4.5. Technology balance of payments

Technology balance of payments measures international technology transfers: licence fees, patents, purchases and royalties paid, know-how, research and technical assistance. Unlike research and development (R&D) expenditure, these are payments for production-ready technologies.

In most OECD countries, technological receipts and payments increased sharply during the 1990s and up to mid-2000. Overall, the OECD area maintained its position as net technology exporter *vis-à-vis* the rest of the world.

Between 1996 and 2006, the European Union transformed its technology balance of payments deficit into a surplus, although this includes intra-EU flows. The US surplus increased slightly. The most spectacular change occurred in Japan where transactions involving new technology contracts have shown a very large surplus (receipts-payments) since 1980.

In 2007, the main technology exporters as a percentage of gross domestic product (GDP) were Ireland, Sweden, Switzerland, Luxembourg, Austria, the Netherlands, Denmark and Hungary.

The magnitude of Ireland's surplus in technology receipts is mainly due to the strong presence of foreign affiliates (particularly US and UK firms). The figures may also be affected by intra-firm transactions and transfer pricing.

Technological development can be achieved either through a national R&D effort or the acquisition of foreign technology. Particularly in Greece, Hungary, Ireland, Poland and the Slovak Republic, expenditure on foreign technology (technological payments) is greater than expenditure for domestic business enterprise R&D.

Technology balance of payments

Technology receipts and payments constitute the main form of disembodied technology diffusion. Trade in technology comprises four main categories:

- transfer of techniques (through patents and licences, disclosure of know-how);
- transfer (sale, licensing, franchising) of designs, trademarks and patterns;
- services with a technical content, including technical and engineering studies, as well as technical assistance;
- industrial R&D.

Although the balance reflects a country's ability to sell its technology abroad and its use of foreign technologies, a deficit does not necessarily indicate low competitiveness. In some cases, it results from increased imports of foreign technology; in others, it is due to declining receipts.

Likewise, if the balance is in surplus, this may be due to a high degree of technological autonomy, a low level of technology imports or a lack of capacity to assimilate foreign technologies. Most transactions also correspond to operations between parent companies and affiliates. Additional qualitative and quantitative information is therefore important in order to analyse correctly a country's deficit or surplus position in a given year.

There is also the difficulty of dissociating the technological from the non-technological content of trade in services, which falls under the heading of pure industrial property. Thus, trade in services may be underestimated when a significant portion does not give rise to financial payments or when payments are not in the form of technology payments.

Source

OECD, Technology Balance of Payments (TBP) Database, May 2009.

Going further

OECD (2005), *Measuring Globalisation: OECD Handbook on Economic Globalisation Indicators*, OECD, Paris.

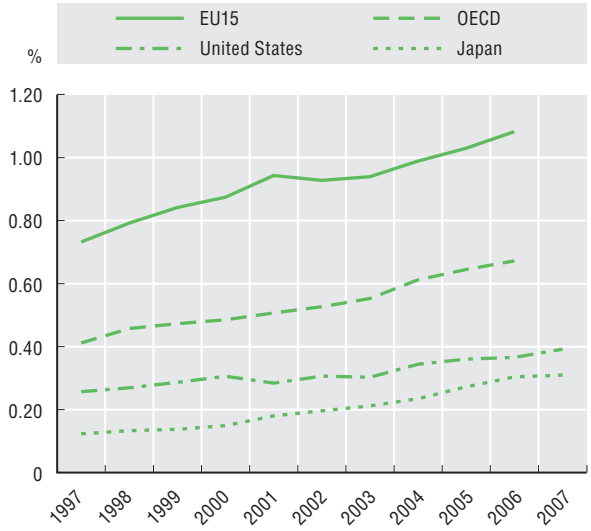
Figure notes

Technology flows refer to the average of technological payments and receipts.

Changes in technology flows include intra-area flows for EU15 and OECD total. Denmark, Greece, Iceland and Turkey are excluded. Data partially estimated.

