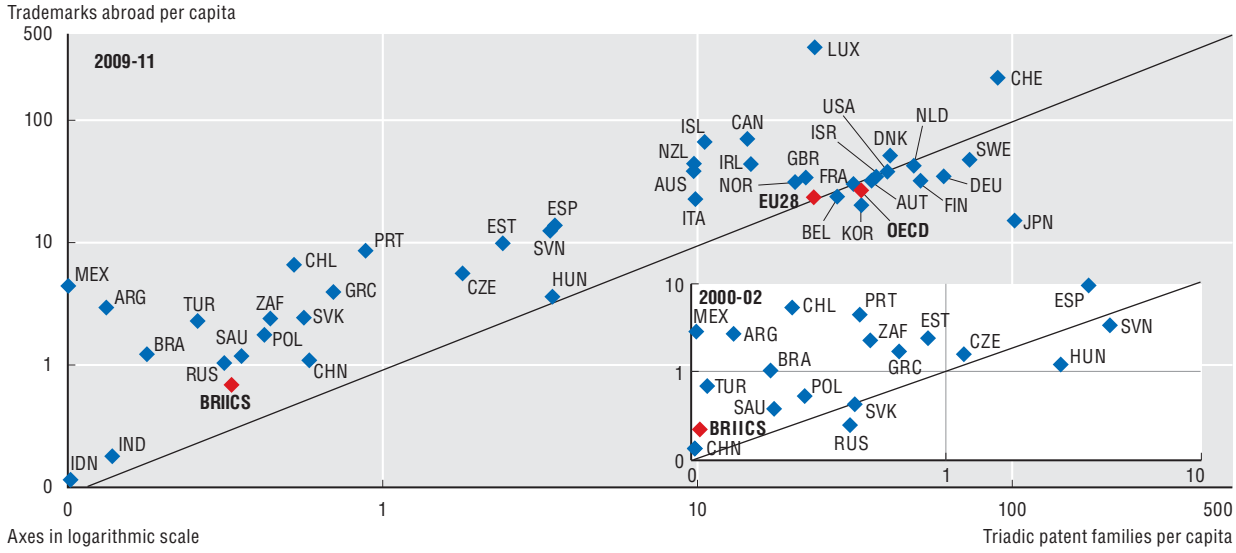
Innovation everywhere

Indicators of triadic patents and of trademarks abroad suggest the worldwide spread of innovative activities, in terms of both technological and non-R&D-based innovation. Economies featuring relatively large manufacturing sectors or specialisations in information and communication technologies have a greater propensity to patent than to "trademark". Economies with relatively larger services sectors tend instead to engage relatively more in trademark protection. Emerging economies, although they are generally less likely to seek protection for their innovations via patents or trademarks than OECD countries, increasingly rely on intellectual property protection to appropriate the results of their innovative activities.

53. Patents and trademarks per capita, 2000-02 and 2009-11

Average number per million population, OECD and G20 countries



Source: OECD, Patent Database, June 2013; US Patent and Trademark Office Bulk Downloads: Trademark Application Text hosted by Google, May 2013; OHIM Community Trademark Database CTM Download, May 2013; JPO, *Annual Reports* 2001-12, June 2013. See chapter notes.

StatLink http://dx.doi.org/10.1787/888932890295

What is a triadic patent?

Triadic patent families are defined as patents applied for at the European Patent Office (EPO), the Japan Patent Office (JPO) and the United States Patent and Trademark Office (USPTO) to protect a same invention. Triadic patents are typically of higher value and eliminate biases from home advantage and the influence of geographical location.

What is a trademark "abroad"?

Trademark counts are subject to home bias, as firms tend to file trademarks in their home country first. Trademarks abroad correspond to the number of applications filed at the USPTO, the Office for Harmonisation in the Internal Market (OHIM) and the JPO, by application date and country of residence of the applicant. For the United States, EU members and Japan, counts exclude applications in their domestic market (USPTO, OHIM and JPO respectively). Counts are rescaled, taking into account the relative average propensity of other countries to file in those three offices.

Why use trademarks as indicators of innovation?

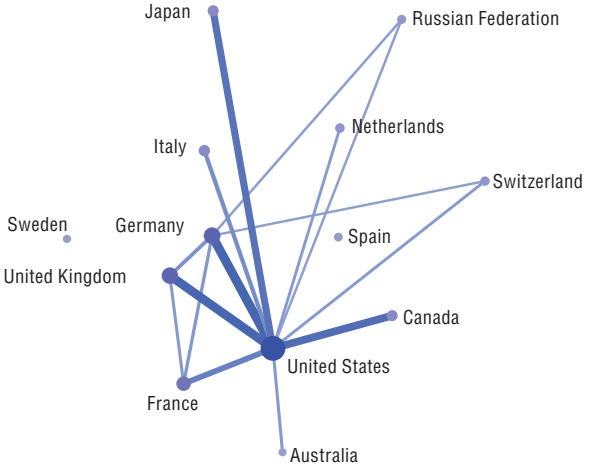
A trademark is a sign used to distinguish the goods and services of one undertaking from those of other undertakings. Firms use trademarks to signal novelty and to appropriate the benefits of their innovations when they launch new products on the market. The number of trademark applications is highly correlated with other innovation indicators. With their very broad perimeter of applications, they convey information on product innovations but also on marketing and services innovations. Because the data relating to trademark applications are publicly available immediately after filing, trademark-based indicators can provide very timely information on the level of certain types of innovative activities.

Collaboration in scientific research

In the global landscape of scientific research, scientific output has grown rapidly and collaboration between institutions in different countries has intensified. The emergence of new players has changed the structure of global collaboration networks.

54a. International collaboration networks in science, 1998

Whole counts of internationally co-authored documents



Source: OECD calculations based on Scopus Custom Data, Elsevier, version 5.2012, June 2013. See chapter notes.

How to read these figures

The position of selected economies (nodes) exceeding a minimum collaboration threshold of 10 000 documents is determined by the number of co-authored scientific documents published in 2011. A visualisation algorithm has been applied to the full international collaboration network to represent the linkages in a two-dimensional chart on which distances approximate the combined strength of collaboration forces. Bubble sizes are proportional to the number of scientific collaborations in a given year. The thickness of the lines (edges) between countries represents the intensity of collaboration (number of co-authored documents between each pair).

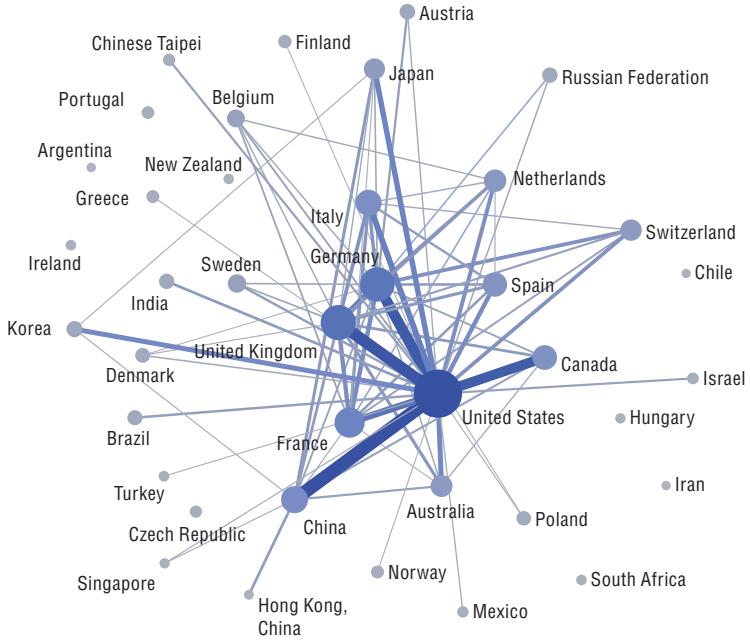
The positions derived for 2011 collaboration data have been applied to 1998 values. New nodes and edges appear in 2011 as they exceed the minimum thresholds.

