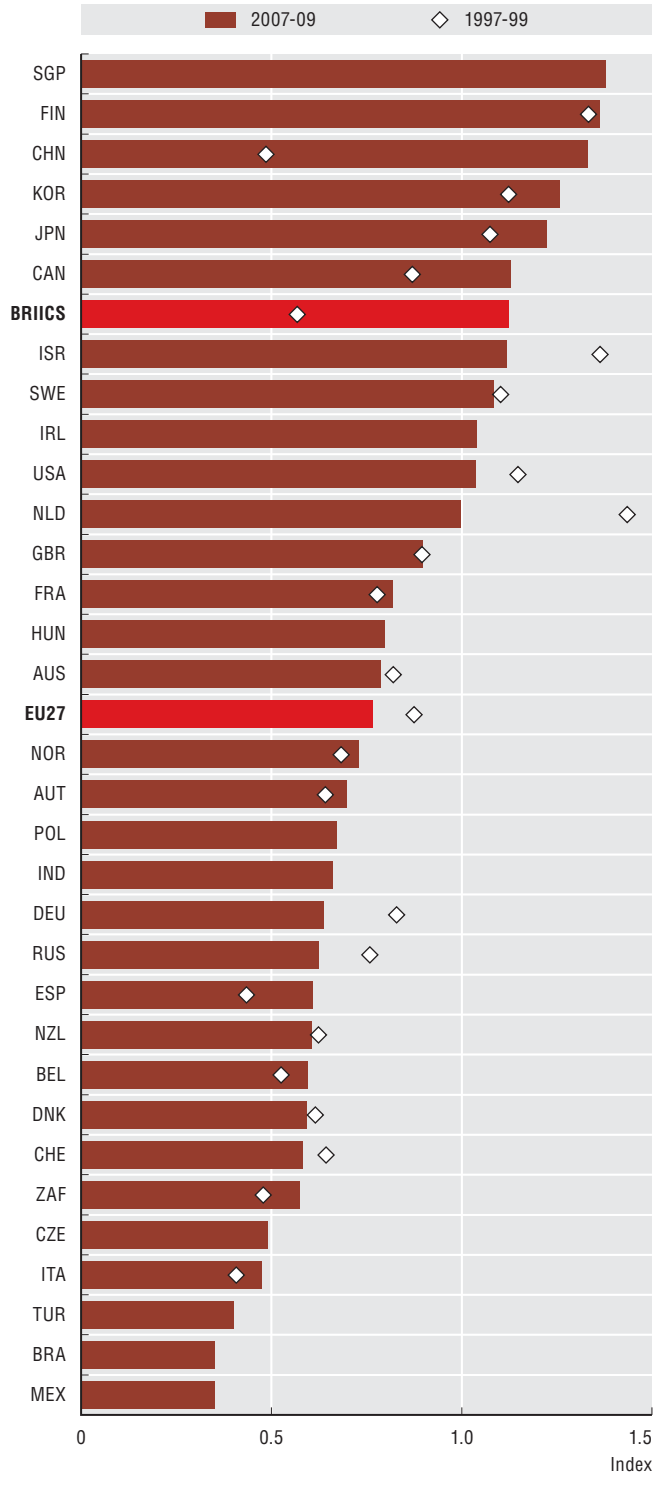
9. Technology specialisation

Revealed technological advantage in ICT, 1997-99 and 2007-09

Index based on patent applications filed under the PCT



Source: OECD, Patent Database, May 2011. See chapter notes.

StatLink http://dx.doi.org/10.1787/888932487970

Patent documents contain several types of information (*e.g.* technical class code, title, abstract, claims, etc.) which are useful for classifying patents in particular fields and investigating the emergence and growth patterns of new technologies. The rise in patent applications filed under the Patent Cooperation Treaty (PCT) stabilised at an average rate of 5% in the 2000s. The increase was not evenly distributed across countries or technological fields. Since 2000, patenting in the information and communication technology (ICT) and nanotechnology sectors grew at a similar pace (respectively 3% and 4%), whereas biotechnology patenting showed an inverse trend (–4%).

The revealed technological advantage index is based on patent counts and provides an indication of the relative specialisation of a given country in selected technological domains. In 2007-09, the share of ICT-related patents applied for by Asian countries (China, Korea, Japan and Singapore) was above the average. China (39%) had the largest increase in ICT-related PCT filings in the 2000s; this is reflected in its larger ICT specialisation index in 2007-09 as compared to 1997-99. The ICT specialisation index for Europe has been decreasing since the late 1990s, with a significant drop in Germany and the Netherlands.

While the number of biotechnology patents remained fairly stable during the 2000s, most countries' relative specialisation in biotechnology patenting increased. Denmark had the largest specialisation ratio in biotechnology in 2007-09, with nearly 15% of Danish patented inventions relating to biotechnology.

In 2007-09 nanotechnology patenting activity remained low, and represented only 0.8% of all filings, a share similar to 1997-99. The revealed technological advantage in nanotechnology was highest in Singapore (2.6), followed by the Czech Republic (1.6), Ireland (1.5) and the Netherlands (1.5). In the late 2000s Japan and the United States generated more than half of PCT filings in nanotechnology, an indication of their importance in the field.

