

# 1. RESPONDING TO THE ECONOMIC CRISIS

## 1.10. Trends in researchers

Researchers are central to the research and development (R&D) system. Since the early 1980s, business researchers have grown faster than total industrial workers. However, they have also been more vulnerable to economic downturns, such as those at the beginning and the end of the 1990s and in the early 2000s. A significant slowdown in the growth of researchers can be expected as a result of the current recession. This can weaken the capability of firms and countries to perform R&D.

In 2006, some 4 million researchers were engaged in R&D in the OECD area, or about 7.4 researchers per 1 000 employees, a significant increase from the 1997 level of 6.2 per 1 000. Among the major OECD regions, Japan had the largest number of researchers relative to total employment, followed by the United States and the European Union. However, around 36% of all OECD researchers reside in the United States, 33% in the European Union and 18% in Japan. In 2007, the R&D intensity of Finland, Sweden, Iceland, Japan and the United States, in terms of both researchers and expenditure, was substantially above the OECD average.

While the government and the higher education sectors mainly conduct basic and applied research, R&D in industry is more closely linked to the creation of new products and production techniques and to a country's innovation effort. In 2006, around 2.6 million researchers (about 65% of the total) were employed by the business sector in the OECD area. However, whereas four out of five researchers work in businesses in the United States and two out of three in Japan, only one out of two do so in the European Union. Business researchers exceed 10 per 1 000 employees in Finland, Sweden, Japan and the United States; they number 6 per 1 000 in France and Germany (close to the OECD average), and 4 per 1 000 in the United Kingdom (close to the EU average).

Mexico, Turkey, Poland and the Slovak Republic have fewer than 1 researcher 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.

Growth in the number of business researchers is most dynamic in smaller OECD economies. In Portugal,

Turkey and Greece, business researchers increased by more than 12% annually over the past decade. In China and South Africa, numbers of business researchers have also progressed strongly at an average annual rate of 15% and 19%, respectively.

### Researchers

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). A person working half-time on R&D is counted as 0.5 person-year in FTE. FTE includes staff engaged in R&D during the course of a particular year. FTE data are a true measure of the volume of research conducted by a country's researchers.

The business enterprise sector covers researchers carrying out R&D in firms and business enterprise sector institutes.

### Source

OECD, Main Science and Technology Indicators Database, May 2009.

### Going further

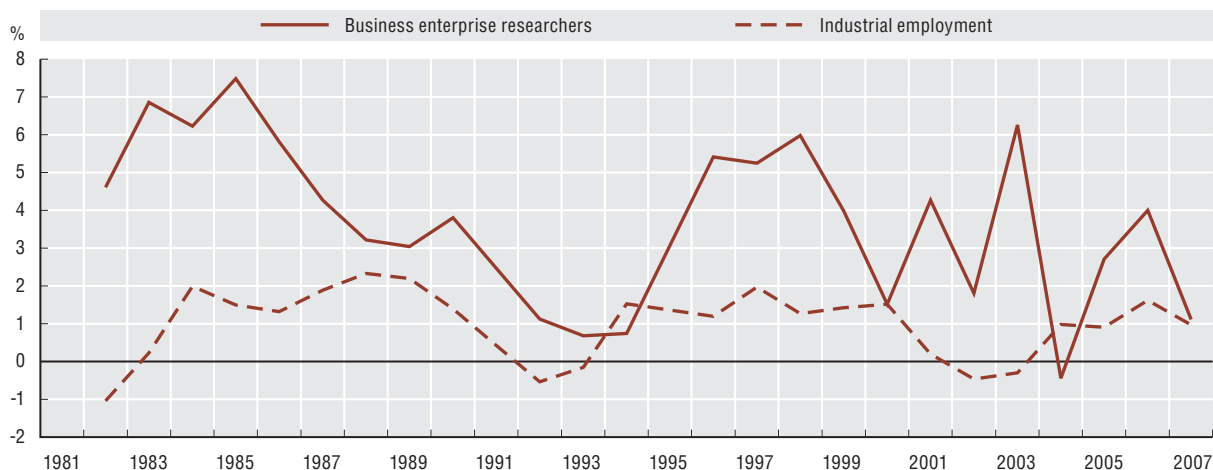
OECD (2002), *Frascati Manual: Proposed Standard Practice for Surveys on Research and Experimental Development*, OECD, Paris, [www.oecd.org/sti/frascaticmanual](http://www.oecd.org/sti/frascaticmanual).

