INVESTMENT IN KNOWLEDGE

"Investment in knowledge" is a synthetic indicator designed to compare member countries' expenditures on their "knowledge base" which are aimed at bringing future returns.

Definition

Investment in knowledge is defined and calculated as the sum of expenditure on R&D, on total higher education (public and private) and on software. Simple summation of the three components would lead to overestimation of the investment in knowledge owing to overlaps (R&D and software, R&D and education, software and education). Therefore, data reported here have been adjusted to exclude the overlaps between components.

Note that as the term is used here, "investment" has a broader connotation than its usual meaning in economic statistics. It includes current expenditures, such as on education and R&D, as well as capital outlays, such as purchases of software and construction of school buildings.

Comparability

The OECD is the source of the data on R&D, education and software. In previous years, the software component of investment in knowledge was estimated from a private source. However, the OECD has recently developed a capital services database, which includes software investment data. Software data from the OECD's capital services database are used here, and the figures reported here differ from those of previous years.

Note that OECD total excludes Australia, Austria and Greece from the group of reporting countries; EU15 total excludes Greece from the group of reporting countries.

Long-term trends

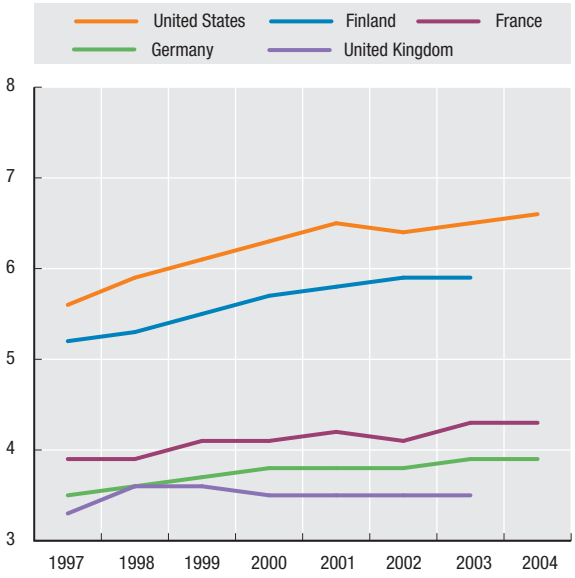
In 2004, investment in knowledge amounted to 4.9% of GDP in the OECD area. It exceeds the OECD average in the United States (6.6%), Sweden (6.4%), Finland (5.9%), Japan (5.3%) and Denmark (5.1%). In contrast, it is less than 2.5% in Ireland and Italy and less than 2% of GDP in Portugal and Greece.

Most OECD countries are increasing their investment in the knowledge base. For all reporting countries except Ireland, the ratio of investment in knowledge to GDP was higher in 2004 (or 2003) than in 1997. Further, the increase in the United States and Japan is sharper than in the EU countries for which data is available.

For Japan, Sweden, France, the Netherlands and the United Kingdom, increases in software expenditure were the major source of increased investment in knowledge. In the United States and Belgium, higher education was the main driver of the expansion of investment in knowledge. R&D was the main source of increase in Denmark, Finland, Canada, Spain, Germany, Portugal, Greece, Australia and Austria.

Investment in knowledge for selected countries

As a percentage of GDP



StatLink http://dx.doi.org/10.1787/537013265432

Source

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

Further information

Analytical publications

- Ahmad, N. (2003), *Measuring Investment in Software*, OECD Science, Technology and Industry Working Papers, No. 2003/6, OECD, Paris.
- OECD (2006), *Innovation and Knowledge-Intensive Service Activities*, OECD, Paris.
- OECD (2007), *The Space Economy at a Glance*, OECD, Paris.

Statistical publications

- OECD (2008), *Main Science and Technology Indicators*, OECD, Paris.
- OECD (2008), *OECD Science, Technology and R&D Statistics on CD-ROM*, OECD, Paris.

Methodological publications

- Kahn, M. (2001), "Investment in Knowledge", *STI Review No. 27*, OECD, Paris.
- Kahn, M. (2005), "Estimating the level of Investment in Knowledge across OECD countries", Intellectual Capital for Community – Nations, Regions, and Cities edited by Ahmed Bounfor and Leif Edvinsson, Elsevier Butterworth-Heinemann, Amsterdam; Boston.

