

Regional concentration of innovation related resources

In a knowledge-based economy, many drivers of productivity are linked to innovation-related investments, such as skilled human capital or research and development (R&D). While it is expected that R&D investments or patenting activity concentrate in the most productive regions so as to maximize the return, such a concentration of innovation-related resources in just a few regions may limit the prospects for other regions to catch up if innovation does not “travel” across regions. Given this, a common goal for regional development policy is to reduce inter-regional disparities in these innovation factors by boosting performance in the lagging regions.

Certain innovation-related activities, such as patenting which represents invention, are highly concentrated in a few regions. The top 20% TL3 regions account for over 50% or more of total patenting volume in Slovenia, Japan, and France, followed by Canada, the United Kingdom and the Slovak Republic at somewhat under 50%. Between 1994-96 and 2011-13, the concentration in the top 20% has decreased in half of the countries (19 out of 28) with an increasing concentration noted particularly in Slovenia, and decreasing concentration in the Czech Republic and New Zealand (Figure 2.46).

Business Enterprise R&D expenditure (BERD) illustrates the decisions by firms regarding the location and level of R&D investments to support innovation. While the volume of BERD continued to increase in the OECD area between 2000 and 2013, the share in the top 20% TL2 regions has decreased over this period in 20 out of 24 countries (Figure 2.47). The countries with the highest share of BERD in the top 20% regions are the Slovak Republic, Switzerland, Poland, the United States, France and Hungary. Countries that experienced the largest increases in concentration in the top 20% regions include the Slovak Republic and Finland. Those with notable decreases include the Netherlands and Switzerland.

Definition

The top 20% regions are defined as those with the highest value of the indicator until the equivalent of 20% of the national population is reached. The same calculation is made for the bottom 20%.

Patent data refers to Patent Co-operation Treaty (PCT) applications. Counts are based on the address of inventors (where the invention takes place) and not the address of the applicant.

Gross domestic spending on R&D is defined as the total expenditure (current and capital) on R&D carried out by all resident companies, research institutes, university and government laboratories, etc., in a country.

R&D intensity is defined as R&D expenditure over GDP, whether for Gross Domestic Expenditure on R&D or a sector, such as Business Enterprise R&D.

Across the OECD area, the top 20% regions experienced a slight decrease in their share of BERD from 47% to 45%. The bottom 20% accounted for less than 5%, albeit with a slight increase over the period. While the pie continues to grow, the regions in the middle are taking a slightly larger share.

The concentration of gross domestic R&D expenditures in the top 20% regions has a somewhat different country pattern. The concentration of the non-business R&D component is based largely on the location of high-performing universities and public laboratories that receive mainly public funding. Between 2000 and 2013, the concentration in the top 20% regions increased in one-quarter of countries (6 out of 24) (Figure 2.48), most notably in Greece, where it more than doubled. In the remaining 18 countries, the share in the top 20% regions declined, such as from 54% to 29% in Austria, from 58% to 33% in the Czech Republic and from 47% to 27% in Slovenia.

Source

OECD (2015), *OECD Regional Statistics* (database), <http://dx.doi.org/10.1787/region-data-en>.

OECD (2015), *OECD Patent Databases* (database), <http://oecd.org/sti/inno/oecdpatentdatabases.htm>.

Reference years and territorial level

2.46: 1994-2013; TL3.

2.47: Business R&D 2000-13; TL2.

2.48: Total R&D 2000-13; TL2.

Further information

OECD (2015), *Frascati Manual 2015: Guidelines for Collecting and Reporting Data on Research and Experimental Development, The Measurement of Scientific, Technological and Innovation Activities*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264239012-en>.

OECD (2011), *Regions and Innovation Policy*, OECD Reviews of Regional Innovation, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264097803-en>.

Figure notes

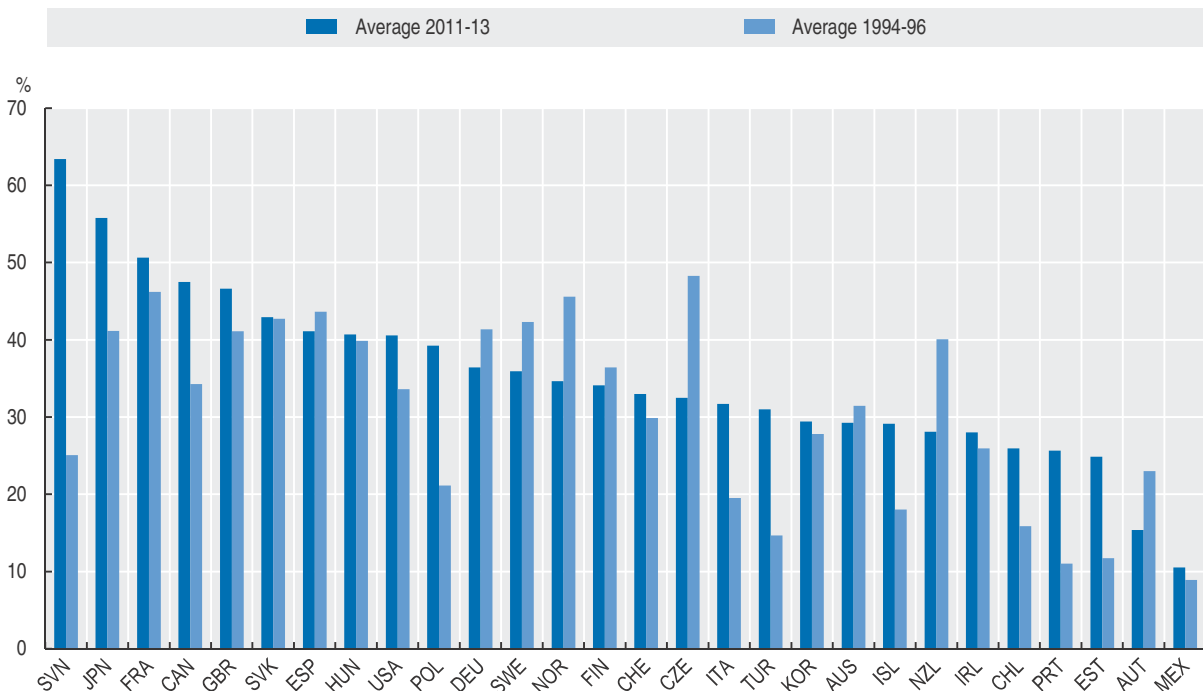
Estonia and Luxembourg are excluded from all figures as both consist of only one TL2 region.

