

## RESEARCHERS

Researchers are the central element of the research and development system. In 2005, approximately 3.9 million persons in the OECD area were employed in research and development and approximately two-thirds of these were engaged in the business sector.

### Definition

Researchers are defined as 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, research institutes as well as in the business sector.

### Long-term trends

In 2005, there were about 7.4 researchers per thousand employees in the OECD area, compared with 5.9 per thousand in 1995. The number of researchers has steadily increased over the last two decades. Among the major OECD regions, Japan has the highest number of researchers relative to total employment, followed by the United States and the European Union.

Finland, Sweden, Japan, and New Zealand have the highest number of research workers per thousand persons employed. Rates are also high in the United States, Denmark and Norway. Among the OECD countries, research workers per thousand employees are low in Mexico, Turkey and Italy.

Among the major non-member countries, growth has been steady in China, although, at 1.5 in 2005, it still remains well below the OECD average. The rate for the Russian Federation has been falling since 1994, but was still close to 7 researchers per thousand employed in 2005.

### Comparability

The number of researchers is expressed in full-time equivalent (FTE) on R&D (i.e. a person working half-time on R&D is counted as 0.5 person-year) and includes staff engaged in R&D during the course of one year. The data have been compiled on the basis of the methodology of the Frascati Manual, but comparability over time is affected to some extent by improvements in the coverage of national R&D surveys and efforts by countries to improve the international comparability of their data.

For the United Kingdom and the United States, the total researchers figures beginning 1999 and 2000 respectively are OECD estimates. Also for the United States, data since 1985 exclude military personnel.

Data for Brazil and India are not completely according to Frascati Manual guidelines, and were compiled from national sources. Data for Brazil and South Africa are underestimated, as are the data for China before 2000.

### Source

- OECD (2007), *Main Science and Technology Indicators*, OECD, Paris.

### Further information

#### Analytical publications

- OECD (2007), *OECD Science, Technology and Industry: Scoreboard 2007*, OECD, Paris.

#### Statistical publications

- OECD (2007), *OECD Science, Technology and R&D Statistics on CD-ROM*, OECD, Paris.

#### Methodological publications

- OECD (2003), *Frascati Manual 2002: Proposed Standard Practice for Surveys on Research and Experimental Development*, OECD, Paris.

### Websites

- OECD Measuring Science and Technology, [www.oecd.org/sti/measuring-scitech](http://www.oecd.org/sti/measuring-scitech).
- OECD Science, Technology and Industry, [www.oecd.org/sti](http://www.oecd.org/sti).
- OECD Science, Technology and Industry Scoreboard, [www.sourceoecd.org/scoreboard](http://www.sourceoecd.org/scoreboard).

## Researchers

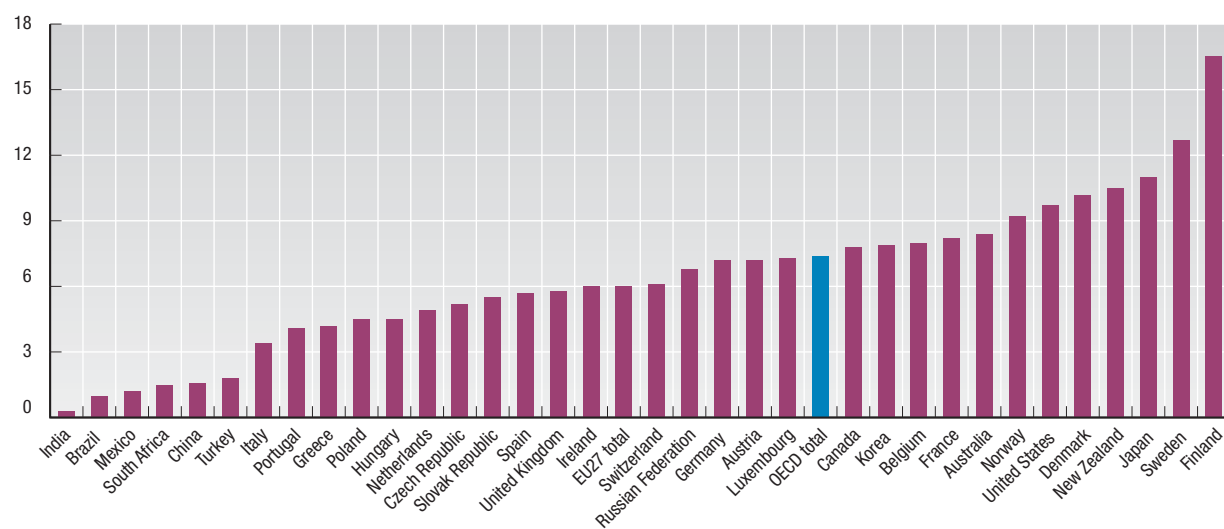
Per thousand employed, full-time equivalent