Collaboration in scientific research

China and several other economies have become increasingly integrated in the global science system. China accounted for more than 74 000 collaborations in 2011 compared with only 9 000 in 1998. Over the period, its number of co-authored documents with US-based institutions increased from nearly 2 000 to more than 22 000. The United States continues to be at the centre of the international research network, accounting in 2011 for nearly 15% of all scientific collaborations documented in peer-reviewed scientific publications.

54b. International collaboration networks in science, 2011

Whole counts of internationally co-authored documents



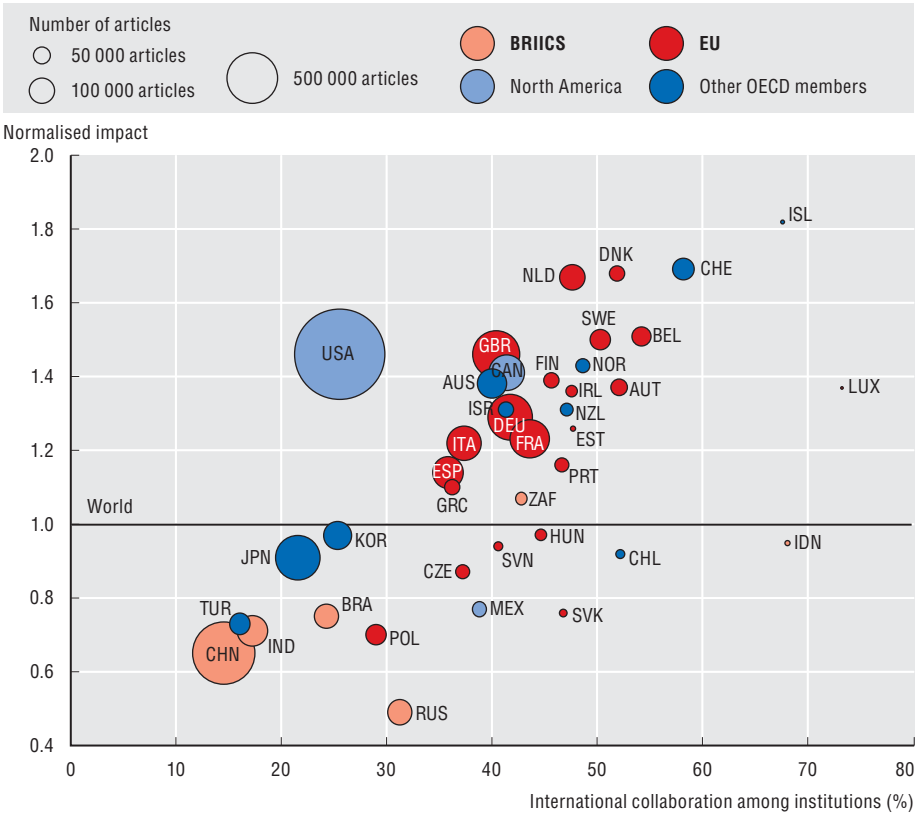
Source: OECD calculations based on Scopus Custom Data, Elsevier, version 5.2012, June 2013. See chapter notes.

The impact of scientific collaboration

The production of scientific research is progressively shifting from individuals to groups, from single to multiple institutions, and from national to international. Because they draw on larger pools of expertise, international research collaborations are more likely to have a bigger impact in terms of citations in subsequent scientific publications. Differences across countries suggest a positive relationship between measures of scientific research collaboration and impact, the latter proxied in this case by the average normalised citation index. The relationship appears to be stronger in economies with lower scientific production, suggesting the importance of scale, which smaller economies can overcome by participating in global networks.

55. The impact of scientific production and the extent of international scientific collaboration, 2003-11

Whole counts of internationally co-authored documents



Source: OECD and SCImago Research Group (CSIC), *Compendium of Bibliometric Science Indicators 2014*, based on Scopus Custom Data, Elsevier, May 2013.
See chapter notes.

StatLink http://dx.doi.org/10.1787/888932890314

How to measure the impact of scientific collaboration

To measure the impact of scientific publications it is possible to either use the citations received by an article or to assess its quality on the basis of the level of citations relative to the record of the journal in which the article is published. Here, the focus is on publications and citations received during 2003-11. The normalised impact is the ratio between the average number of citations received by the documents published by a specific unit (country, institution and author) and the world average of citations of the same time period, document type and subject area. The normalisation of citation values is item-oriented, i.e. carried out at the level of the individual article. If an article belongs to several subject areas, a mean value of the areas is calculated. The values show the relationship of the unit's average impact to the world average, which is 1, i.e. a score of 0.8 means the unit is cited 20% below average and 1.3 means the unit is cited 30% above average. Although article citation has the advantage of focusing directly on the impact of the articles examined, citing takes time, particularly in some disciplines. A trade-off exists between the length of time over which citations are accounted for and the timeliness of the indicator: the more time allowed to measure the impact, the less timely the indicator becomes.

