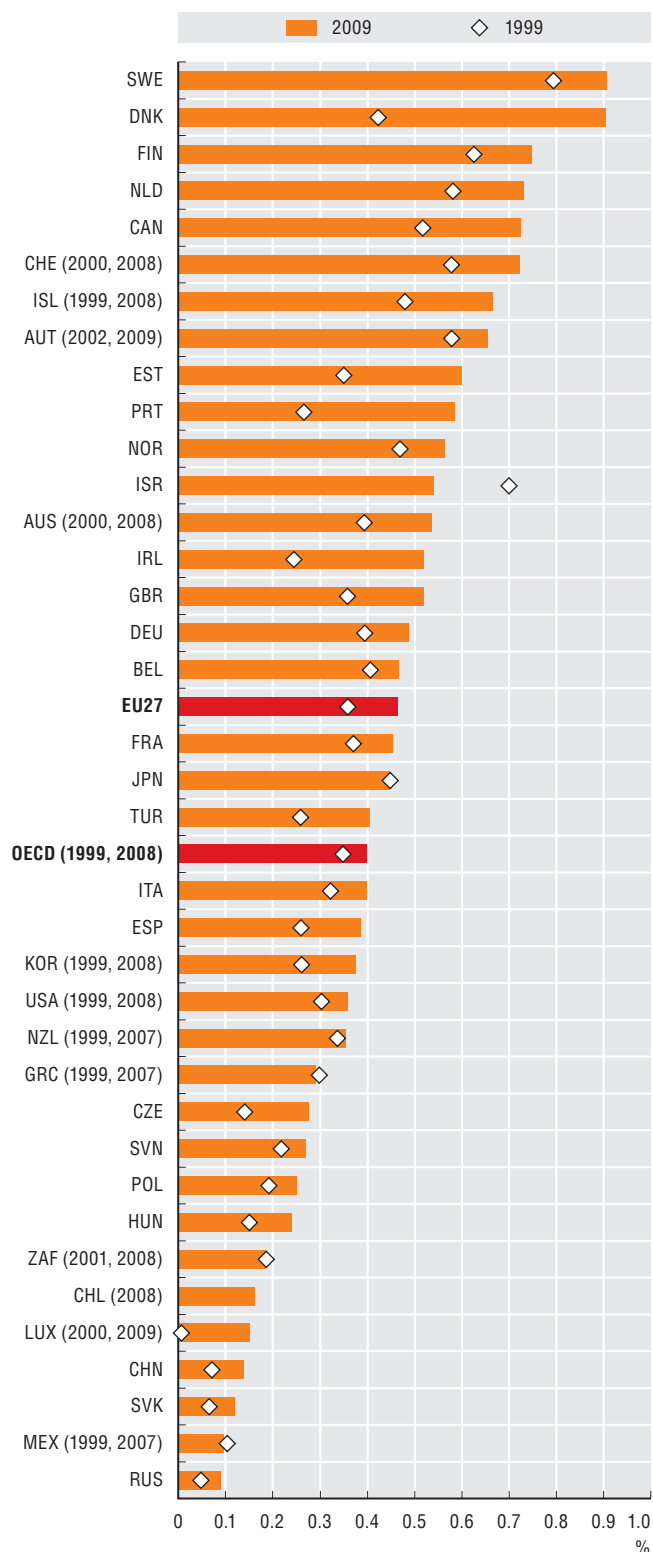


2. BUILDING KNOWLEDGE

6. Higher education and basic research

Higher education expenditure on R&D, 1999 and 2009

As a percentage of GDP



Source: OECD, Main Science and Technology Indicators Database, June 2011. See chapter notes.

StatLink <http://dx.doi.org/10.1787/888932486013>

Most basic research is performed in universities and in public research organisations, and public support is crucial. Total higher education spending on R&D (HERD) accounts for 0.4% of GDP in the OECD area, a share that has increased in most countries over the last decade. Sweden has the highest research intensity in the higher education sector at 0.9% of GDP. Denmark and Portugal have nearly doubled their HERD intensity over the decade.

