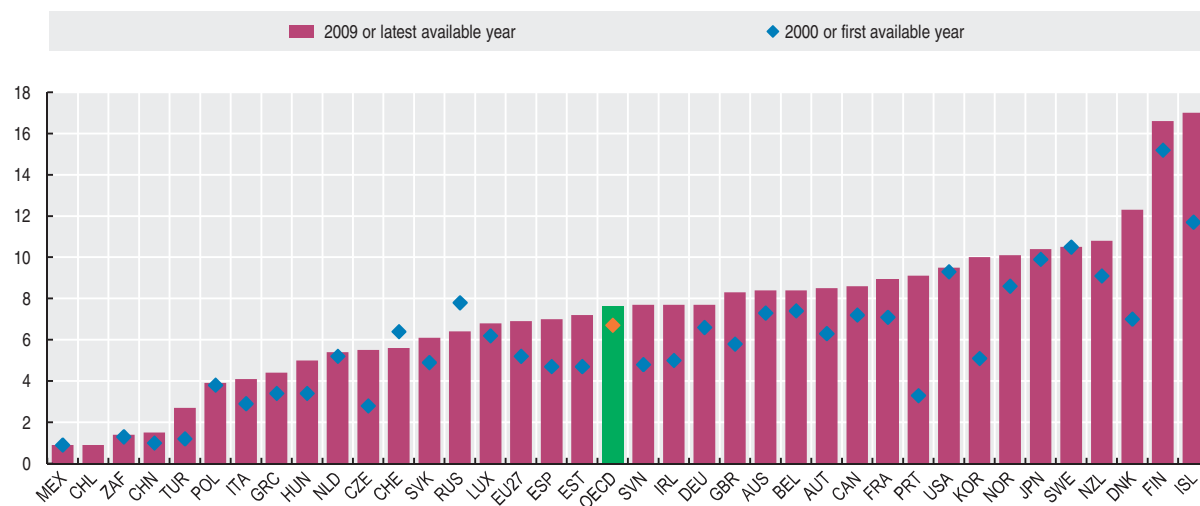
Per thousand employed, full-time equivalent

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Australia	7.3	..	7.3	..	7.3	..	7.8	..	8.3	..	8.5	..	8.4	..
Austria	..	..	5.1	..	..	..	6.3	..	6.7	7.3	7.3	7.8	8.4	8.5
Belgium	6.5	6.7	6.9	7.4	7.4	7.7	7.4	7.4	7.7	7.8	8.1	8.3	8.4	8.4
Canada	6.6	6.6	6.6	6.7	7.2	7.5	7.4	7.7	8.1	8.3	8.4	8.7	8.6	..
Chile	..	..	..	..	..	..	..	..	..	..	..	0.9	0.9	..
Czech Republic	2.5	2.4	2.5	2.7	2.8	3.0	3.0	3.2	3.3	4.8	5.2	5.3	5.6	5.5
Denmark	6.3	6.5	..	6.9	..	7.0	9.2	9.0	9.6	10.2	10.2	10.4	12.1	12.3
Estonia	..	..	4.9	5.2	4.7	4.6	5.2	5.1	5.7	5.5	5.4	5.6	6.1	7.2
Finland	..	12.3	13.9	14.5	15.2	15.9	16.5	17.8	17.4	16.6	16.6	15.7	16.2	16.6
France	6.8	6.8	6.7	6.8	7.1	7.2	7.5	7.7	8.1	8.1	8.3	8.6	8.9	..
Germany	6.1	6.3	6.3	6.6	6.6	6.7	6.8	6.9	6.9	7.0	7.2	7.3	7.5	7.7
Greece	..	2.7	..	3.5	..	3.4	..	3.5	..	4.3	4.2	4.4	..	..