How to read this figure

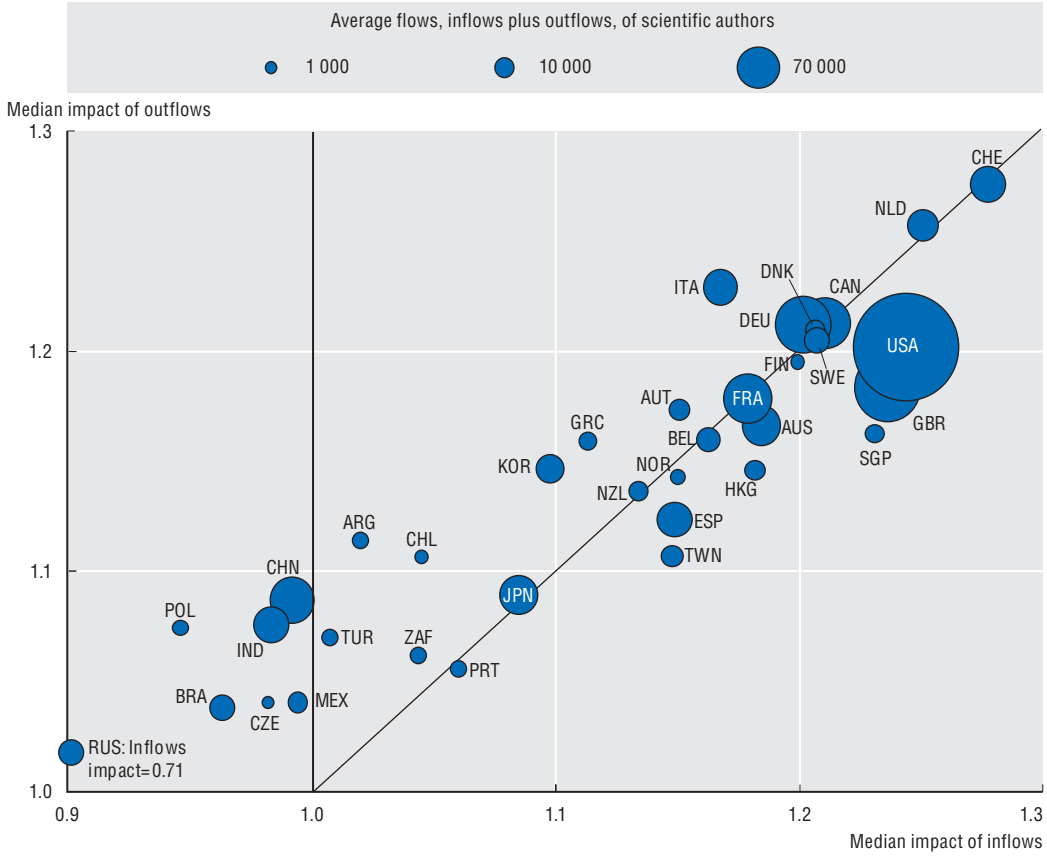
Bubbles plot a country's share of documents resulting from international collaboration – as implied by the share of domestic articles co-authored with individuals affiliated with foreign institutions – against the normalised impact of its publications. The size of the bubbles represents the volume of scientific production, with the United States and China the largest producers of scientific output. Switzerland has both a high share of international scientific collaboration and average impact, although its total output volume is smaller than that of countries such as France or the United Kingdom.

Researchers on the move and their impact

Scientists are known to be highly mobile and internationally mobile scientists tend to publish in higher-quality journals than their counterparts who stay in the same country throughout their research careers. New analysis of bibliometric data unveils the mobility patterns of scientific authors. For a majority of economies, the median impact of scientists whose affiliation shifts abroad tends to be higher than for new arrivals. The performance gap between inflows and outflows is largest for countries with relatively low average research performance. Causality could go both ways: high performers may be more enticed than others by better prospects elsewhere, while mobility can also enhance their performance, especially when moving to work in organisations with better resources and with leading experts.

56. The impact of internationally mobile scientists, inflows versus outflows, 1996-2011

Based on citation impact and changes in the affiliation of scientific authors



Source: OECD calculations based on Scopus Custom Data, Elsevier, version 5.2012, and SNIP2 Database, *www.journalmetrics.com*, Elsevier, Scimago and University of Leiden. May 2013. StatLink contains more data. See chapter notes.

StatLink http://dx.doi.org/10.1787/888932890333

How to read this figure

The scientific impact of researchers moving across countries is proxied by a measure of the quality of the journals they publish in. SNIP (source-normalised impact per paper) is the ratio of a journal's average citation count per paper and the citation potential of its subject field. The citation potential represents the likelihood of being cited for documents in a particular field. Impact is estimated by calculating, for each author and mobility profile, the median across the relevant journals' SNIP, over the entire period. An impact value higher than one means that the median-attributed SNIP for authors of that country/category is above average.

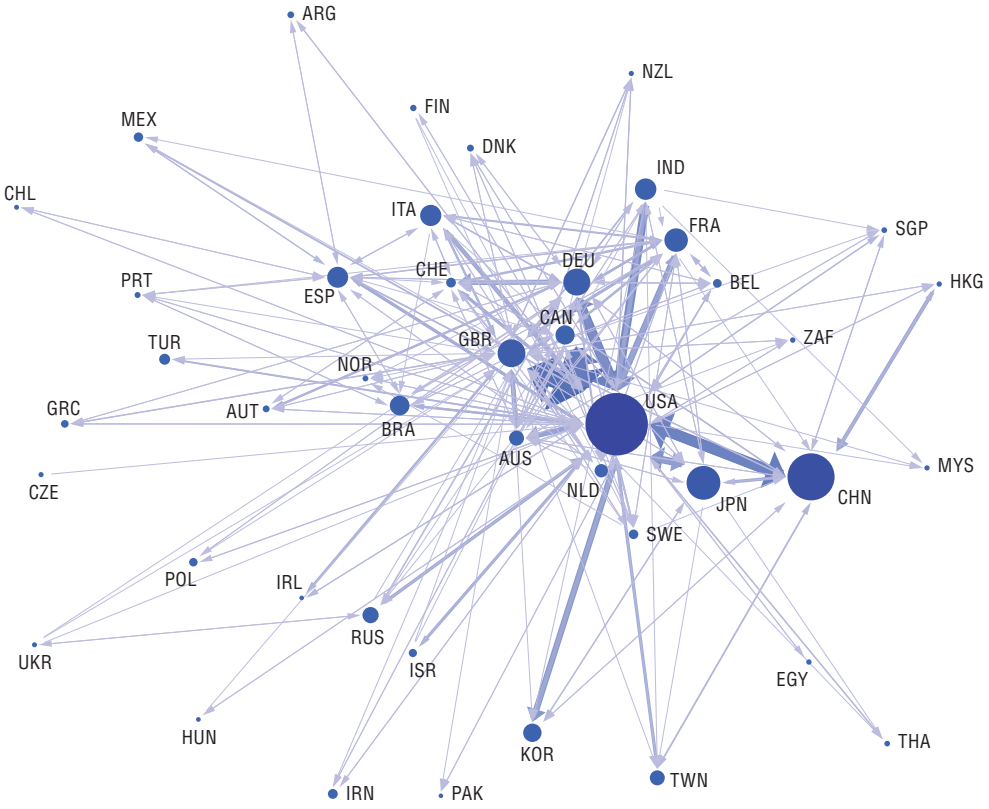
Switzerland has the highest impact factor of incoming (inflows) and outgoing (outflows) authors and these are nearly identical. In Korea, both types have higher impacts than the world average, but outflows have a higher citation impact than inflows (distant from the 45-degree line). For India, the impact of outgoing researchers is above average whereas it is below average for incoming ones. The size of bubbles is proportional to the degree of mobility among scientific authors in an economy, as reflected in the average of inflows and outflows over 1996-2011.

Knowledge networks

The mobility of researchers contributes to the diffusion of scientific and technological knowledge across institutions, at a national and international level. The trail of affiliation changes left by scientific authors in their scholarly publication records provides a partial means of identifying the international network of researcher flows. As expected, leading research countries tend to attract more scientific authors from abroad than they have authors who leave. Flows within each pair of countries tend to be of a similar order of magnitude in both directions, suggesting the existence of complex patterns of knowledge circulation representing the mobility of individuals at different stages of their careers, from students to established professors. The international mobility network also displays a number of interesting patterns that reveal affinities between different economies based on linguistic, historical as well as political and cultural linkages, such as the link between Spain and Latin America countries.