2.46: Belgium, Denmark, Greece, Israel and the Netherlands are not included due to lack of data for comparable years.

2.47-2.48: Chile, Denmark, Iceland, Israel, Japan (included for Total R&D), Mexico, Norway, Switzerland (included for Business R&D) and Turkey are not included due to lack of data and or comparable years. For Business R&D, 231 regions and for Total R&D 229 regions with comparable data were available to calculate OECD-wide top and bottom 20%. Last available year: Greece, Japan, Netherlands, Norway and Switzerland 2011.

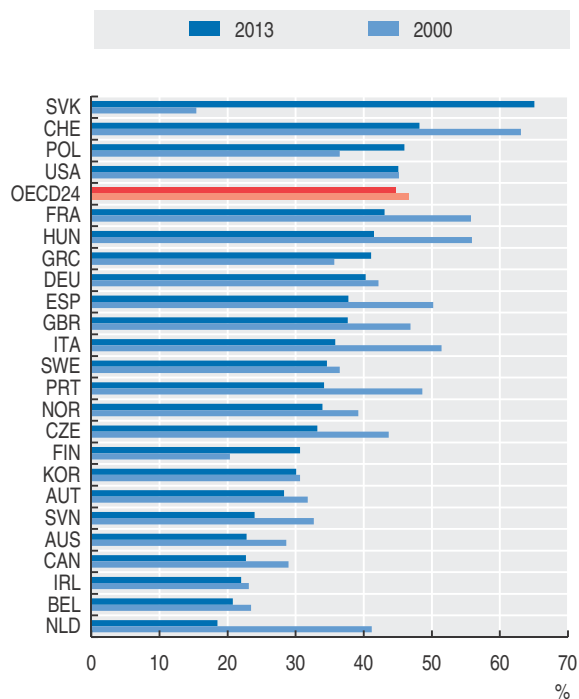
Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>.

2.46. Concentration of patents in the top 20% of TL3 regions, 1994-96 and 2011-13



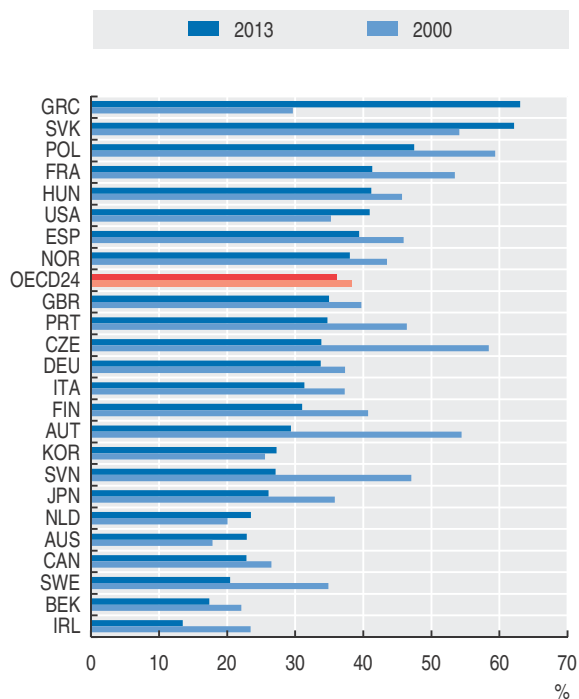
StatLink <http://dx.doi.org/10.1787/888933363434>

2.47. Concentration of business R&D expenditure in the top 20% of TL2 regions, 2000 and 2013

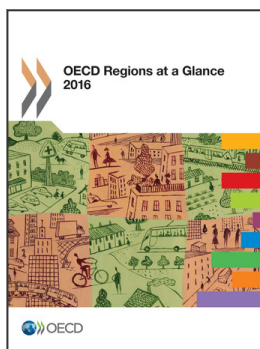


StatLink <http://dx.doi.org/10.1787/888933363447>

2.48. Concentration of total R&D expenditure in the top 20% of TL2 regions, 2000 and 2013



StatLink <http://dx.doi.org/10.1787/888933363450>



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