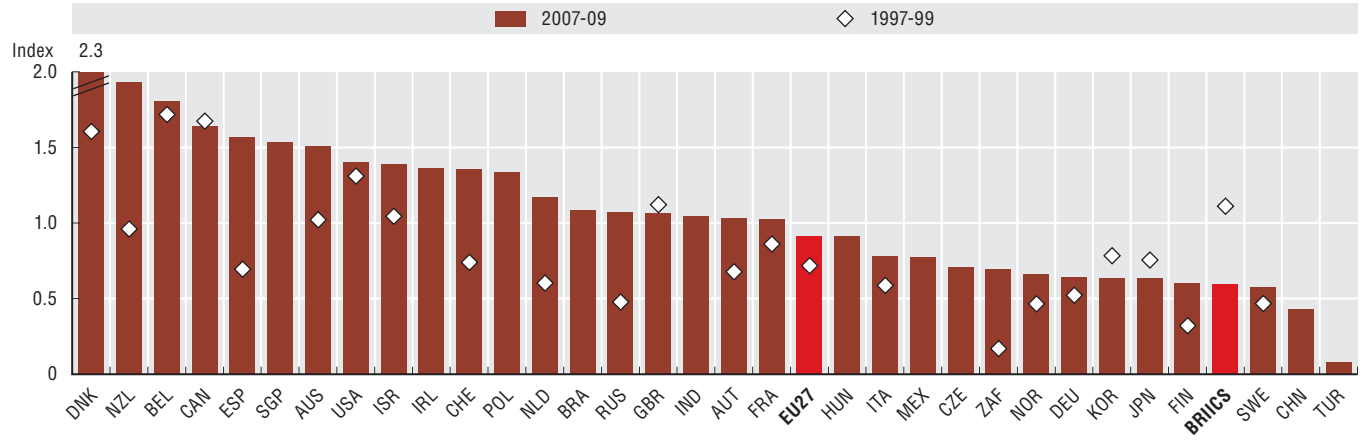
Definitions

The *index of revealed technological advantage* is based on patent applications filed under the Patent Cooperation Treaty. It is defined as a country's share of patents in a particular technology field divided by the country's share in all patent fields. The index is equal to zero when the country holds no patents in a given sector; is equal to 1 when the country's share in the sector equals its share in all fields (no specialisation); and above 1 when a positive specialisation is observed.

A corrigendum has been issued for this page. See: http://www.oecd.org/dataoecd/26/8/48742541.pdf

Revealed technological advantage in biotechnologies, 1997-99 and 2007-09

Index based on patent applications filed under the PCT

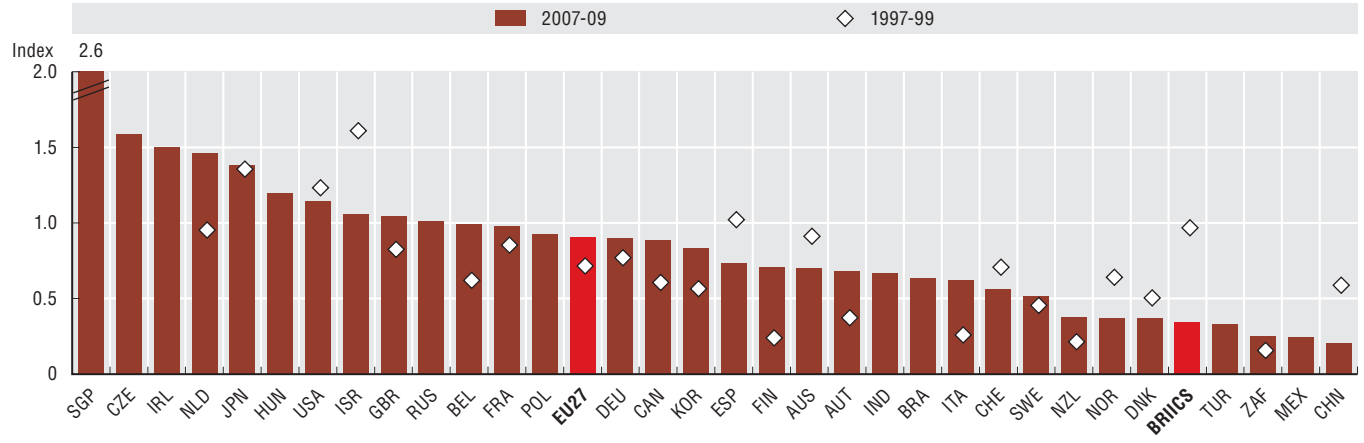


Source: OECD, Patent Database, May 2011. See chapter notes.

StatLink http://dx.doi.org/10.1787/888932487989

Revealed technological advantage in nanotechnologies, 1997-99 and 2007-09

Index based on patent applications filed under the PCT



Source: OECD, Patent Database, May 2011. See chapter notes.

StatLink http://dx.doi.org/10.1787/888932488008

Measurability

The information provided by the International Patent Classification (IPC) constitutes a first reference for identifying patents in a specific domain. One or several IPC codes are attributed to the patent during the examination process. However, for emerging or enabling technologies, the patent classification system may not have a specific class. The OECD has designed definitions of ICT and biotechnology patents consisting of a list of IPC classes (*www.oecd.org/sti/ipr-statistics*). The definitions, like the technologies, can evolve over time. This has been the case for nanotechnologies: in 2003 the EPO created a working group (NTWG) to develop a definition of the field that would identify nanotechnology patents through keyword searches and expert analysis. Patent applications from 15 countries or organisations were analysed and documents tagged as Y01N.