57. International mobility network, 1996-2011

Counts of bilateral flows, by first and last affiliation



Source: OECD calculations based on Scopus Custom Data, Elsevier, version 5.2012, June 2013.

How to read this figure

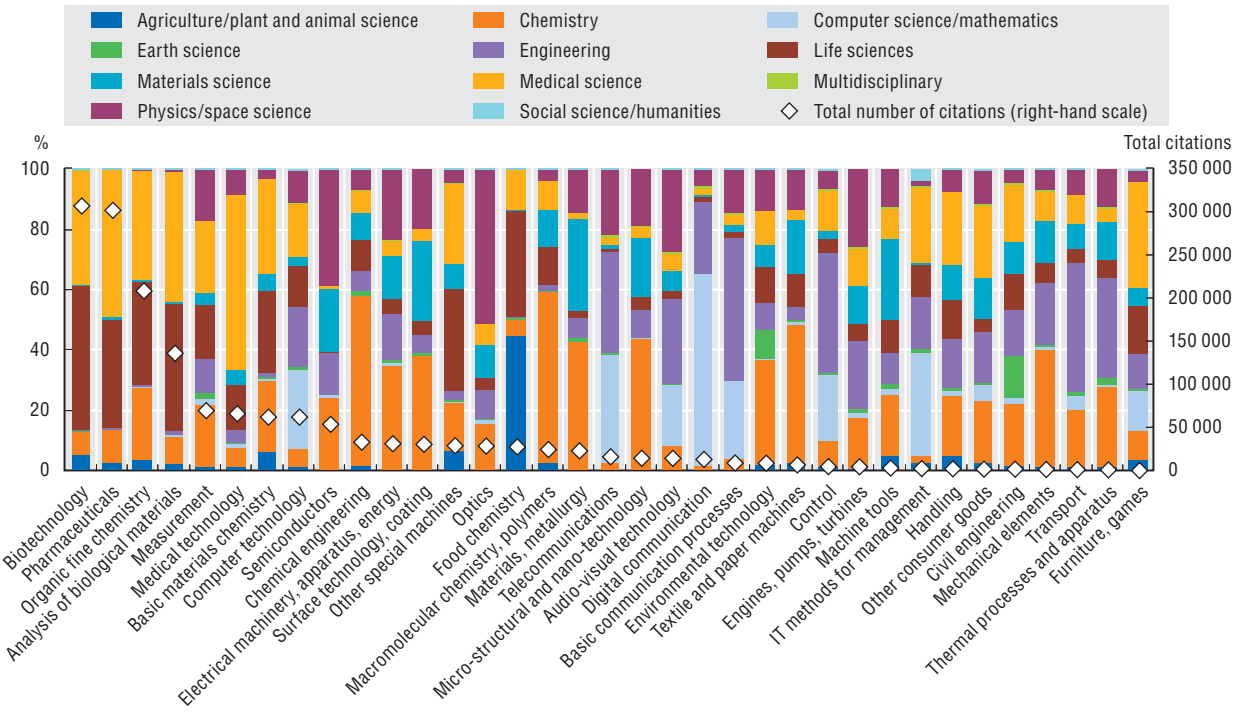
The position of selected economies (nodes) is determined by the number of bilateral flows of publishing scientific authors from 1996 to 2011. A visualisation algorithm has been applied to the international mobility network to represent the linkages in a two-dimensional layout where distances reflect the combined strength of mobility forces between economies. Bubble sizes are proportional to the number of scientific authors who stay in the economy. The thickness of the arrows joining the nodes represents the number of moves between each pair. A difference in the size of the arrow tip within each pair denotes a marked difference in the volume of flows in each direction.

Innovation on the shoulders of science

Much can be learned from citations to scientific publications by patents in different technology areas. This new indicator shows that patented inventions in biotechnology, pharmaceuticals, organic chemistry and analysis of biological materials account for the majority of citations to scientific literature in patent documents. The life sciences – biology and biochemistry, immunology, microbiology, molecular biology and genetics – and the medical sciences are the most frequently cited scientific fields. Micro-structural technology and nanotechnology rely particularly on chemistry, materials science, engineering and physics. Publications in the social sciences appear relevant to patents on IT methods for management, alongside computer science, engineering, life and medical sciences. The diversity of scientific sources shows the impossibility of identifying a single major scientific field for an invention in any area. It also reveals the fundamental interdisciplinarity and reliance on basic science for important advances in innovation.

58. The innovation-science link by technology area, 2001-11

Share of scientific fields in non-patent literature cited in patents



Source: OECD and Japan Science and Technology Agency (JST), based on Thomson Reuters Web of Science, Derwent World Patents Index and Derwent Patents Citation Index data, June 2013. See chapter notes.

StatLink http://dx.doi.org/10.1787/888932890352

What is a patent-science link?

The link between patents and scientific literature is based on the non-patent literature (NPL) listed as relevant references in patent documents in the Thomson Reuters Derwent World Patents Index and Derwent Patents Citation Index databases. It is applied to patents in selected technology areas, based on the International Patent Classification (IPC) codes in the patent document, which define technology areas according to the classification presented in Schmoch (WIPO, 2008 revised in 2013). To identify whether NPL corresponds to a scientific document, NPL references were matched to Thomson Reuters Web of Science Database, an index of scientific literature. For successfully matched references, it is possible to extract bibliographical information, including on the field(s) of science.

How to read this figure

36% of citations to scientific literature in telecommunication patents are to articles in computer science and mathematics, 34% to engineering science articles and 22% to physics-related articles.

Openness in science and innovation

Collaboration among institutions is a pervasive feature of research in, and increasingly between, countries. This is confirmed by an analysis of the affiliations and geographic locations of co-authors and co-inventors in scientific publications and patent documents. International co-authorship appears more widespread for scientific publications than for patented inventions, except in India and Poland. The positive correlation between international scientific collaboration and cross-border patent applications may signal the existence of common underlying factors. Smaller countries tend to have higher rates of international collaboration. This may be partly due to the need to overcome limited domestic opportunities for collaboration and, in some cases, to the possible proximity (not only geographical) to centres of knowledge located abroad.

59. International collaboration in science and innovation, 2007-11

Co-authorship and co-invention as a percentage of scientific publications and PCT patent applications

Source: OECD, Patent Database, June 2013; OECD and SCImago Research Group (CSIC), *Compendium of Bibliometric Science Indicators 2014*, based on Scopus Custom Data, Elsevier, May 2013. See chapter notes.