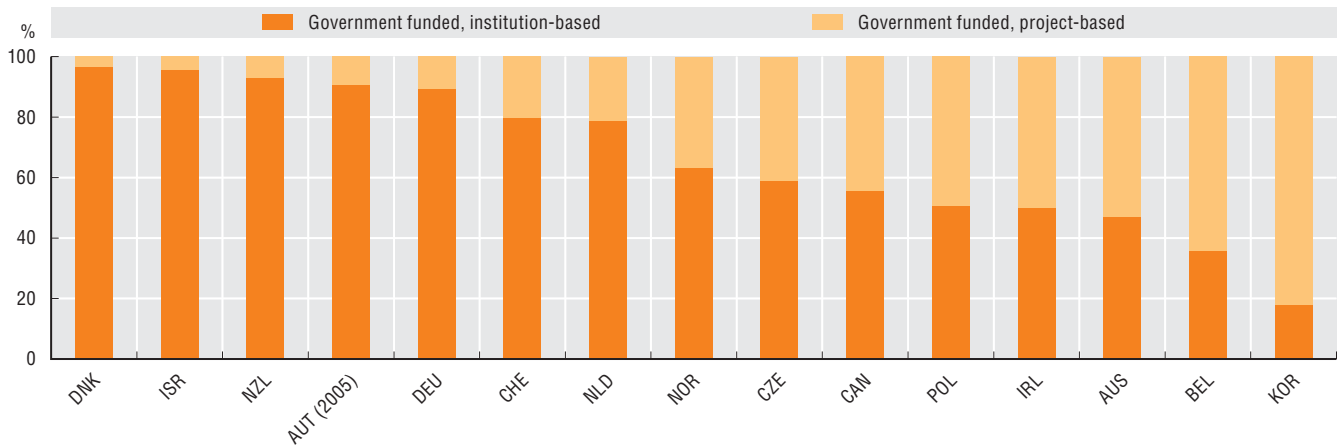
Governments rely on two main modes of direct R&D funding: institutional and project-based. Institutional funding can help ensure stable long-run funding of research, while project-based funding can promote competition within the research system and target strategic areas. This is covered by a new indicator on modes of public funding of the higher education sector. Government R&D funding modes vary widely and reflect the institutional settings of countries' research systems. In Denmark, Israel, New Zealand, Austria and Germany, institutional funding is the principal mode, while Belgium and Korea rely mainly on project funding. The mix of funding modes only changes over the longer run through reforms of the research system.

On average, government and universities perform more than three-quarters of all OECD basic research. The higher education sector's contribution to basic research ranges from 80% in Chile, Ireland and Denmark to approximately 20% in Korea, the United Kingdom and the Russian Federation. The government sector's contribution to basic research is largest in the Russian Federation, followed by the Czech Republic, the Slovak Republic, Hungary and China.

Definitions

Project funding is defined as funding attributed on the basis of a project submission by a group or individuals for an R&D activity that is limited in scope, budget and time. *Institutional funding* is defined as the general funding of institutions with no direct selection of R&D project or programmes. *Basic research* is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundation of phenomena and observable facts, without any particular application or use in view. For the purpose of these figures, the public sector is defined to comprise the government and higher education sectors but to exclude public-sector corporations which are part of the business enterprise sector, as defined in the *Frascati Manual*. The higher education sector may include private and public corporations, as well as private not-for-profit organisations as defined in the System of National Accounts.

Government funding of R&D in higher education, by type of funding, 2008



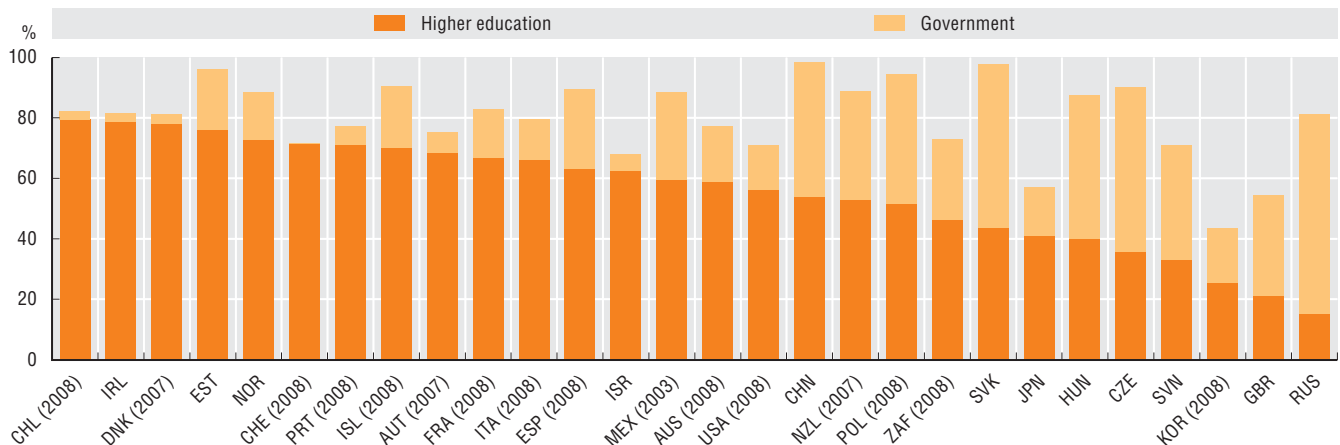
Note: This is an experimental indicator. International comparability is currently limited.

Source: OECD, based on preliminary data from the Microdata project on public R&D funding, 2009/10.

StatLink <http://dx.doi.org/10.1787/888932486032>

Basic research performed in the public sector, 2009

As a percentage of national basic research



Source: OECD, Research and Development Database, May 2011. See chapter notes.

StatLink <http://dx.doi.org/10.1787/888932486051>

Measurability

Measures of R&D performance in the higher education sector are often estimates by national authorities and evaluation methods are periodically revised. It is necessary to review the design and conduct of higher education surveys to ensure the comparability of these indicators. Project-based funding to higher education includes national R&D contracts, while institution-based funding to higher education includes general university funds (GUF) and other institutional funds. The NESTI (OECD Working Party of National Experts in Science and Technology Indicators) project on modes of public funding of R&D is developing new indicators by exploiting existing budget data. A NESTI Task Force has also been set up to provide recommendations on how to improve the measurement of higher education R&D.



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