|                    | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Australia          | ..   | 7.0  | ..   | 7.3  | ..   | 7.3  | ..   | 7.3  | ..   | 7.8  | ..   | 8.4  | ..   | ..   |
| Austria            | 3.3  | ..   | ..   | ..   | ..   | 4.7  | ..   | ..   | ..   | 5.8  | ..   | 6.3  | 6.9  | 7.2  |
| Belgium            | 5.5  | 5.9  | 6.0  | 6.5  | 6.7  | 7.0  | 7.4  | 7.5  | 7.8  | 7.4  | 7.5  | 7.8  | 7.9  | 8.0  |
| Canada             | 5.7  | 6.4  | 6.4  | 6.6  | 6.7  | 6.7  | 6.7  | 7.2  | 7.6  | 7.5  | 7.5  | 7.8  | ..   | ..   |
| Czech Republic     | ..   | ..   | 2.3  | 2.5  | 2.4  | 2.5  | 2.7  | 2.8  | 3.0  | 3.0  | 3.2  | 3.3  | 4.9  | 5.2  |
| Denmark            | 5.3  | ..   | 6.1  | 6.3  | 6.5  | ..   | 6.9  | ..   | 7.0  | 9.2  | 9.1  | 9.5  | 10.2 | 10.2 |
| Finland            | 7.4  | ..   | 8.2  | ..   | 12.3 | 13.9 | 14.5 | 15.2 | 15.8 | 16.4 | 17.7 | 17.3 | 16.5 | 16.6 |
| France             | 6.5  | 6.6  | 6.7  | 6.8  | 6.8  | 6.7  | 6.8  | 7.1  | 7.2  | 7.5  | 7.7  | 8.0  | 8.2  | ..   |
| Germany            | ..   | ..   | 6.2  | 6.1  | 6.3  | 6.3  | 6.6  | 6.6  | 6.7  | 6.8  | 6.9  | 7.0  | 7.2  | 7.2  |
| Greece             | 2.0  | ..   | 2.3  | ..   | 2.6  | ..   | 3.4  | ..   | 3.3  | ..   | 3.5  | ..   | 4.2  | 4.2  |
| Hungary            | 3.1  | 3.1  | 2.9  | 2.9  | 3.1  | 3.2  | 3.3  | 3.8  | 3.8  | 3.9  | 3.9  | 3.8  | 4.1  | 4.5  |
| Ireland            | 4.1  | 4.3  | 4.5  | 4.8  | 5.0  | 5.1  | 4.9  | 5.0  | 5.1  | 5.3  | 5.5  | 5.9  | 5.9  | 6.0  |
| Italy              | 3.4  | 3.5  | 3.5  | 3.5  | 3.0  | 2.9  | 2.9  | 2.9  | 2.9  | 3.0  | 2.9  | 3.0  | 3.4  | ..   |
| Japan              | 7.9  | 8.1  | 8.3  | 9.2  | 9.3  | 9.8  | 10.0 | 9.9  | 10.4 | 10.1 | 10.6 | 10.6 | 11.0 | ..   |
| Korea              | ..   | ..   | 4.9  | 4.8  | 4.8  | 4.7  | 4.9  | 5.1  | 6.3  | 6.4  | 6.8  | 6.9  | 7.9  | ..   |
| Luxembourg         | ..   | ..   | ..   | ..   | ..   | ..   | ..   | 6.2  | ..   | ..   | ..   | 6.7  | 6.8  | 7.3  |
| Mexico             | 0.5  | 0.5  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | ..   | ..   | ..   | 0.9  | 1.1  | 1.2  | ..   |
| Netherlands        | 4.6  | 4.9  | 4.8  | 4.9  | 5.1  | 5.1  | 5.1  | 5.2  | 5.5  | 4.6  | 4.5  | 5.1  | 4.9  | ..   |
| New Zealand        | 5.3  | ..   | 4.7  | ..   | 6.2  | ..   | 6.2  | ..   | 9.1  | ..   | 10.4 | ..   | 10.5 | ..   |
| Norway             | 7.2  | ..   | 7.5  | ..   | 7.9  | ..   | 7.9  | ..   | 8.6  | ..   | 9.1  | 9.1  | 9.2  | ..   |
| Poland             | ..   | 3.0  | 3.2  | 3.3  | 3.4  | 3.4  | 3.6  | 3.5  | 3.7  | 3.8  | 4.5  | 4.7  | 4.7  | 4.5  |
| Portugal           | 2.2  | 2.3  | 2.5  | 2.7  | 2.9  | 3.0  | 3.2  | 3.3  | 3.5  | 3.7  | 4.0  | 4.0  | 4.1  | ..   |
