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

Science, innovation and the digital revolution

- About 9% of domestic scientific documents in **Portugal** featured among the world's 10% most cited, i.e. just below the world's average [Scoreboard - fig. 3.1.1]. 30% of those documents were in collaboration with scientists abroad [fig. 3.2.3].
- **Portugal** has one of the lowest OECD country shares of tertiary education graduates specialised in Information and communication technologies, at nearly 1% of all tertiary graduates [fig. 2.3.2]. However, its scientific production is more specialised in computer science relative to most other OECD countries [fig. 3.1.2 – see below].
- In **Portugal**, mobile-to-mobile SIM card subscriptions, key to enabling the "Internet of Things", were among the lowest in the OECD area [fig. 1.3 – see below].

Growth, jobs and the digital transformation

- Data for 2015 show that **Portugal** has an average rate of robot deployment intensity in manufacturing compared to other EU countries (i.e. the industrial robots stock over value added). However, robot intensity in **Portugal's** manufacturing sector is about one-fifth of that of Korea [fig. 1.28].
- **Portugal** is, together with Spain and Italy, one of the countries with the lowest multi-factor productivity growth from 1995 to 2014 [fig. 1.46]. Over that period, this measure of input adjusted productivity remained essentially unchanged (growth of 0.03%).
- From 2010 to 2016, **Portugal** experienced net employment losses of some 300 000 jobs, due to large net losses in construction and agriculture, and smaller net gains in business services and public services [fig. 1.34].
- In 2014, 42% of jobs in **Portugal's** business sector were sustained by foreign demand, up from 31% in 2004 [fig. 5.7.1].
- At close to 40%, **Portugal** has one of the highest shares of women among its tertiary graduates in natural sciences, engineering and ICT [fig. 1.59]. It also has the highest share of women inventors within the OECD [fig. 1.61].
- Over 70% of individuals in **Portugal** used the Internet in 2016, up from 36% in 2006 [fig. 1.57]. Over 99% of 16-24 year-olds used the Internet in 2016, but only 38% of 55-74 year olds [fig. 1.58].
- **Portugal** has the fourth lowest rate of mobile broadband penetration in the OECD area, at just above 60 subscriptions per 100 inhabitants in 2016 [fig. 6.1.1].

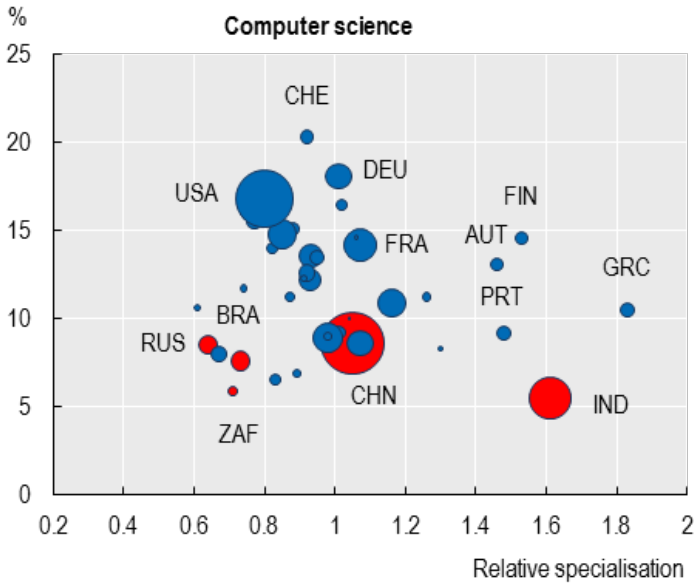
Innovation today - Taking action

- **Portugal's** government R&D budget was at the same level in real terms in 2016 as in 2008. It has been declining after reaching a peak in 2011 [fig. 1.62].

- Together with France, **Portugal** provides what is in principle one of the most generous tax relief schemes for SMEs carrying out R&D [fig. 4.6.3 – see below].
- Experimental indicators of international mobility of scientific authors (based on bibliometric data) reveal that during the period 2002 to 2016, **Portugal** attracted more authors than it lost. Over the past 15 years combined, approximately 900 more scientific authors moved to **Portugal** than left. From 2013 onwards, more authors left **Portugal** than moved in [fig. 1.69 – see below].

