C 7 SCIENTIFIC PUBLICATIONS

The bibliometric database Web of Science (WoS) records publications in scientific journals as well as citations of these publications on a global scale. The research affiliation of a scientist referenced in the database makes it possible to assign individual level publications to a specific country. In cases where co-authors of a single publication reside in different countries, fractional counting is employed.

National shares in all Web of Science publications changed significantly between 2002 and 2012 (cf. C 7–1). China in particular managed to almost triple its share from 3.9 to 11.6 percent. But also the shares of Korea, Brazil and India have increased considerably over the past decade. In contrast, the shares of established science systems such as those of the United States, Japan, Great Britain and Germany decreased: the US lost nearly 6 percentage points, and Germany just over 1 percentage point. Despite the massive growth in publications in Asia and the BRICS countries, some countries still succeeded in keeping their share constant over time. Notably, these countries include e.g. Canada, the Netherlands, Denmark and Italy.

In 2010, scientists in Switzerland, the Netherlands, Denmark and the United States succeeded in placing their publications particularly in scientific journals with an international audience (cf. C 7–2). Germany is currently at a level comparable to that of Great Britain. With respect to this excellence and quality indicator, positive dynamics can be observed in the Netherlands, Denmark, Israel, Belgium and Germany. Compared with this, scientists in the United States seem to be losing ground not only with regard to the quantity (see above), but also with regard to the quality of their published works. Many of the BRICS countries (Russia and Brazil excluded) succeeded in improving their global position in the index over time.

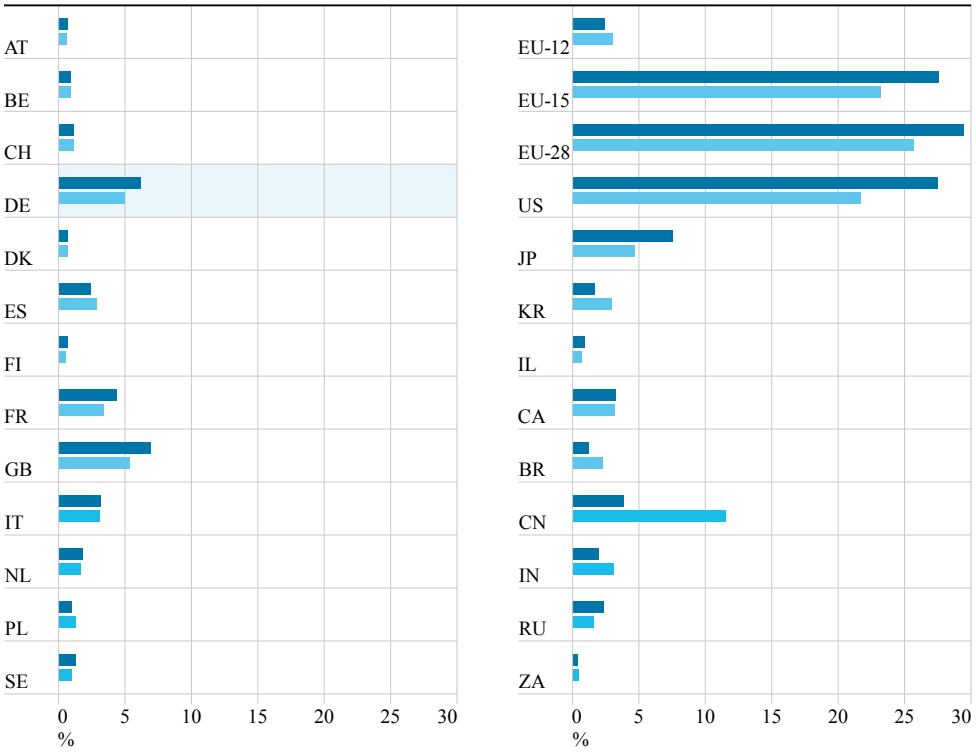
When compared internationally, publications from China, Denmark and Switzerland are most frequently cited in scientific journals (C 7–3) and are thus more frequently cited than publications from the United States or Great Britain. Denmark, China and the Netherlands experienced a particularly promising development in the last decade, while a decline could be observed mainly in the United States, Great Britain and Switzerland. Also with regard to this indicator, scientists from individual BRICS countries managed to catch up considerably. Germany's position, however, deteriorated significantly. With regard to the two quality indicators for publication activities of scientists in Germany, the overall picture emerging from this is thus mixed. (C 7–2 and C 7–3).

Shares of selected countries and regions for Web of Science publications in 2002 and 2012 (figures in percent)