| Slovak Republic    | ..   | 4.9  | 4.6  | 4.6  | 4.7  | 4.8  | 4.5  | 4.9  | 4.7  | 4.5  | 4.7  | 5.2  | 5.2  | 5.5  |
| Spain              | 3.2  | 3.6  | 3.5  | 3.7  | 3.8  | 4.0  | 3.9  | 4.7  | 4.7  | 4.8  | 5.2  | 5.5  | 5.7  | ..   |
| Sweden             | 7.2  | ..   | 8.2  | ..   | 9.2  | ..   | 9.6  | ..   | 10.6 | ..   | 11.1 | 11.3 | 12.7 | 12.7 |
| Switzerland        | ..   | ..   | ..   | 5.6  | ..   | ..   | ..   | 6.4  | ..   | ..   | ..   | 6.1  | ..   | ..   |
| Turkey             | 0.7  | 0.7  | 0.8  | 0.9  | 0.9  | 0.9  | 0.9  | 1.1  | 1.1  | 1.1  | 1.6  | 1.6  | 1.8  | ..   |
| United Kingdom     | 4.8  | 4.9  | 5.2  | 5.1  | 5.1  | 5.5  | 5.6  | 5.4  | 5.6  | 5.8  | 5.9  | 5.7  | 5.8  | ..   |
| United States      | 8.2  | ..   | 8.1  | ..   | 8.8  | ..   | 9.3  | 9.3  | 9.5  | 9.7  | 9.9  | 10.0 | 9.7  | ..   |
| EU27 total         | ..   | ..   | 4.8  | 4.7  | 4.9  | 4.9  | 5.1  | 5.1  | 5.3  | 5.5  | 5.6  | 5.7  | 6.0  | ..   |
| OECD total         | 5.4  | 5.9  | 5.9  | 6.1  | 6.2  | 6.4  | 6.5  | 6.6  | 6.8  | 6.9  | 7.2  | 7.2  | 7.4  | ..   |
| Brazil             | ..   | ..   | ..   | ..   | ..   | ..   | ..   | 0.8  | 0.9  | 0.9  | 1.0  | 1.0  | ..   | ..   |
| China              | 0.7  | 0.8  | 0.8  | 0.8  | 0.8  | 0.7  | 0.7  | 1.0  | 1.0  | 1.1  | 1.2  | 1.2  | 1.5  | 1.6  |
| India              | ..   | ..   | ..   | ..   | ..   | ..   | ..   | 0.3  | ..   | ..   | ..   | ..   | ..   | ..   |
| Russian Federation | ..   | 9.1  | 9.2  | 8.5  | 8.2  | 7.7  | 7.8  | 7.8  | 7.9  | 7.5  | 7.4  | 7.1  | 6.8  | 6.8  |
| South Africa       | ..   | ..   | ..   | ..   | ..   | ..   | ..   | ..   | 1.2  | ..   | 1.3  | 1.6  | 1.5  | ..   |

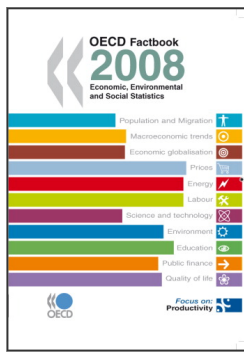
StatLink  <http://dx.doi.org/10.1787/274600808805>

## Researchers

Per thousand employed, full-time equivalent, 2006 or latest available year



StatLink  <http://dx.doi.org/10.1787/268814257284>



**From:**  
**OECD Factbook 2008**  
Economic, Environmental and Social Statistics

**Access the complete publication at:**  
<https://doi.org/10.1787/factbook-2008-en>

**Please cite this chapter as:**

OECD (2009), "Researchers", in *OECD Factbook 2008: Economic, Environmental and Social Statistics*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/factbook-2008-52-en>

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to [rights@oecd.org](mailto:rights@oecd.org). Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at [info@copyright.com](mailto:info@copyright.com) or the Centre français d'exploitation du droit de copie (CFC) at [contact@cfcopies.com](mailto:contact@cfcopies.com).