Figure 3.1.2 Specialisation and citation impact in science, computer science, 2015

Percentage of documents in the top 10% ranked documents and relative specialisation, by field, fractional counts

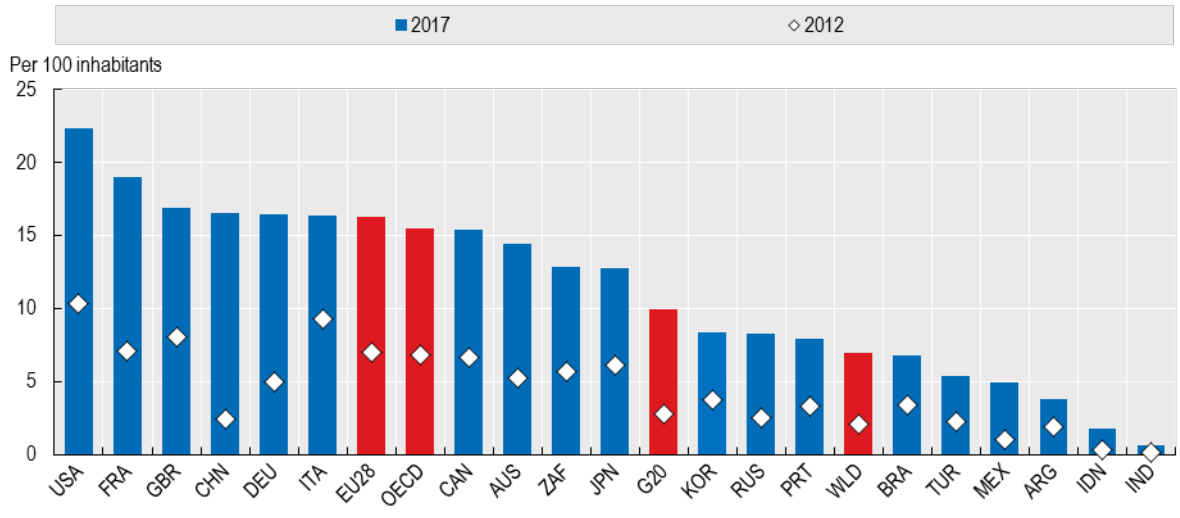


StatLink http://dx.doi.org/10.1787/888933618764

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 1.3 M2M SIM card penetration, Portugal, OECD, World and G20 countries, June 2017

