

1. RESPONDING TO THE ECONOMIC CRISIS

1.8. Patent intensity over the business cycle

Patents provide a uniquely detailed source of information on the inventive activity of countries. Historically, research and development (R&D) expenditures and patent filings have moved in parallel with gross domestic product (GDP) and slowed markedly during the economic downturns of the early 1990s and early 2000s. Patenting is more rapidly affected by the economic situation than R&D expenditures funded by the business sector. Provisional data for 2008 show a significant slowdown of patenting activity in most countries.

The number of triadic patent families almost doubled over the last 20 years, in spite of the slowdown in the early 2000s. In 2007, the OECD estimated these at nearly 52 000. The United States, Japan and Germany are the three most inventive countries, followed by Korea and France. A significant upsurge occurred in Asia, with average growth of 33% in China and 20% in India and Korea from 2000.

There is a strong positive correlation between the number of triadic patent families and industry-financed expenditures on R&D: the more a country spends on R&D, the higher the propensity to patent. The Netherlands has the strongest patent intensity of all OECD countries (240 triadic families per billion USD of R&D funded by industry), followed by Switzerland (186), Japan (164) and Germany (163). Emerging economies such as Brazil and China have a small number of patents relative to R&D.

Triadic patent families

Patents filed at a given patent office provide a rich source of data but have some statistical limitations. First, domestic applicants tend to file more patents in their home country than non-resident applicants, an effect known as “home bias”. Second, indicators based on a single patent office are influenced by factors other than technology, such as patenting procedures, trade flows, proximity, etc. Finally, the value distribution of patents within a single patent office is skewed: many patents are of low value and a few are of extremely high value. Simple patent counts would give equal weight to all patents.

The OECD triadic patent families improve the quality and the international comparability of patent indicators. They are defined as a set of patents taken at the European Patent Office (EPO),

the Japan Patent Office (JPO) and the US Patent and Trademark Office (USPTO) that protect a same invention. Since only patents applied for in all three are included, home advantage and influence of geographical location are eliminated. Moreover, patents included in the family are typically of higher value: patentees only take on the additional costs and delays of extending protection to other countries if they deem it worthwhile.

To reflect the inventive performance of countries, triadic patent families are counted according to the earliest priority date (first patent application worldwide), the inventor’s country of residence, and fractional counts. Owing to the time lag between the priority date and the availability of information, data from 2000 onwards are OECD estimates based on more recent patent series (“nowcasting”).

Sources

OECD, Patent Database and R&D Database, June 2009.

EPO Worldwide Statistical Patent Database (PATSTAT), April 2009.

Going further

OECD (2008), “Compendium of Patent Statistics”, www.oecd.org/sti/ipr-statistics.

OECD (2009), “Policy Responses to the Economic Crisis: Investing in Innovation for Long-Term Growth”, www.oecd.org/dataoecd/59/45/42983414.pdf.

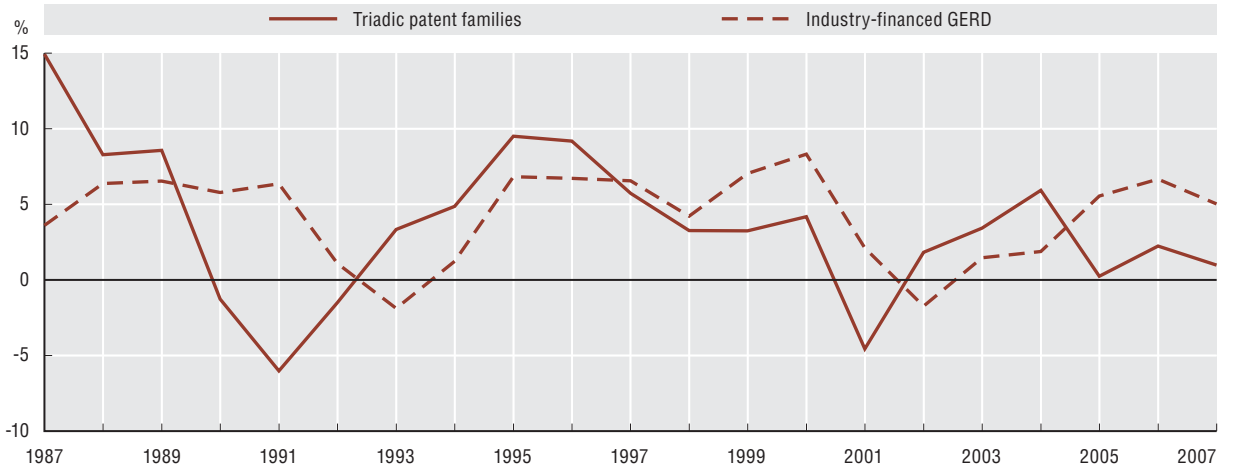
OECD (2009), *OECD Patent Statistics Manual*, OECD, Paris.

