

BRAZIL

Brazil's R&D intensity, at 1.02% of GDP in 2006, is quite low by OECD standards, although it exceeds that of Portugal, Turkey, Poland and Mexico. Among some non-OECD countries, its R&D intensity is below that of China and Russia, but higher than that of Argentina. The weight of public and business R&D are similar, with business expenditure on R&D at 0.49% of GDP. Brazil is one of the leading non-OECD recipients of foreign direct investment, and around 60% of patent applications at the Brazilian patent office come from non-resident inventors.

Human resources are a key challenge. Currently there are only 1.48 researchers per 1 000 total employment (2006) and only 10.7% of all university graduates have degrees in science and engineering. More generally, 7.8% of the population aged 25 to 64 had attained tertiary education in 2004, and 18.4% of total employment was in science and technology occupations.

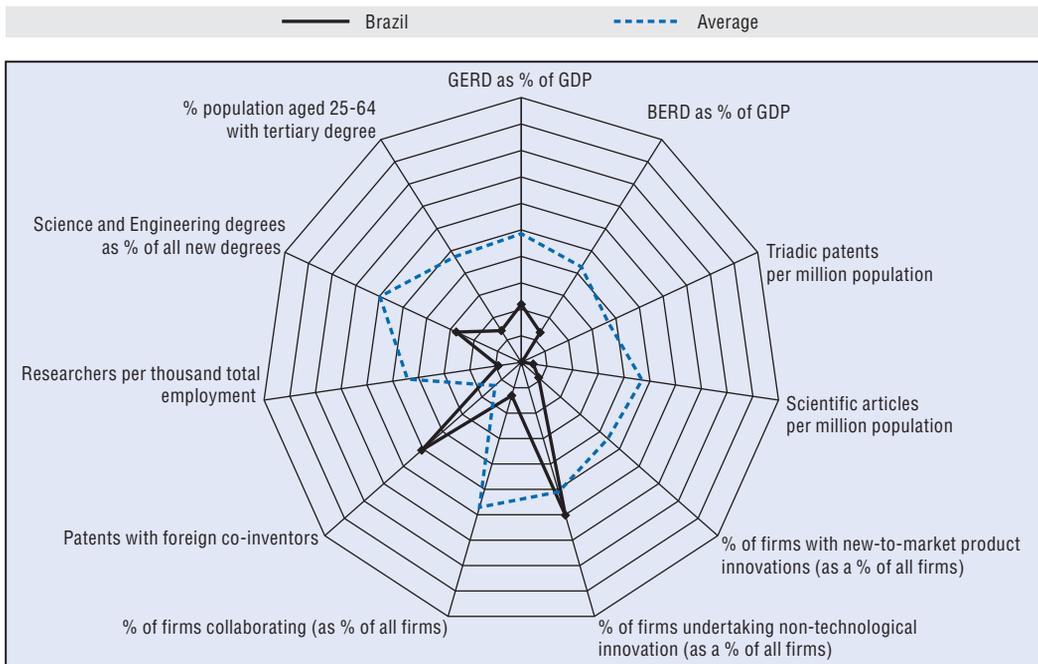
Brazil produces 0.31 triadic patents per million population, which puts it on par with China and Russia. Academic patenting has gained momentum in recent years, as exemplified by the University of Campinas' Inova agency: patent applications increased by a third, and technology licensing revenues by 60%, between 2004 and 2005. Brazil's share in world scientific articles rose to 1.4% in 2005, a share as high as Sweden's, after more than doubling between 1995 and 2005; this falls short of growth in China and Korea but is similar to growth in Portugal and Singapore.

A business innovation survey conducted by the Brazilian Statistics Bureau revealed that about a third of Brazilian firms with

more than ten employees engaged in some kind of innovation and that one-fifth engaged in product innovation between 2003 and 2005. Purchase of equipment and machinery was considered the main source of innovation. Few firms co-operate on innovation, and co-operation between firms and universities is also low. Instead, Brazilian firms regard clients and suppliers, as well as competitors, as important sources of knowledge and information for innovation. Cost, economic risk and lack of external financing, as well as a shortage of skilled labour, were considered the main obstacles to innovation. The law on innovation, which came into force in 2005-06, is expected to improve the situation.

As described in the 2006 *OECD Economic Survey of Brazil*, enhancing the contribution of innovation to productivity growth and competitiveness is one of the three structural challenges facing Brazil, and the main challenge for Brazil's innovation policy is to encourage business sector innovation. To this end, policy is beginning to take a broader approach in order to exploit potential synergies between promotion of science and technology, support for R&D, and fostering trade competitiveness. A four-year national plan for science, technology and innovation was approved at the end of 2007. Its goals are to increase the number of qualified human resources, investment in R&D, and enterprise innovation. It emphasises: strengthening the national science and technology system; innovation; R&D in strategic areas such as biotechnology, nanotechnology, information technology, energy, climate change and the Amazon; and science and technology for social development.

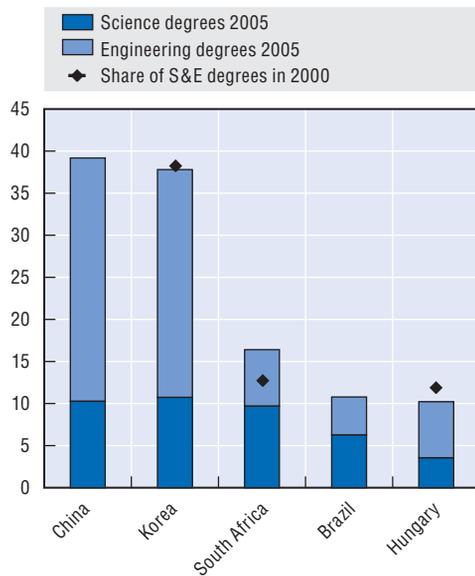
Science and innovation profile of Brazil



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Science and engineering graduates, 2005

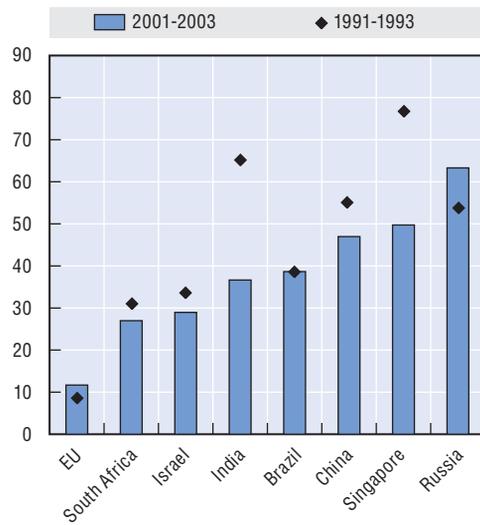
Percentage of all tertiary graduates



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Foreign ownership of domestic inventions, 2001-03

Percentage



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