

1. RESPONDING TO THE ECONOMIC CRISIS

1.4. Financing R&D during a recession

The business enterprise sector remains the main source of R&D funding in most OECD countries, accounting for around two-thirds of the total in 2007. Its role differs sharply across countries, from over three-quarters in Japan and Luxembourg to less than 35% in Greece and Poland. In recent years, its role has increased slightly in the main OECD regions to 55% in the EU and 66% in the United States.

R&D financed by the business enterprise sector is also the component most affected by the business cycle: over 1982-2007, the observed variations in the OECD area were significantly larger than the variations in total R&D. This suggests that the current crisis will affect business-financed R&D most strongly.

In the OECD area, business funding of R&D has been growing on average at a faster pace than government-financed R&D over the last 25 years. Following the economic upturns after 1993 and 2002-03, business-funded R&D growth picked up much more rapidly than government-funded R&D. Both sources of financing moved in parallel from 1982 to 1987, and they moved in opposite directions in 1988-89 and 2001-02.

Based on a measure of “responsiveness”, business-financed R&D appears more volatile than other sources of financing in most countries. However, in Austria, Ireland, Italy and Portugal the financing of R&D by businesses is more stable than financing from other sources. In these countries, the current crisis may result in a decrease in R&D financing by government unless recent stimulus packages focused on R&D are implemented, like in the case of Portugal.

R&D performance and funding

The R&D effort (expenditure and personnel) is usually broken down among four sectors of performance: business enterprise, higher education, government and private non-profit institutions serving households (PNP). This breakdown is largely based on the System of National Accounts, but higher education is viewed as a special sector, owing to the important role played by universities and similar institutions in the performance of R&D.

R&D has various sources of financing. Five are generally taken into account: the four R&D-performing sectors mentioned above and funds from “abroad”. Flows of funds are measured using performance-based reporting on the funds received by a unit, organisation or sector for the performance of intramural R&D. What is therefore measured are direct transfers of resources used to carry out R&D; other government provisions to encourage R&D, such as tax concessions, payment of bonuses for R&D, exemption from taxes and tariffs on R&D equipment, etc., are excluded. For purposes of international comparisons, public general university funds (GUF) are included in the subtotal for government funds. These are the funds allocated by higher education establishments to R&D from the general grant in support of their overall research and teaching activities which they receive from the Ministry of Education or the corresponding provincial or local authorities.

When assessing the contributions of the different sectors to R&D performance and the changes over time, it is important to take account of changes in methods and breaks in series, as well as national practices. For example, the transfer of public-sector organisations to the private sector would reduce the government sector’s contribution and increase that of the business sector. In the United States, funds from abroad are included with financing by the business enterprise sector.

Responsiveness is measured as the estimated elasticity of business enterprise-financed GERD to total GERD. The estimation is based on an OLS regression on the first-order differences of natural logs. Only coefficients significant at 10% level and below are reported.

Source

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

Going further

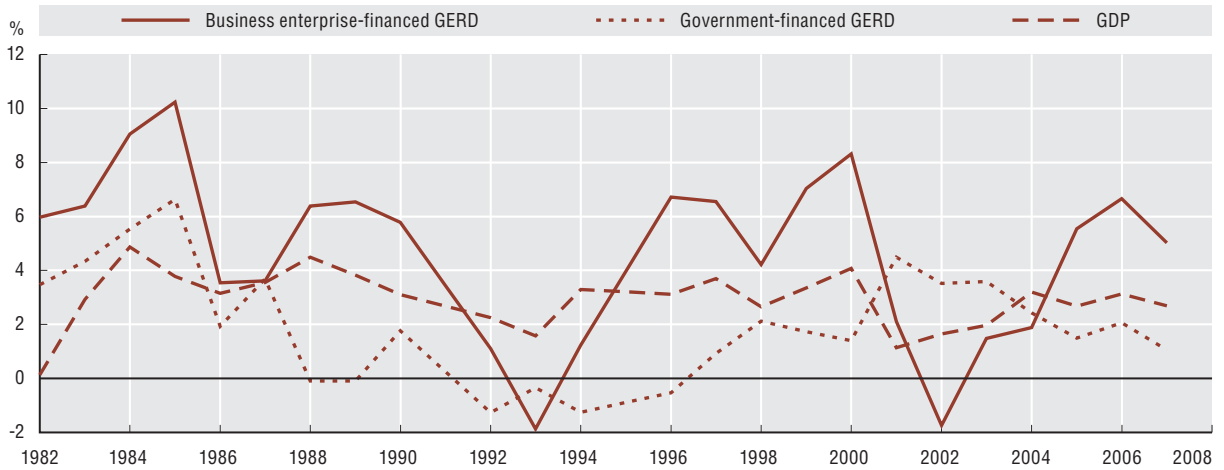
OECD (2002), *Frascati Manual: Proposed Standard Practice for Surveys on Research and Experimental Development*, OECD, Paris, www.oecd.org/sti/frascaticmanual.