StatLink http://dx.doi.org/10.1787/888932890371

How to read this figure

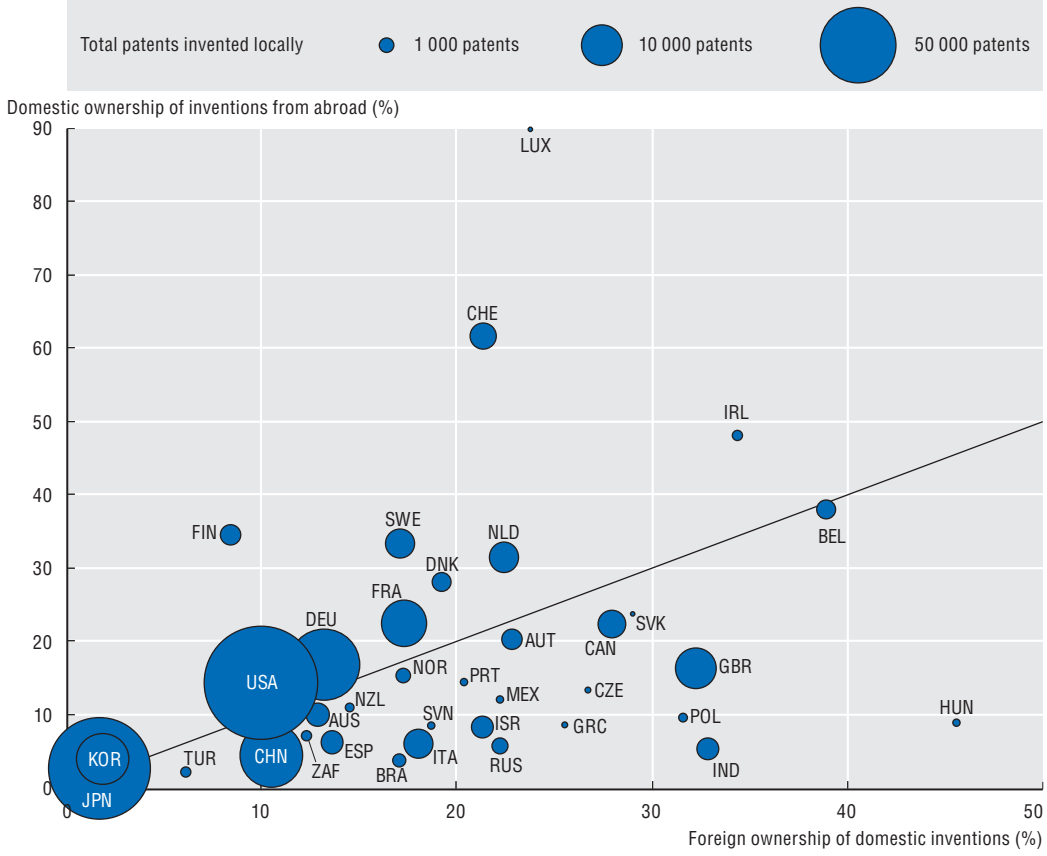
International co-authorship of scientific publications is based on the share of articles featuring authors affiliated with foreign institutions in total articles produced by domestic institutions. Co-inventions are measured as the share of patent applications with at least one co-inventor located abroad in total patents invented domestically. For Switzerland, 60% of publications featuring Swiss institutions involve co-authorship with institutions based abroad. For Japan, scientific co-authorship just exceeds 20% but this is still more than its level of international patent co-invention, which stands at less than 5%. Most countries fall below the 45-degree line; this indicates that they have more international scientific co-authorships than patent co-inventions.

Domestic and foreign ownership of inventions

Companies worldwide look at home and abroad for the knowledge and innovative capacity they need to become and remain competitive. As a result, knowledge is increasingly owned and used in a different country from the one in which it was developed. To use the knowledge and inventions of others, companies acquire the legal rights associated with intellectual property (IP) rights, including patents. Differences in the owner's and the inventor's country of residence are often due to the activities of multinationals: the owner is an international conglomerate and the invention is that of a foreign subsidiary. The propensity to create knowledge and appropriate the returns to knowledge through IP varies across economies. Italy and Sweden applied for a similar number of patents over 2009-11 and have a similar share of patents controlled by foreign firms (about 21%), but they exhibit very different shares of inventions generated abroad, around 31% in Sweden and 8% in Italy. In general, small open economies with a strong presence of multinationals are more likely to appropriate returns from knowledge created elsewhere. Companies resident in Luxembourg, Switzerland and Ireland own a substantial proportion of inventions generated abroad, but only up to a third of their patented inventions are owned by foreign firms. The reverse is true in Poland, Hungary and India.

60. Cross-border ownership of patents, 2009-11

As a percentage of total patents by countries



Source: OECD, Patent Database, June 2013. StatLink contains more data. See chapter notes.

StatLink http://dx.doi.org/10.1787/888932890390

How to read this figure

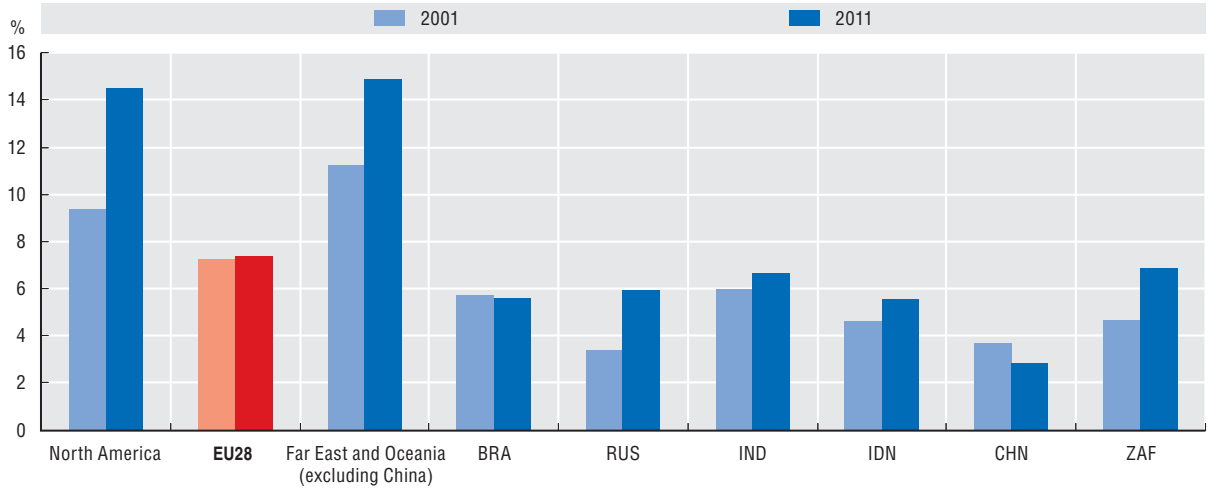
Foreign ownership of domestic inventions is measured as the share of patents invented in one country that is owned by residents in another country in total patents invented domestically. Domestic ownership of inventions from abroad is measured as the share of patents owned by country residents with at least one foreign inventor in total patents owned by country residents. In Belgium the two measures are almost identical. Some 38% of Belgian patents filed over 2009-11 are owned by foreign companies or individuals and about 38% of the patents in the hands of Belgian residents were invented or co-invented by foreigners.

Collaboration with new players

Geographical and cultural proximity influences international scientific collaboration. The widespread use of English and information and communication technologies has helped to extend the scope of international research collaboration. While Europe increases scientific collaboration in the European research area, the rest of the world reaches out to emerging economies. Co-inventions are an indicator of formal R&D co-operation and knowledge exchange among inventors located in different countries. International co-inventorship is affected by countries' skills endowment and conditions of appropriability, especially their IP regimes. International co-invention typically involves multinational corporations with units in several countries and joint research ventures between firms and institutions of various types (e.g. universities, public research organisations). While co-invention with the BRIICS continues to increase, it remains limited as only about 1.7% of European patents and around 2.5% of US patents are co-invented with partners in BRIICS economies.