Websites

- OECD Measuring Science and Technology, *www.oecd.org/sti/measuring-scitech*.
- OECD Science, Technology and Industry Scoreboard, *www.sourceoecd.org/scoreboard*.

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Investment in knowledge

As a percentage of GDP

	1997	1998	1999	2000	2001	2002	2003	2004
Australia	..	3.6	..	3.9	..	4.0	3.9	3.9
Austria	..	3.1	..	..	..	3.3	3.4	..
Belgium	..	2.6	3.5	3.6	3.8	3.5	3.4	..
Canada	3.9	4.0	4.6	4.6	4.9	..	4.5	4.5
Denmark	3.8	4.5	4.7	4.7	5.1	5.3	5.1	..
Finland	5.2	5.3	5.5	5.7	5.8	5.9	5.9	..
France	3.9	3.9	4.1	4.1	4.2	4.1	4.3	4.3
Germany	3.5	3.6	3.7	3.8	3.8	3.8	3.9	3.9
Greece	1.7	..	1.7	..	1.9	..	1.9	..
Ireland	2.6	2.5	2.6	2.6	2.5	2.3	2.3	..
Italy	2.0	2.1	2.2	2.2	2.4	2.4	2.4	..
Japan	4.1	4.4	4.5	4.6	4.8	4.9	5.1	5.3
Netherlands	3.5	3.6	3.9	3.7	3.8	3.6	3.7	..
Portugal	1.5	1.6	1.7	1.8	1.8	1.7	1.7	..
Spain	2.2	2.3	2.4	2.5	2.6	2.6	2.7	2.7
Sweden	5.6	..	6.2	..	6.9	..	6.4	..
United Kingdom	3.3	3.6	3.6	3.5	3.5	3.5	3.5	..
United States	5.6	5.9	6.1	6.3	6.5	6.4	6.5	6.6
OECD total	4.2	..	4.7	..	4.9	..	4.9	..

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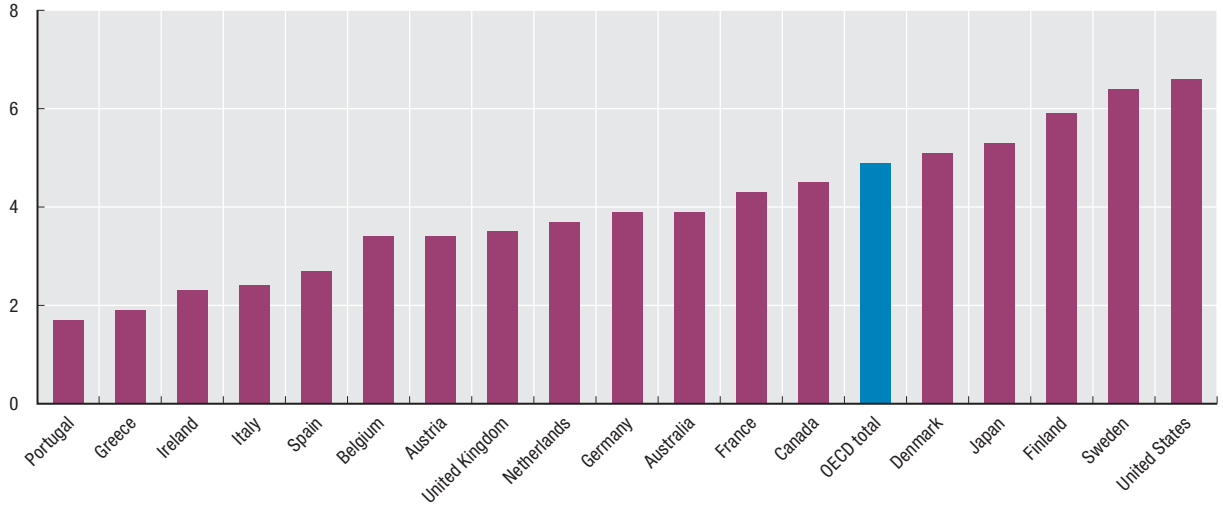
Investment in knowledge

As a percentage of GDP, 2004 or latest available year



StatLink http://dx.doi.org/10.1787/536863143258