

In the search for new technological competences, better adaptation to local markets, and lower research and development costs, companies are moving research activities abroad. This internationalisation of research activities is an important driver of innovative firms and country competitiveness.

Patents provide two complementary indicators of the internationalisation of research. The first is the share of patents filed by one country for an invention made in another country (ownership of inventions made abroad). The second is the share of inventions made in one country and patented by a foreign country (foreign ownership of domestic inventions).

For 2004-06, both indicators show a significant degree of internationalisation of research activities. On average, over 15% of the patents filed by an OECD country under the Patent Co-operation Treaty (PCT) concerned inventions made abroad. Similarly, the share of inventions owned by another country accounted for just under 15% of all OECD filings.

The internationalisation of research activities varies substantially across countries. In 2004-06, Luxembourg (87%) and Switzerland (63%) mainly had patents for inventions made in other countries, mainly by EU residents. In small European countries, such as Austria, Belgium, Hungary, Poland and Portugal, over 40% of inventions were filed by foreign patent applicants, mostly European companies. This suggests that geographical and cultural proximity is an important factor in the localisation of research activities abroad.

During the same period, Japan and Korea had the least internationalisation of research, in terms both of domestic ownership of foreign inventions and of foreign ownership of domestic inventions. In these countries, most cross-border ownership involves a US partner.

Patents measuring globalisation in S&T

Globalisation of technological activities can be quantified with the use of patents. Patents have a distinctive feature that makes them very attractive as an indicator of global science and technology (S&T) activities: patent documents report the names of the inventor(s) and the applicant(s) – the owner of the patent at the time of application – along with their addresses and countries of residence.

Cross-border ownership occurs when the country of residence of the owner(s) and inventor(s) differ. In most cases, cross-border ownership of inventions is the result of activities of multinationals: the applicant is an international conglomerate and the inventors are employees of a

foreign subsidiary. Patent documents therefore make it possible to trace the internationalisation of technological activities and the circulation of knowledge among countries.

The share of domestic ownership of inventions made abroad shows the extent to which domestic firms control inventions made by residents of other countries. The growth of this indicator basically reflects two motivations of S&T activities by companies: the need to adapt products and processes to host markets (“asset-exploiting” strategies) and to acquire knowledge (“asset-seeking” strategies).

Foreign ownership of domestic inventions is another measure of the globalisation of technological activities and reflects the extent to which foreign firms control domestic inventions. Foreign ownership also includes inventions in which the inventor country shares ownership (co-owned inventions), but this represents only a small part of total cross-border inventions.

Source

OECD, Patent Database, June 2009,
www.oecd.org/sti/ipr-statistics.

Going further

Guellec, D. and B. van Pottelsberghe de la Potterie (2001), “The Internationalisation of Technology Analysed with Patent Data”, *Research Policy*, Vol. 30, Issue 8, pp. 1253-1266.

OECD (2009), *OECD Patent Statistics Manual*, OECD, Paris.

Figure notes

The EU is treated as one country and excludes intra-EU co-operation; average co-operation is provided for OECD total and total patents.

