Highlights from the OECD Science, Technology and Industry Scoreboard 2017 - The Digital Transformation: Spain

Science, innovation and the digital revolution

- **Spain** accounted for 2.5% of the world's top 10% of most-cited scientific publications in 2016, just behind India and ahead of Korea, up from 2.1% in 2005 [Scoreboard fig. 1.11 - see below].
- 9.6% of domestic scientific documents in **Spain** featured among the world's 10% most cited, just below the world's average [fig. 1.12]. 28% of those documents were in collaboration with scientists abroad, of which two thirds had corresponding authors based in **Spain**.
- **Spain** is the ninth largest producer of most-cited scientific documents on machine learning [fig. 1.27].
- Compared to other countries, venture capital investment in **Spain** is highly concentrated in the ICT sector at nearly 70% in 2016, only lower than Estonia [fig. 1.73].

Growth, jobs and the digital transformation

- In 2015, **Spain** was among the leading economies in Europe in terms of robot deployment intensity (i.e. the industrial stock of robots over manufacturing value added). Robot intensity in **Spain** is about one-quarter of that in Korea [fig. 1.28 - see below].
- **Spain** is among a small number of OECD countries that made modest gains in labour productivity growth from 2001-2007 to the 2009-2015 period, mainly due to stronger productivity growth in wholesale and retail trade [fig. 1.44].
- In 2015, **Spain's** business investment in fixed and knowledge-based capital (including software and R&D) was close to 12% of business gross value added [fig. 1.52], amongst the lowest in the OECD.
- From 2010 to 2016, **Spain** experienced net employment losses of some 900 000 jobs, due to large net losses in manufacturing and construction, and smaller net gains in business services and public services [fig. 1.34].
- In 2014, just under 37% of jobs in **Spain's** business sector were sustained by foreign demand, up from 26.7% in 2004 [fig. 1.38].
- Women in **Spain** earn 20.5% less than men, even after individual and job-related characteristics are taken into consideration, and almost 14% less when skills differences are also taken into account [fig. 1.41].
- Over 80% of individuals in **Spain** used the Internet in 2016, up from 47.3% in 2006 [fig. 1.57]. Over 98% of 16-24 year olds used the Internet in 2016, but only 52% of 55-74 year olds [fig. 1.58].

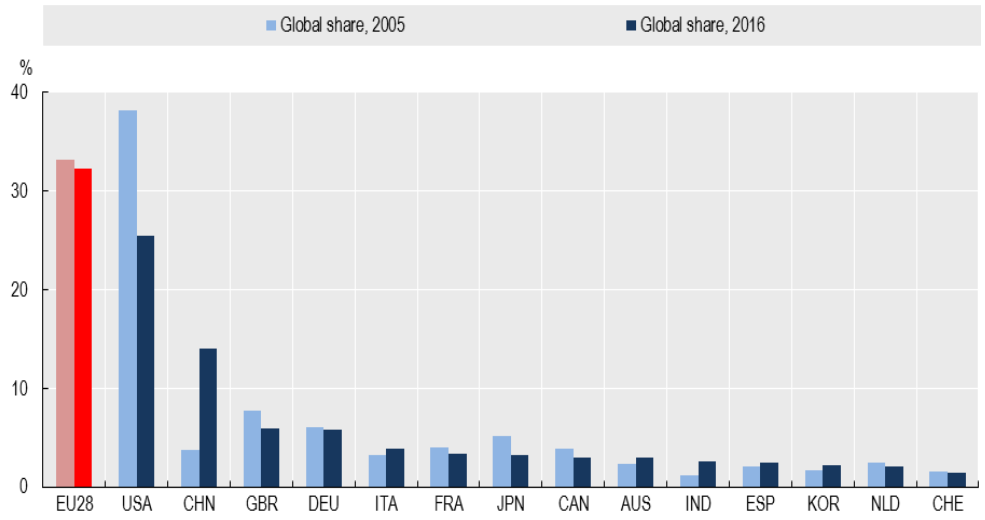
Innovation today - Taking action

- **Spain** experienced one of the largest reductions in government funding for R&D among OECD countries over the period 2008-15, with a decline of nearly 30% in real terms [fig. 1.62]. Public support for business R&D through R&D tax expenditures remained constant between 2016 and 2015 at 0.1% of GDP.