Figure notes

“Triadic” patent families refer to patents filed at the European Patent Office (EPO), the US Patent and Trademark Office (USPTO) and the Japan Patent Office (JPO) which protect the same invention. Gross domestic expenditure on R&D (GERD) is measured as millions of USD (2000) using purchasing power parities, lagged by one year.

Changes in patenting over the business cycle

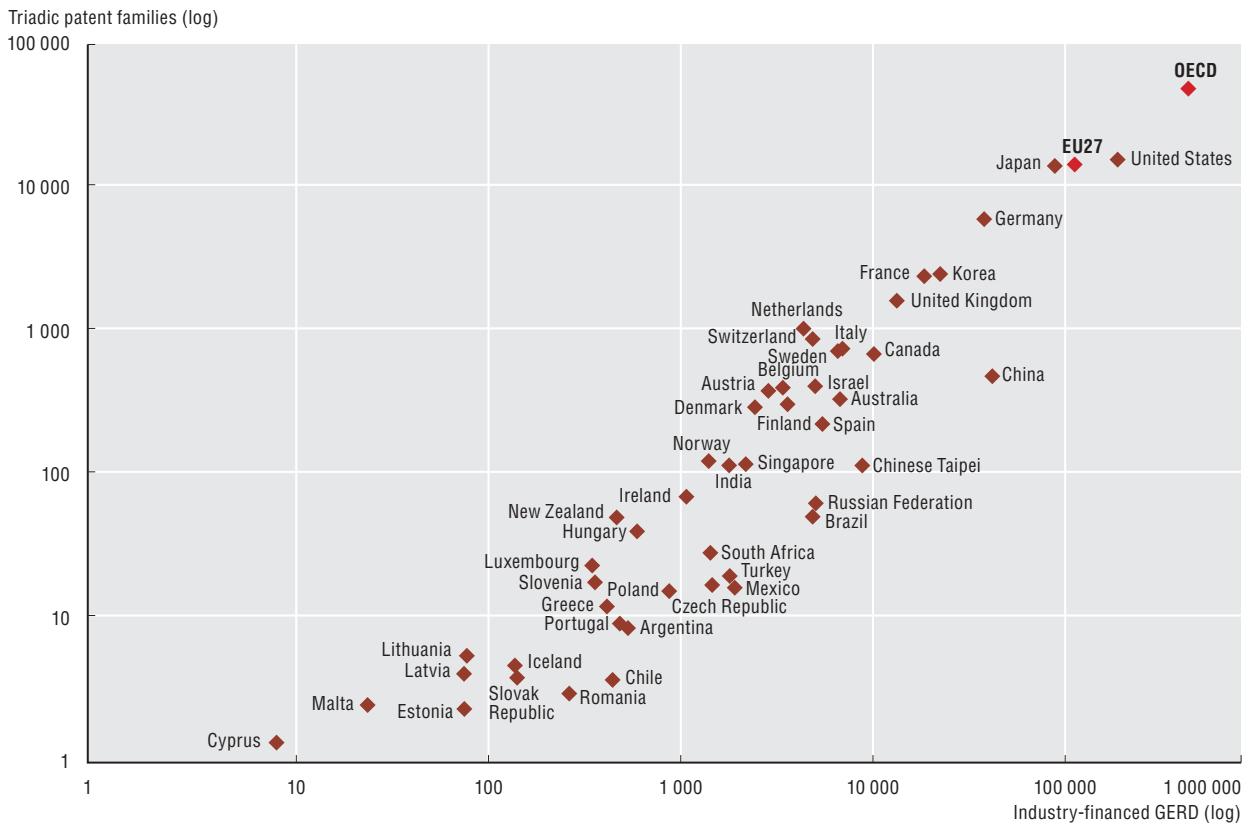
Annual growth rates, OECD area



StatLink <http://dx.doi.org/10.1787/742377256512>

"Triadic" patent families and industry-financed R&D

Average for 2005-07 or closest available years



StatLink <http://dx.doi.org/10.1787/742418686226>



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), "Patent intensity over the business cycle", in *OECD Science, Technology and Industry Scoreboard 2009*, OECD Publishing, Paris.

DOI: https://doi.org/10.1787/sti_scoreboard-2009-11-en

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