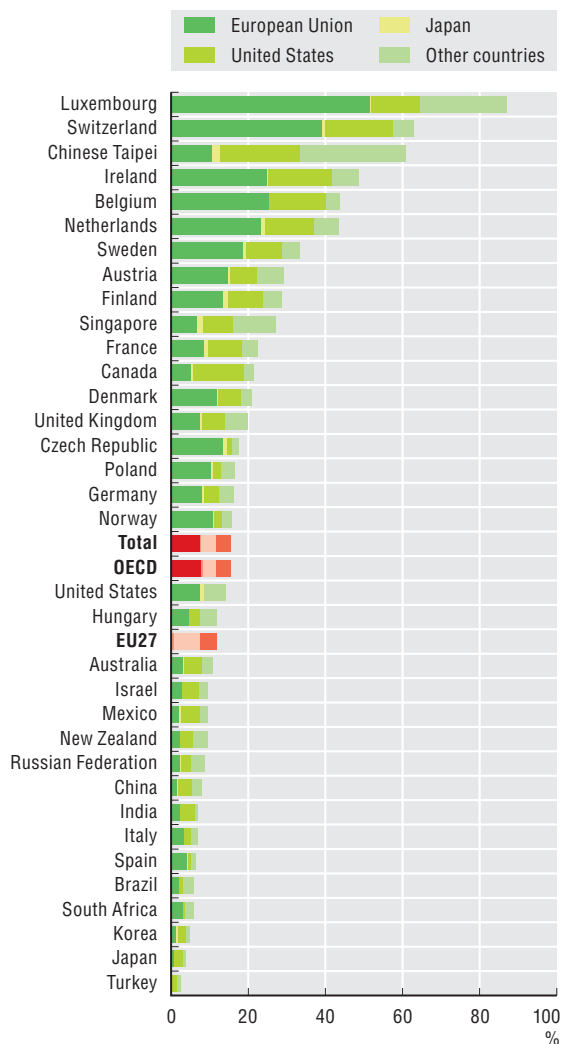
Figures cover economies with more than 250 PCT filings over 2004-06.

Domestic ownership of inventions is defined as the share of patent applications filed under the PCT invented abroad in total patents owned by country residents, by priority date.

Foreign ownership of inventions is defined as the share of patent applications filed under the PCT owned by foreign residents in total patents invented domestically, by priority date.

Domestic ownership of inventions made abroad, 2004-06

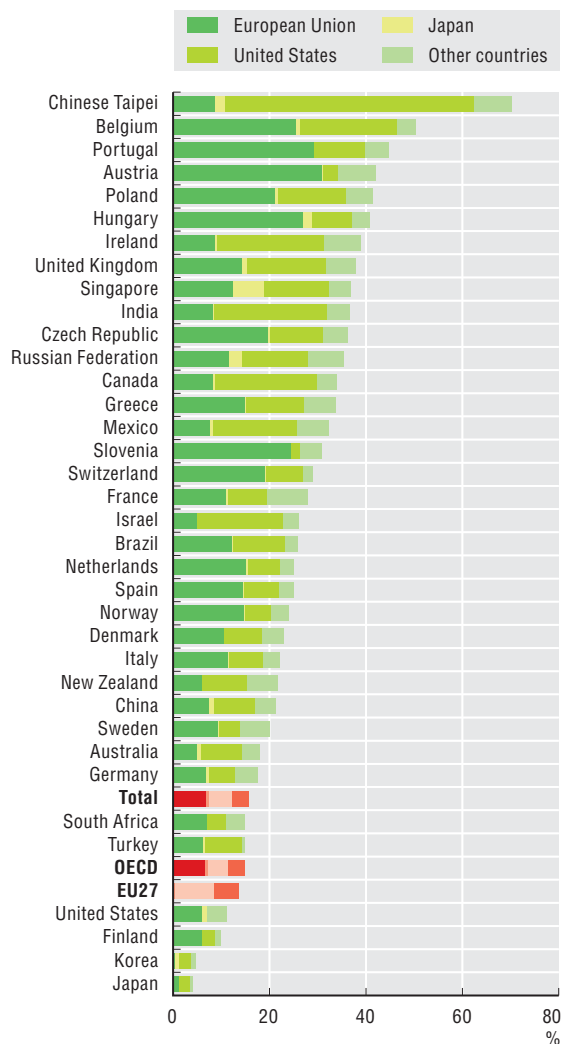
Partner in the three major regions



StatLink <http://dx.doi.org/10.1787/745826168641>

Foreign ownership of domestic inventions, 2004-06

Partner in the three major regions



StatLink <http://dx.doi.org/10.1787/745856344845>



From:
**OECD Science, Technology and Industry
Scoreboard 2009**

Access the complete publication at:
https://doi.org/10.1787/sti_scoreboard-2009-en

Please cite this chapter as:

OECD (2009), "Cross-border inventions", in *OECD Science, Technology and Industry Scoreboard 2009*, OECD Publishing, Paris.

DOI: https://doi.org/10.1787/sti_scoreboard-2009-48-en

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