Per 100 inhabitants

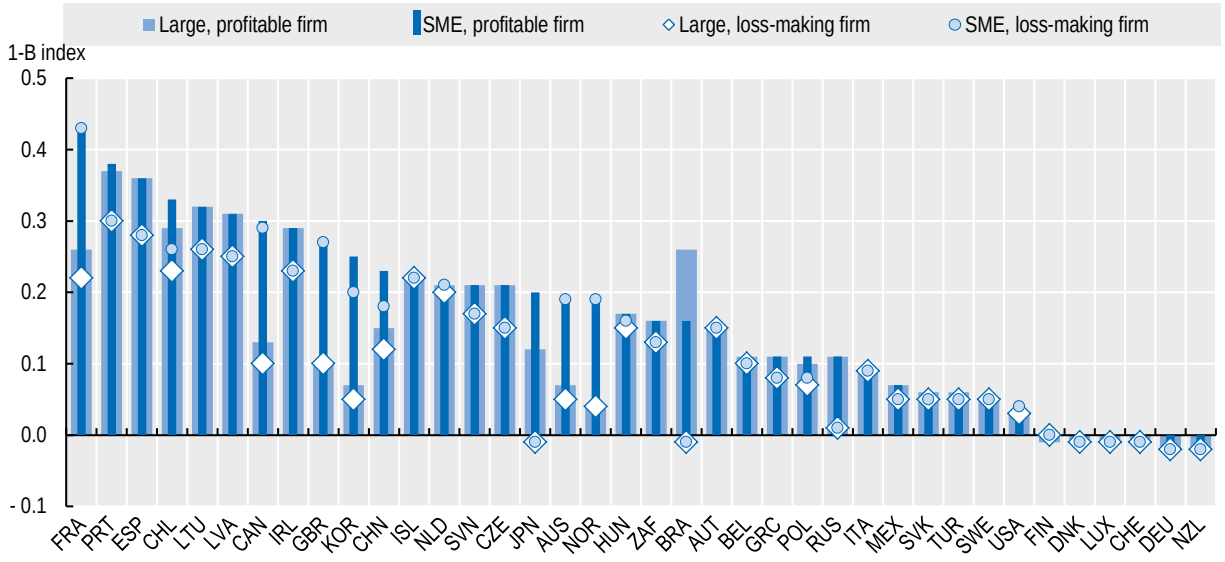


StatLink http://dx.doi.org/10.1787/888933616902

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 4.6.3 Tax subsidy rates on R&D expenditures, 2017

1-B-index, by firm size and profit scenario

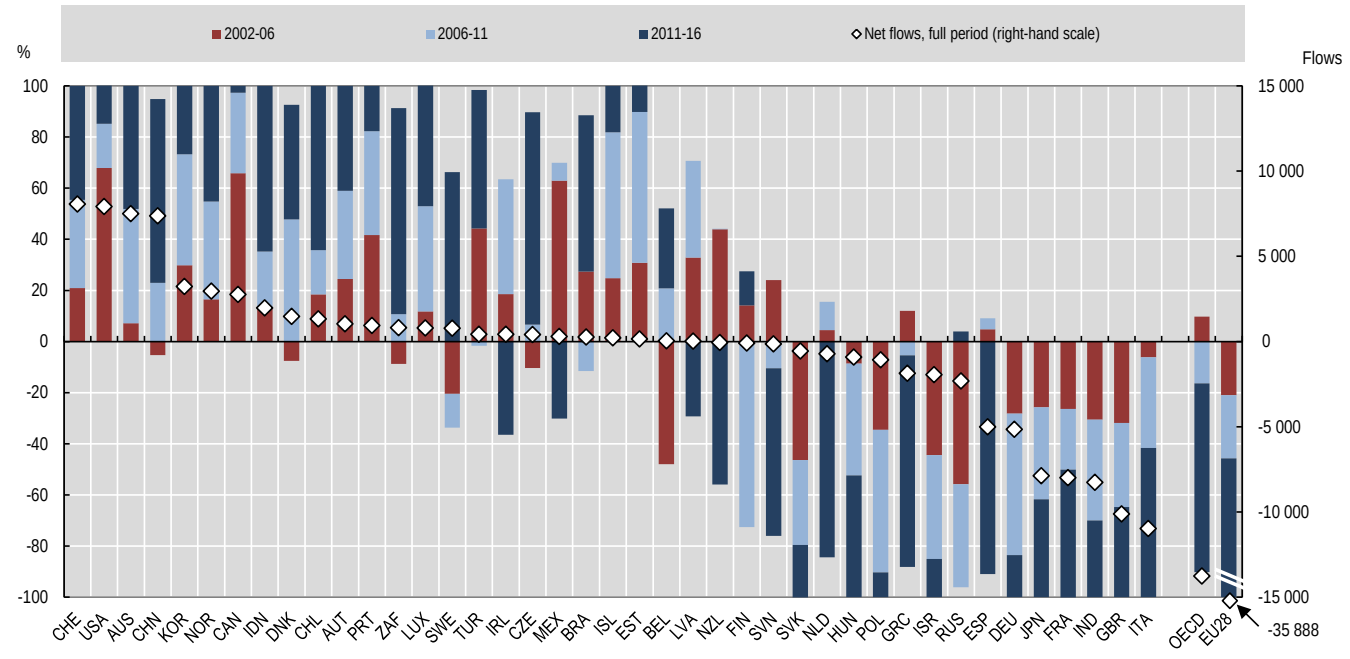


StatLink http://dx.doi.org/10.1787/888933619448

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

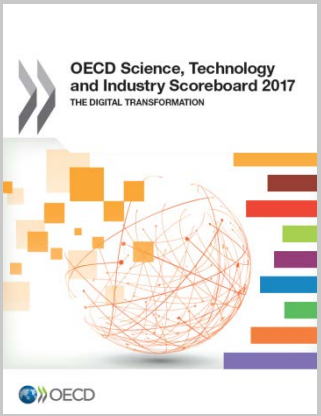
Difference between annual fractional inflows and outflows, as a percentage of total flows



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