- In 2012-15, in **Spain**, 14% of patents were invented by women, the second-highest in the OECD behind Portugal, compared to 10% in the United States and 7% in the EU [fig. 1.61]. In pharmaceuticals, 42% of patents in **Spain** were invented by women.
- Scientific research on dementia and neurodegenerative diseases has grown significantly since 1996, with **Spain** among the seven leading countries in terms of production of scientific publications in this area [fig. 1.64 - see below].
- Data on the international mobility of scientific authors for 2002 to 2016 shows that **Spain** has lost more authors than it has attracted, especially to the United States, United Kingdom and France. Over the past 15 years, over 5 000 more scientific authors left **Spain** than entered [fig. 1.69 - see below].

Figure 1.11 Economies with the largest volume of top-cited scientific publications, 2005 and 2016

As a percentage of the world's top 10% most-cited publications

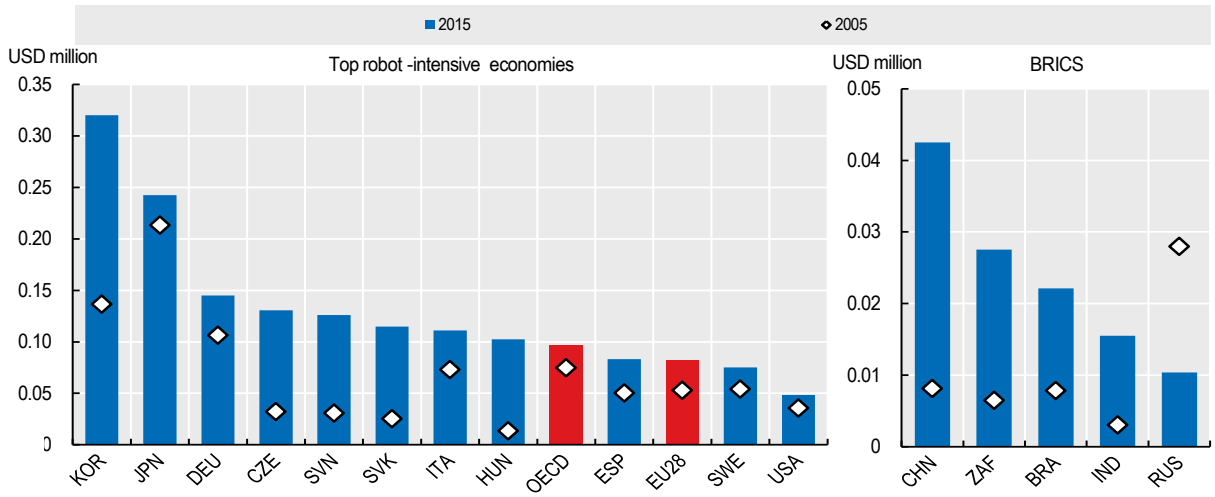


StatLink : http://dx.doi.org/10.1787/888933617054

Source: OECD Science, Technology and Industry Scoreboard 2017: The Digital Transformation, OECD Publishing, Paris, http://dx.doi.org/10.1787/sti_scoreboard-2017-en.