61. Scientific collaboration with BRIICS countries, 2001 and 2011

As a percentage of total international co-authored articles

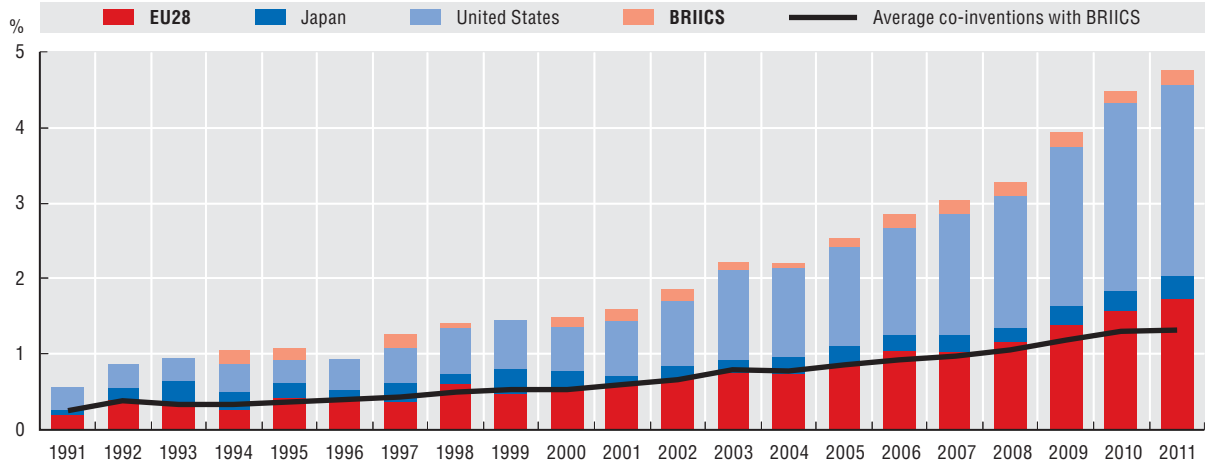


Source: OECD calculations based on Scopus Custom Data, Elsevier, version 5.2012, May 2013. See chapter notes.

StatLink http://dx.doi.org/10.1787/888932890409

62. Co-inventions with the BRIICS countries, 1991-2011

As a percentage of patents in each country or aggregate



Source: OECD, Patent Database, June 2013. See chapter notes.

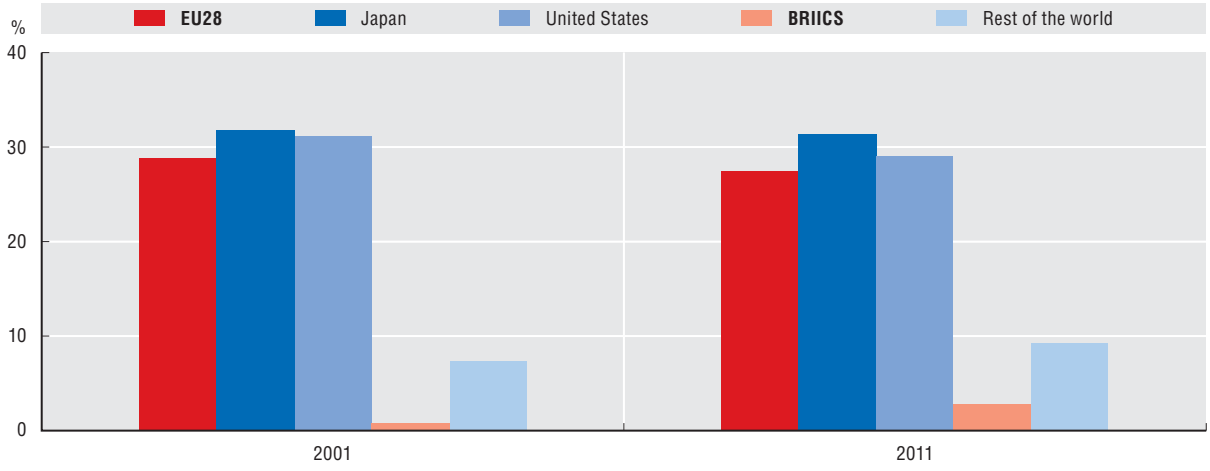
StatLink http://dx.doi.org/10.1787/888932890428

Technology flows

The ownership of "higher-value" patents, i.e. triadic patent families, in non-OECD economies is increasing as competition becomes global and the capacity of non-OECD countries to generate innovations and penetrate key OECD markets increases. As they have developed, emerging economies have benefited to varying degrees from technologies and innovations generated elsewhere. Patented technologies that were invented in Europe, Japan, Korea and the United States and that are filed at patent offices of BRIICS economies bear witness to this. On average 40% of world inventions and over 45% of Japanese inventions are protected in China; the technology flows are predominantly in the field of electrical and mechanical engineering. The strategic behaviour of firms, the location of both subsidiaries and competitors, and the attractiveness of emerging markets may help to explain the patterns observed.

63. Triadic patent families by blocs, 2001 and 2011

Share in total triadic patent families

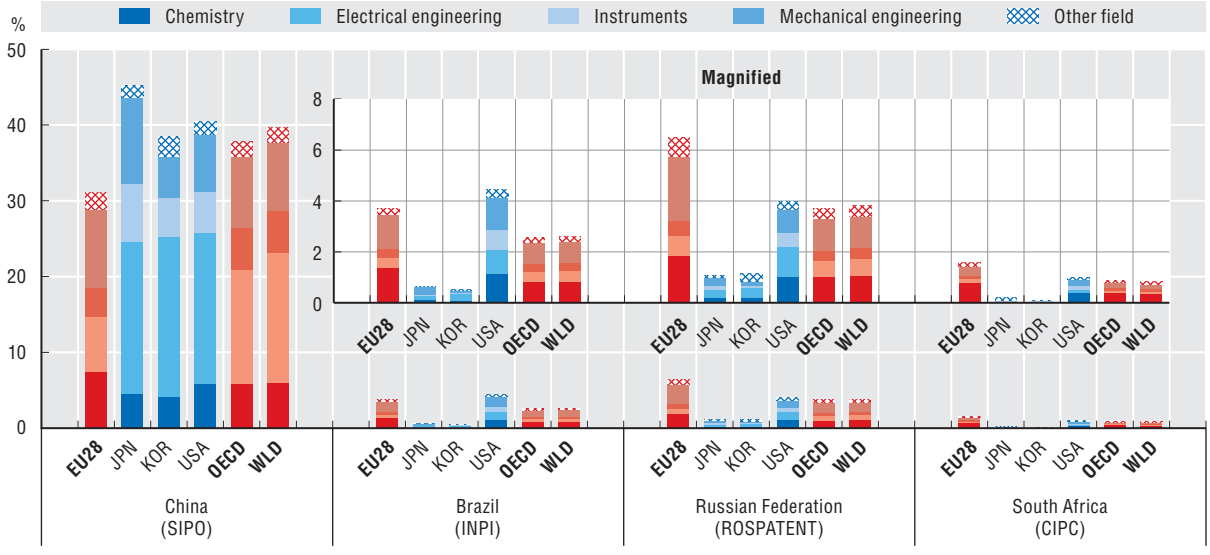


Source: OECD, Patent Database, June 2013. StatLink contains more data. See chapter notes.