Hungary	2.6	2.8	2.9	3.0	3.4	3.5	3.5	3.6	3.6	3.8	4.2	4.2	4.5	5.0
Iceland	..	9.4	9.6	10.3	..	11.7	..	12.2	..	13.4	14.2	12.5	12.9	17.0
Ireland	4.8	5.0	5.1	4.9	5.0	5.1	5.3	5.5	5.9	5.9	6.0	6.0	6.9	7.7
Italy	3.5	3.0	2.9	2.9	2.9	2.9	3.0	2.9	3.0	3.4	3.6	3.7	3.8	4.1
Japan	9.2	9.3	9.8	10.0	9.9	10.1	9.8	10.3	10.3	10.6	10.7	10.6	10.2	10.4
Korea	4.8	4.8	4.6	4.9	5.1	6.3	6.4	6.8	6.9	7.9	8.6	9.5	10.0	..
Luxembourg	..	..	..	..	6.2	..	..	6.7	6.8	7.2	6.4	6.6	6.6	6.8
Mexico	0.6	0.6	0.6	0.6	..	..	..	0.9	1.0	1.1	0.9	0.9	..	..
Netherlands	4.9	5.0	5.1	5.3	5.2	5.5	5.3	5.3	5.9	5.8	6.3	5.9	5.8	5.4
New Zealand	..	6.2	..	6.2	..	9.1	..	10.4	..	10.5	..	10.8	..	..
Norway	..	7.9	..	7.9	..	8.6	..	9.1	9.1	9.2	9.5	9.6	9.8	10.1
Poland	3.6	3.7	3.7	3.8	3.8	4.0	4.1	4.3	4.4	4.4	4.1	4.0	3.9	3.9
Portugal	2.7	2.9	3.0	3.2	3.3	3.5	3.7	4.0	4.0	4.1	4.8	5.5	7.8	9.1
Slovak Republic	4.7	4.7	4.8	4.5	4.9	4.7	4.5	4.7	5.2	5.2	5.5	5.7	5.6	6.1
Slovenia	5.0	4.6	4.9	5.0	4.8	4.9	5.0	4.1	4.4	5.7	6.3	6.5	7.1	7.7
Spain	3.7	3.8	4.0	3.9	4.7	4.7	4.8	5.2	5.5	5.7	5.8	5.9	6.4	7.0
Sweden	..	9.1	..	9.5	..	10.5	..	11.0	11.2	12.7	12.6	10.1	10.5	10.5
Switzerland	5.6	..	..	..	6.4	..	..	..	6.1	..	..	..	5.6	..
Turkey	0.9	1.0	1.0	1.0	1.2	1.2	1.2	1.7	1.7	2.0	2.1	2.4	2.5	2.7
United Kingdom	5.1	5.1	5.5	5.7	5.8	6.1	6.6	7.1	7.5	8.0	8.1	8.0	8.0	8.3
United States	..	8.8	..	9.3	9.3	9.5	9.7	10.2	9.8	9.6	9.6	9.5	..	..
EU27 total	4.9	4.9	5.0	5.1	5.2	5.4	5.6	5.8	6.0	6.2	6.4	6.4	6.6	6.9
OECD total	..	6.2	..	6.6	6.7	6.9	7.0	7.4	7.3	7.5	7.6	7.6	..	..
China	0.8	0.8	0.7	0.7	1.0	1.0	1.1	1.2	1.2	1.5	1.6	1.8	2.1	1.5
Russian Federation	9.2	8.9	8.4	7.9	7.8	7.8	7.4	7.3	7.1	6.8	6.7	6.6	6.4	6.4
South Africa	..	0.9	1.3	..	1.2	1.5	1.4	1.5	1.5	1.4	..

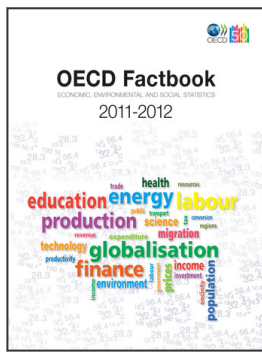
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