Figure 1.28 Top robot-intensive economies and BRICS, 2005 and 2015

Industrial robot stock over manufacturing value added, millions USD, current values



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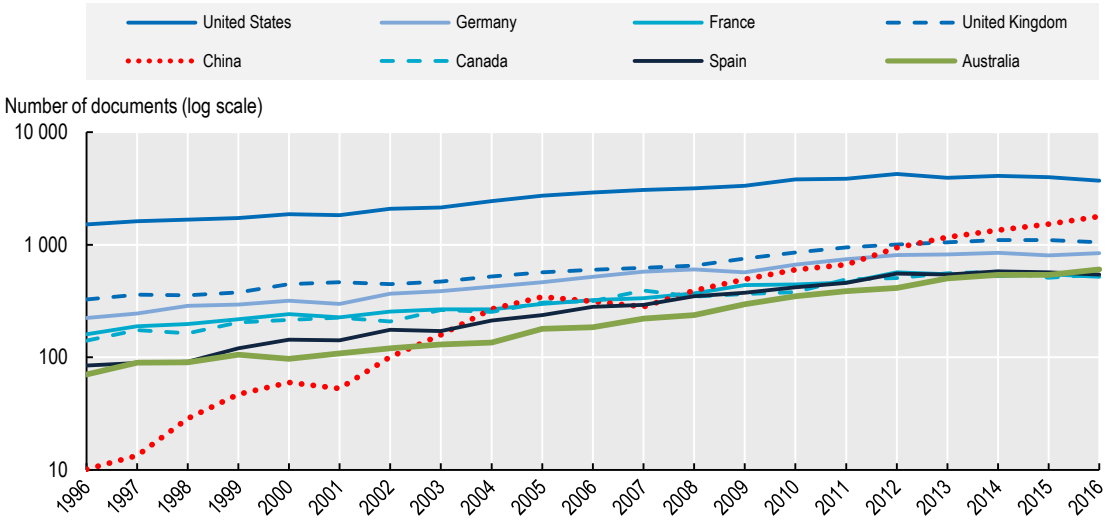
Source: OECD Science, Technology and Industry Scoreboard 2017: The Digital Transformation, OECD Publishing, Paris, http://dx.doi.org/10.1787/sti_scoreboard-2017-en.

Figure 1.64 Scientific research on dementia and neurodegenerative diseases, selected countries, 1996-2016

Total number of dementia-related documents in the Scopus database, fractional counts