StatLink http://dx.doi.org/10.1787/888932890447

64. Technology transfers to selected BRIICS, 2005-09

Share of patent families by origin of inventor and patent office of destination in total patent families



Source: OECD calculations based on the Worldwide Patent Statistical Database, EPO, April 2013. StatLink contains more data. See chapter notes.

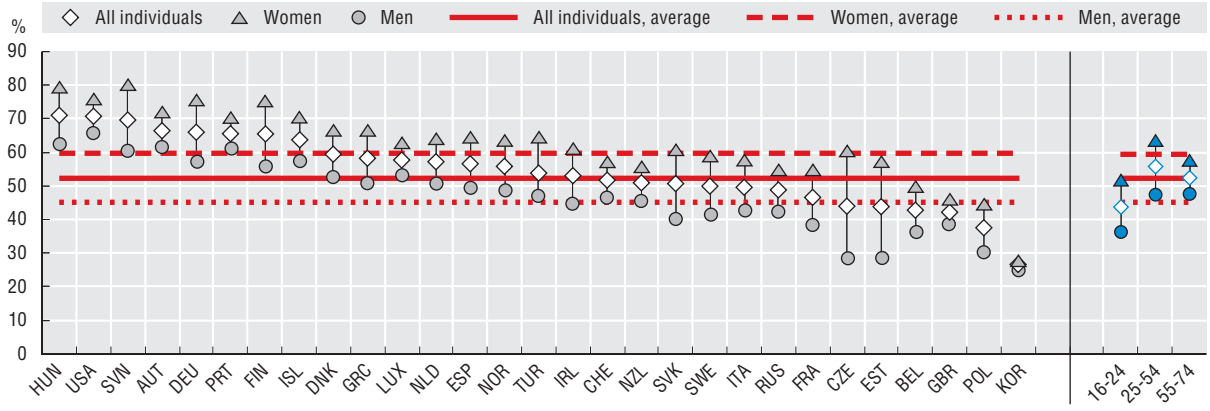
StatLink http://dx.doi.org/10.1787/888932890466

Internet and society

One of the primary uses of the Internet in everyday life is to find information. The search for health-related information ranks among the top activities, with over 50% of users doing so. While cross-country differences are important, the data suggest that in all countries and across all age cohorts women search more actively for such information, with a gender gap of about 15 percentage points. The Internet is also increasingly used to search for employment: on average, almost one-quarter of working-age Internet users seek job-related information on the Internet, with cross-country differences likely to reflect labour market conditions and the opportunities offered by this channel. The diffusion of this activity is higher among younger users, especially in the Nordic countries.

65. Gender differences in seeking health-related information on the Internet, 2011

Percentages of 16-74 year-old Internet users and of users by age group

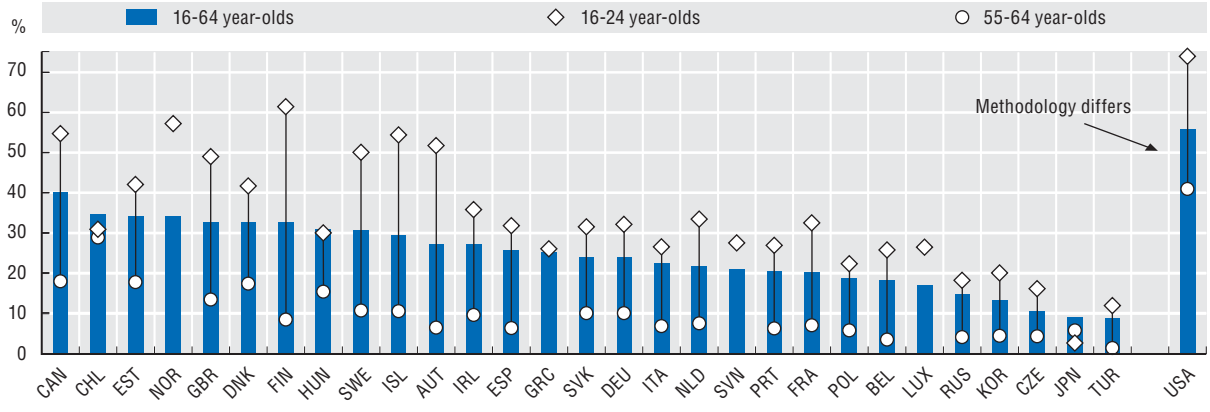


Source: OECD, ICT Database, June 2013; Eurostat; and national sources, May 2013. See chapter notes.

StatLink http://dx.doi.org/10.1787/888932890485

66. Age differences in seeking employment-related information on the Internet, 2011

Percentage of Internet users in working age population, by age group



Source: OECD, ICT Database, June 2013; Eurostat; and national sources, May 2013. See chapter notes.

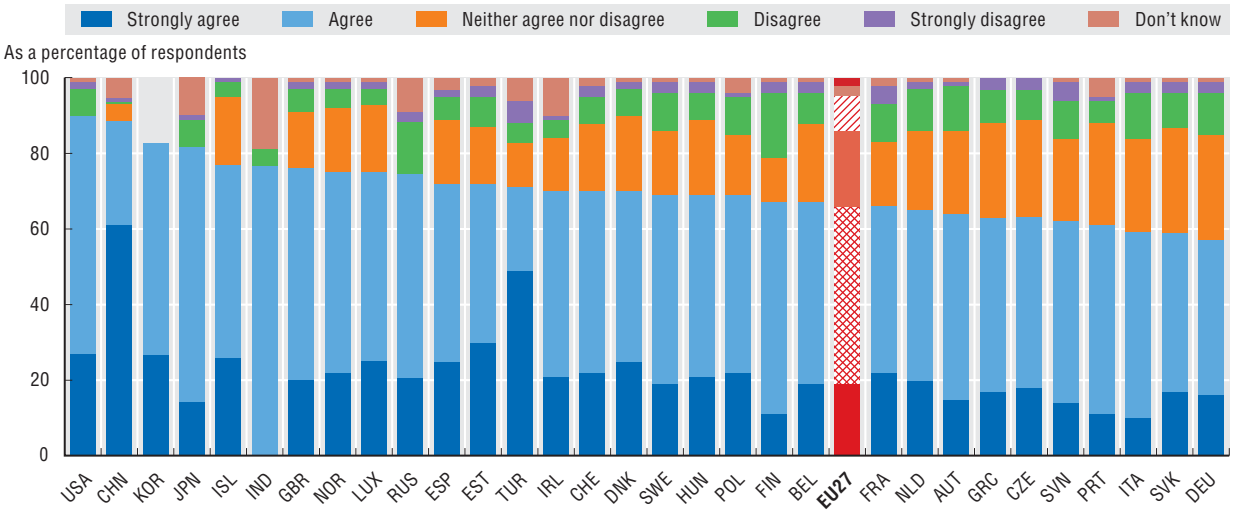
StatLink http://dx.doi.org/10.1787/888932890504

Science and technology and society

Developments in science and technology have visible impacts on people's lives. Surveys carried out across a large number of countries indicate that the public has a mainly positive view of the impact of science and technology on their personal well-being. However, the surveys do find that a significant fraction of the population has mixed or critical opinions as regards the balance of the beneficial and harmful effects of scientific research. They also suggest that non-European countries tend to have more positive views of science and technology.