### Figure notes

For the United States: the number of researchers is underestimated owing to the exclusion of military personnel in the government sector; data for 2000-07 are OECD estimates.

### Changes in business researchers over the business cycle, OECD, 1981-2007

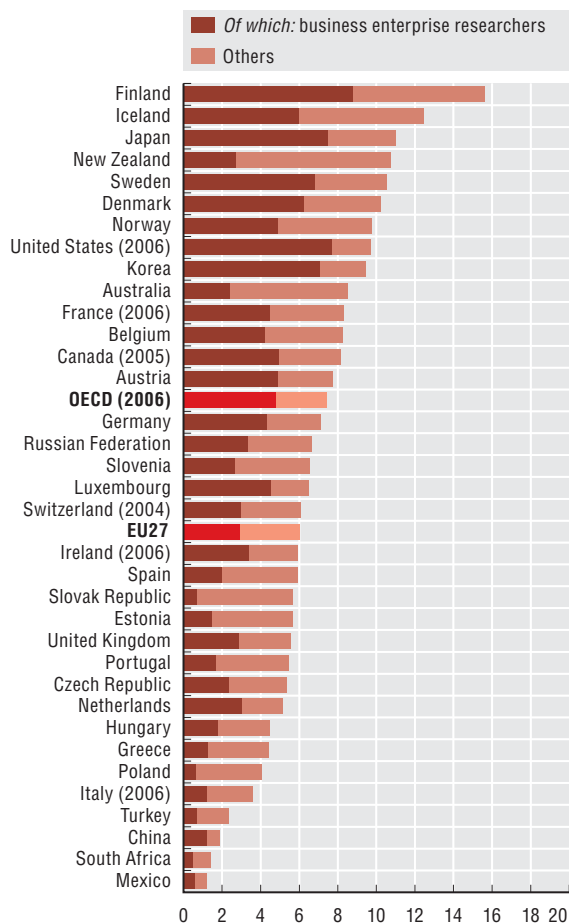
Business enterprise researchers and industrial employment, annual growth rates



StatLink <http://dx.doi.org/10.1787/742508341162>

### Researchers, 2007

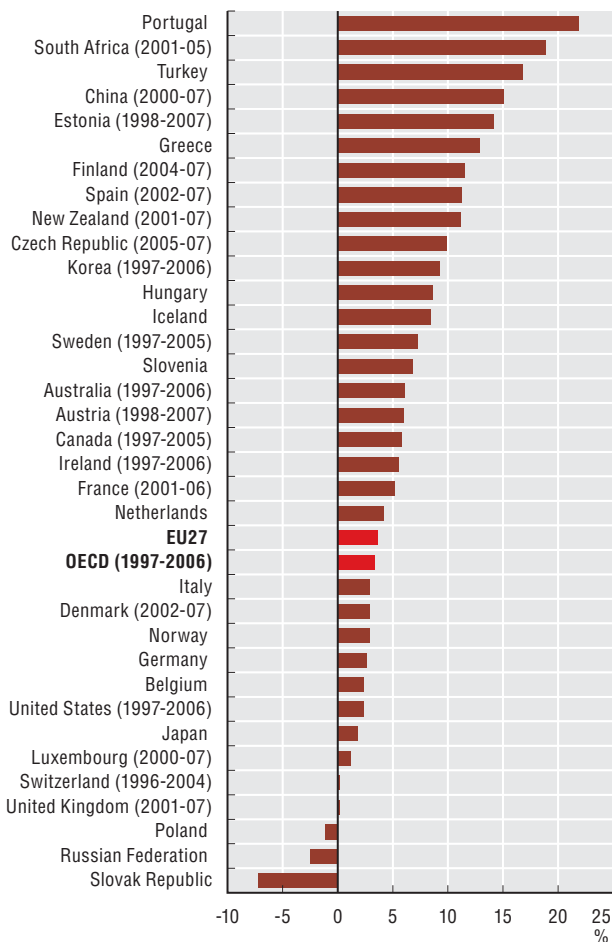
Per 1 000 total employment



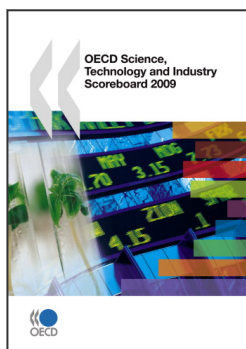
StatLink <http://dx.doi.org/10.1787/742515411553>

### Growth of business researchers, 1997-2007

Average annual growth rate



StatLink <http://dx.doi.org/10.1787/742528481768>



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