C 7–1

DATA DOWNLOAD

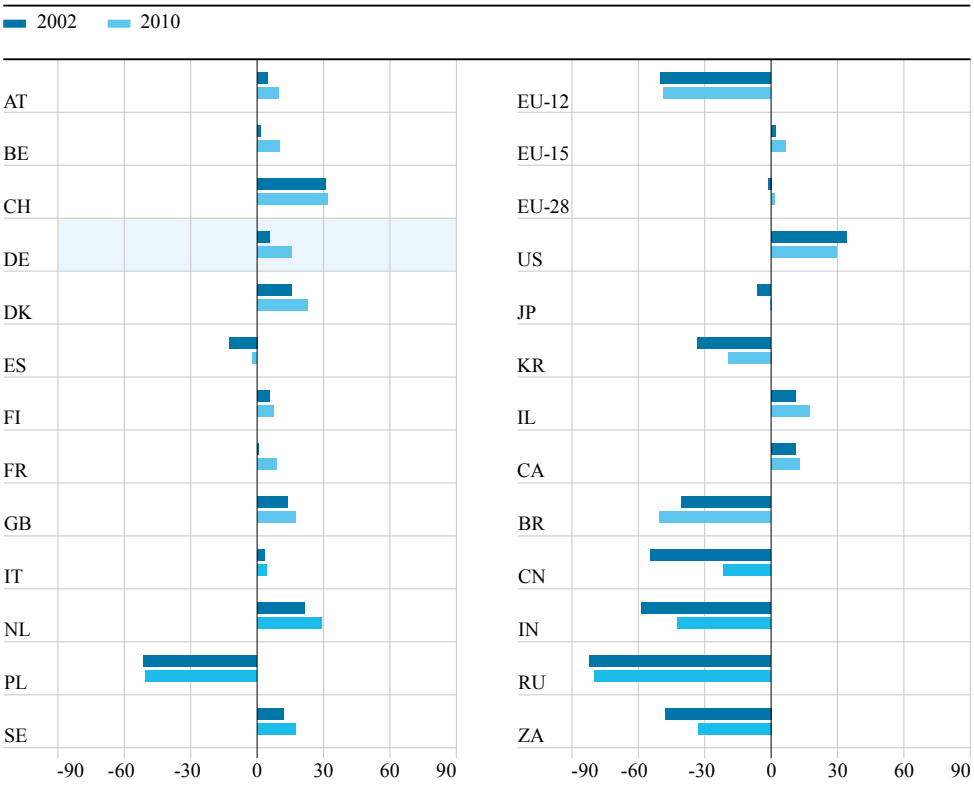
In order to take account for changes in the collection of publication data – continuous expansion in particular – countries' shares of publications, and not absolute numbers of publications, are considered here.



Source: Web of Science. Research and calculations by Fraunhofer ISI. Fractional counting method.

C 7–2 **International alignment of selected countries and regions for Web of Science publications in 2002 and 2010** (index values)

DATA DOWNLOAD



Source: Web of Science. Research and calculations by Fraunhofer ISI. Fractional counting method.

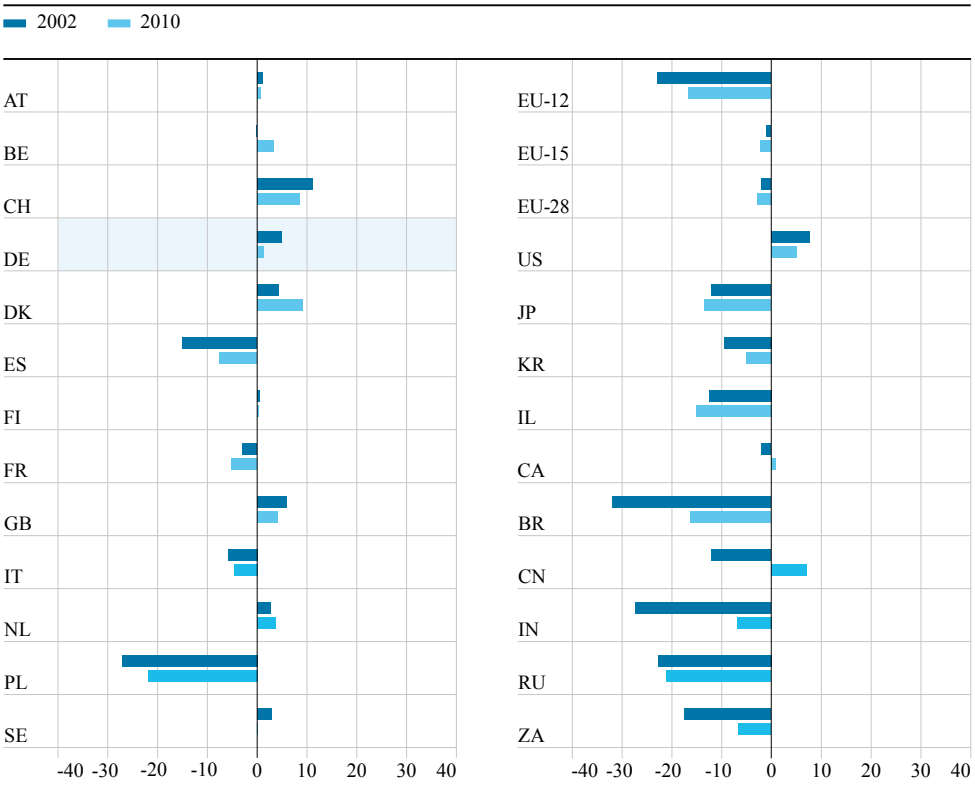
The international alignment (IA) index shows the extent to which a country's authors, in comparison to the world average, are publishing in internationally renowned journals and less-renowned journals. Positive values are indicative of above-average IA; negative values are indicative of below-average IA.

Scientific regard for Web of Science publications from selected countries and regions in 2002 and 2010 (index values)

C 7–3

DATA DOWNLOAD

The scientific regard (SR) index shows whether a country's scientific articles are, on average, cited more or less frequently than other articles published in the same journals. Positive values are indicative of above-average SR; negative values are indicative of below-average SR. Index calculations do not include self-citations.



Source: Web of Science. Research and calculations by Fraunhofer ISI. Fractional counting method.