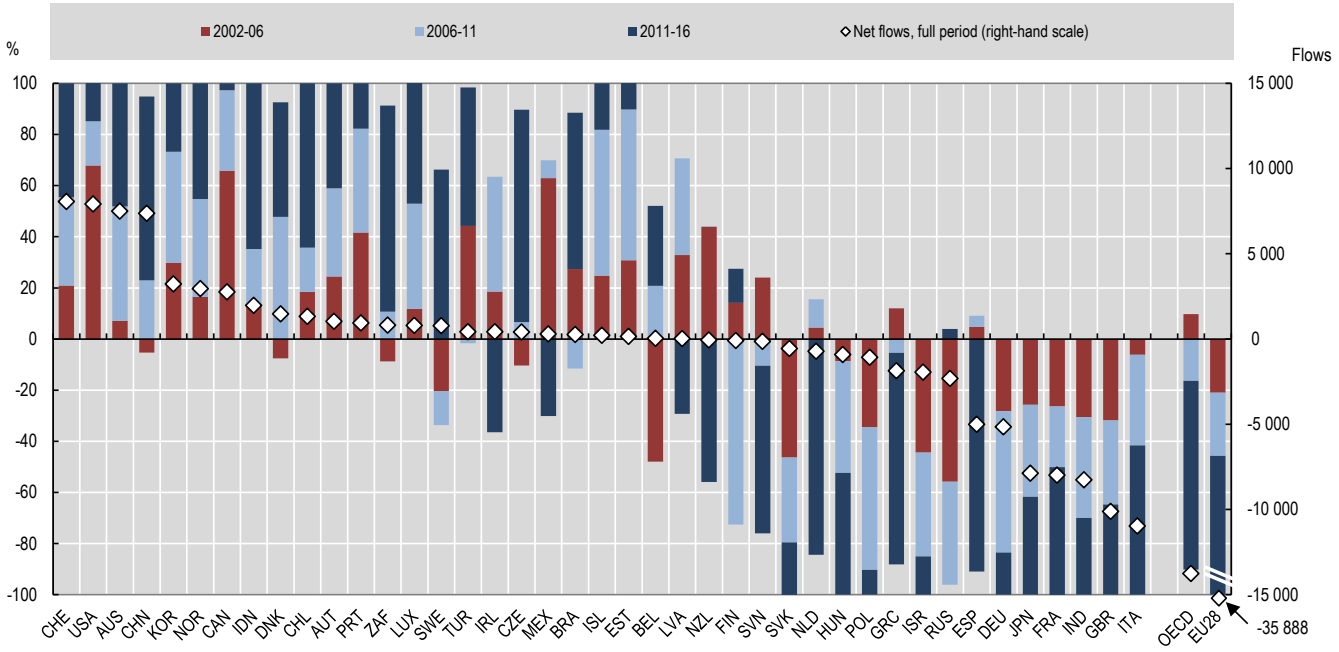


StatLink : http://dx.doi.org/10.1787/888933618061

Source: OECD Science, Technology and Industry Scoreboard 2017: The Digital Transformation, OECD Publishing, Paris, http://dx.doi.org/10.1787/sti_scoreboard-2017-en.

Figure 1.69 International net flows of scientific authors, selected economies, 2002-16

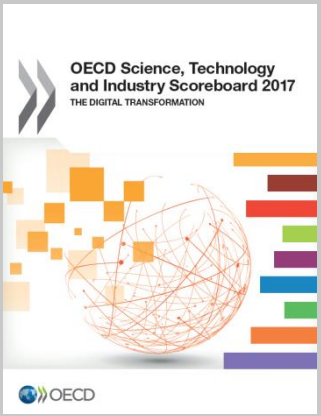
Difference between annual fractional inflows and outflows, as a percentage of total flows



StatLink : http://dx.doi.org/10.1787/888933618156

Source: OECD Science, Technology and Industry Scoreboard 2017: The Digital Transformation, OECD Publishing, Paris, http://dx.doi.org/10.1787/sti_scoreboard-2017-en.

The OECD Science, Technology and Industry Scoreboard 2017: The Digital Transformation



The 2017 edition of the Scoreboard contains over 200 indicators showing how the digital transformation affects science, innovation, the economy, and the way people work and live.

The aim of the STI Scoreboard is not to "rank" countries or develop composite indicators. Instead, its objective is to provide policy makers and analysts with the means to compare economies with others of a similar size or with a similar structure, and monitor progress towards desired national or supranational policy goals.

It draws on OECD efforts to build data infrastructure to link actors, outcomes and impacts, and highlights the potential and limits of certain metrics, as well as indicating directions for further work.

The charts and underlying data in the STI Scoreboard 2017 are available for download and selected indicators contain additional data expanding the time and country coverage of the print edition. For more resources, including online tools to visualise indicators, see the OECD STI Scoreboard webpage (http://www.oecd.org/sti/scoreboard.htm).

The OECD Directorate for Science, Technology and Innovation

It is part of the DNA of the Directorate for Science, Technology and Innovation (DSTI) to constantly look for ways of better understanding where our economies and societies are today, and where they are going tomorrow. We pride ourselves on tackling topics at the boundaries of our scientific and technological understanding, such as using biotechnology and nanotechnology to alter modes of production, and how digital shifts like "big data," earth observation and digital platforms are changing our world.

Discover DSTI at www.oecd.org/sti and the OECD's Going Digital project at www.oecd.org/going-digital.

Further reading

OECD (2017), *OECD Digital Economy Outlook 2017*, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264276284-en

OECD (2016), *OECD Science, Technology and Innovation Outlook 2016*, OECD Publishing, Paris. http://dx.doi.org/10.1787/sti_in_outlook-2016-en