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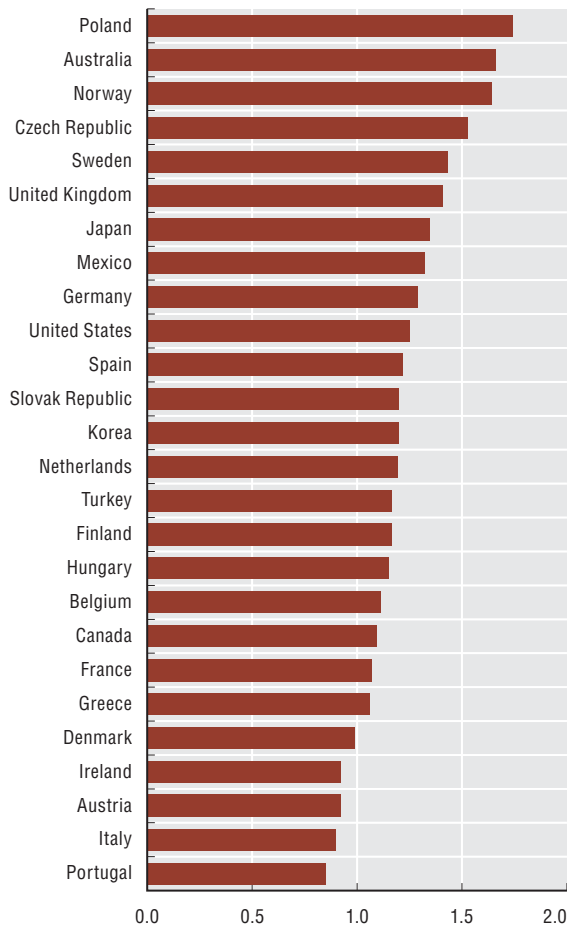
R&D growth over the business cycle by source of financing, OECD area, 1982-2007

Average annual real growth rate, percentage



StatLink <http://dx.doi.org/10.1787/742112414180>

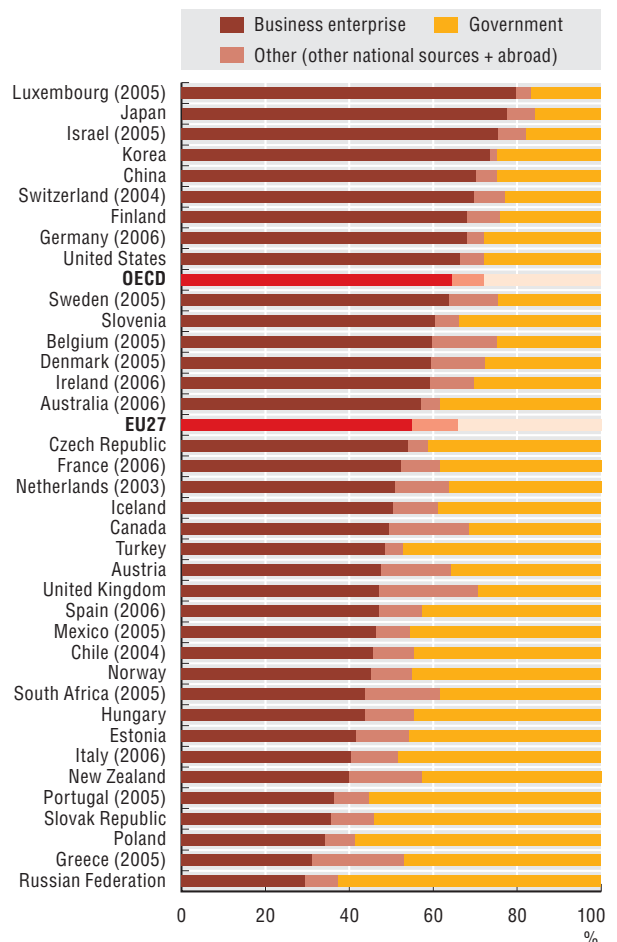
Responsiveness of business-financed R&D to the business cycle, 1981-2007



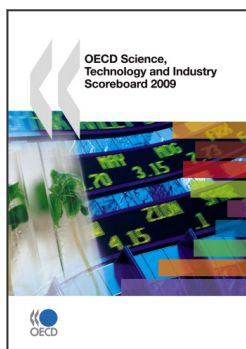
StatLink <http://dx.doi.org/10.1787/742056057730>

R&D by source of financing, 2007

As a percentage of the national total



StatLink <http://dx.doi.org/10.1787/742104412330>



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