Trends in technology flows by main areas, 1997-2007

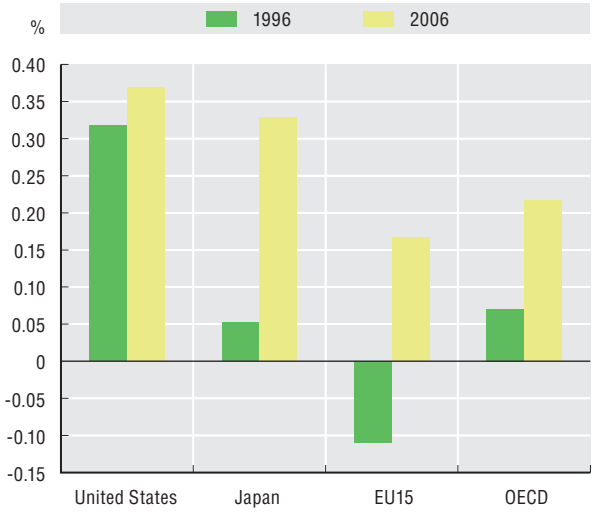
As a percentage of GDP



StatLink http://dx.doi.org/10.1787/745866411057

Change in the technology balance of payments by main areas, 1996 and 2006

As a percentage of GDP



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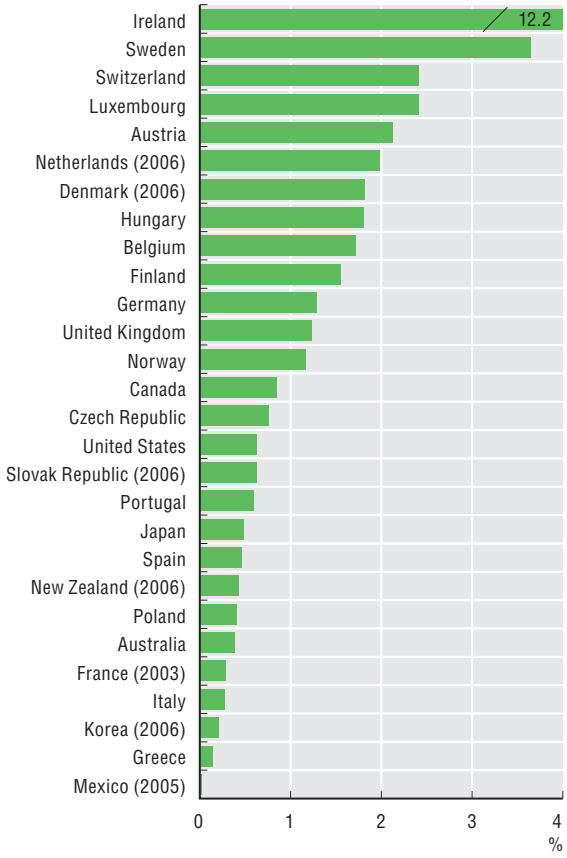
Technology receipts, 2007

As a percentage of GDP



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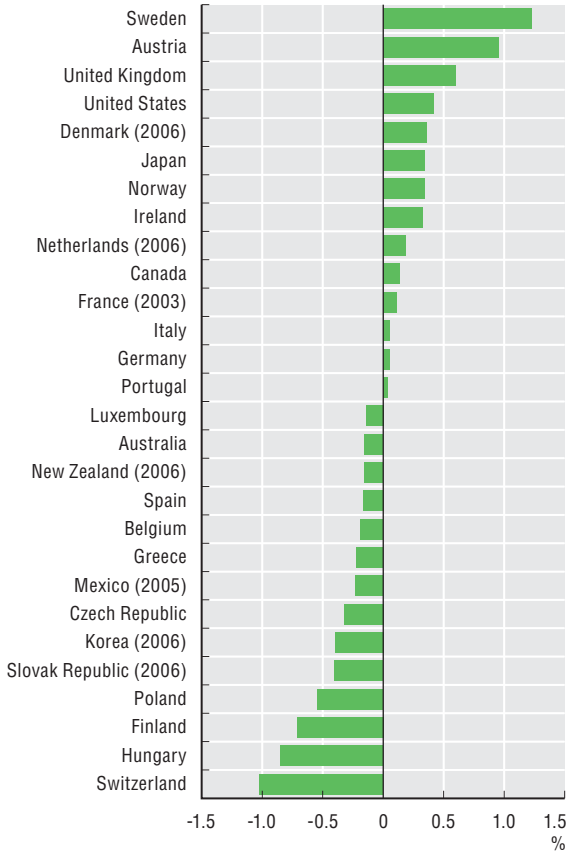
Technology balance of payments, 2007

As a percentage of GDP



StatLink http://dx.doi.org/10.1787/746026520112