67. Public perception of the impact of science and technology on personal well-being, 2010

"Science and technology are making our lives healthier, easier and more comfortable"

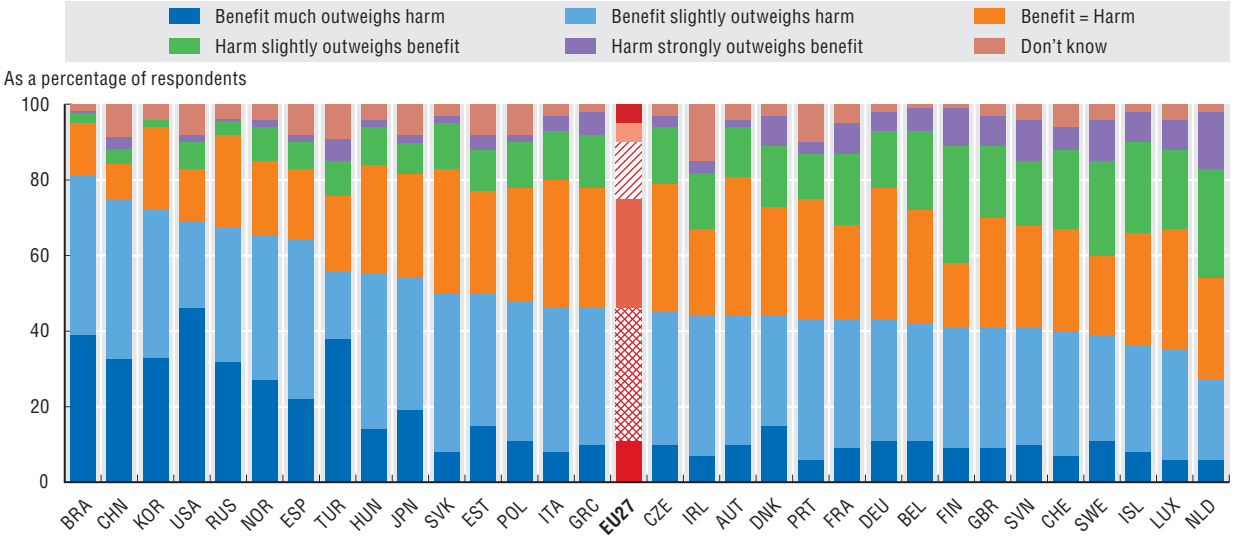


Source: OECD, based on European Commission, US National Science Foundation and other national data sources. June 2013. See chapter note.

StatLink http://dx.doi.org/10.1787/888932890523

68. Public perception of scientific research benefits, 2010

"Have the benefits of scientific research outweighed the harmful results?"



Source: OECD, based on European Commission, US National Science Foundation and other national data sources, June 2013. See chapter notes.

StatLink http://dx.doi.org/10.1787/888932890542

Measuring public perceptions and engagement in science and technology

Surveys on the public perception and awareness of, and engagement in science and technology have been carried out in several countries. A new OECD project is reviewing the methodological challenges faced by such surveys and their international comparability. Given the methodological differences and potential biases that affect responses, results should be interpreted with caution.

Notes and References

Cyprus

The following note is included at the request of Turkey:

"The information in this document with reference to 'Cyprus' relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognizes the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the 'Cyprus issue'."

The following note is included at the request of all the European Union Member States of the OECD and the European Union:

"The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus."

Israel

"The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities or third party. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

"It should be noted that statistical data on Israeli patents and trademarks are supplied by the patent and trademark offices of the relevant countries."

1. Labour productivity growth based on hours worked, total economy level, 2001-12

Euro area here excludes Cyprus and Malta.

2. Growth in GDP per capita and GDP per person employed in the BRIICS and the OECD, 2007-09 and 2009-12

Calculations are based on GDP at constant prices, converted to USD using 2005 purchasing power parities. GDP for Brazil, Indonesia and South Africa are from OECD, Quarterly National Accounts, April 2013. GDP for India is from OECD, Annual National Accounts, April 2013; the series was extended after 2009 using OECD, Quarterly National Accounts, April 2013.

Employment estimates for Brazil, China, India and Indonesia are based on GGDC, Total Economy Database, January 2013.

Employment data for South Africa are from OECD, Annual National Accounts, April 2013; the series was extended after 2010 using GGDC, Total Economy Database, January 2013.

3. Job recovery across socio-economic groups, 2008 Q1-2012 Q4

The skill dimension is based on ISCED97 as follows: low-skilled (ISCED97 0/1/2), less than upper secondary education; medium-skilled (IECD97 3/4), upper secondary education; high-skilled (ISCED97 5/6); tertiary education.

4. Harmonised unemployment rates, OECD, Euro area, United States and Japan, July 2008-April 2013

The OECD harmonised unemployment rates, compiled for all 34 OECD member countries, are based on the International Labour Office (ILO) guidelines. The unemployed are persons of working age who, in the reference period: are without work; are available for work; and have taken specific steps to find work.

Rates are seasonally adjusted.

Euro area here excludes Cyprus and Malta.

5. Net job growth, younger versus older firms, 2001-11

Establishments and firms that appear only for one year are excluded.

Mergers and acquisitions are not taken into account in determining firm age and firm exit.

The shares are calculated as shares of total employment, job destruction and job creation.

Small firms have between 1 and 49 employees, medium firms have between 50 and 249 employees, and large firms have more than 250 employees.

For Austria, data are at the establishment level.

For Japan, data are at the establishment level and refer to the manufacturing sector only.

For Austria, Italy, Luxembourg and Sweden, data refer to 2001-10.

For Brazil, data refer to 2002-10.

For France, data refer to 2002-07.

For Japan and New Zealand, data refer to 2001-09.

For Spain, data refer to 2003-09.

6. Employment, job creation and job destruction, by firm age and size, 2001-11

See notes under 5.

7. Employment, job creation and job destruction, manufacturing and services 2001-11

See notes under 5.

8. Where people lost their jobs, 2008-11

General note:

The aggregate activity groups are defined according to ISIC Rev.4 Divisions 01-03 (Section A), 05-39 (B-E), 41-43 (F), 45-56 G-I), 58-63 (J), 64-68 (K-L), 69-82 (M-N) and 84-99 (O-U).

Additional notes:

For Australia, calendar year averages from the Quarterly Labour Force Survey (QLFS), June 2013. Finance, insurance and real estate activities includes renting and hiring of machinery and equipment (77).

For Iceland, Annual Labour Force Survey (LFS) data by industry are used in the absence of employment by activity statistics published in an SNA context.

For Israel, estimates based on SNA employment data provided to OECD according to ISIC Rev.3. Professional, scientific, technical and other business services (69-82) includes Information and communication (58-63) and Finance, insurance and real estate activities (64-68).

For Japan, public administration, education, health and other services (84-99) includes Professional, scientific, technical and other business services (69-82).

For New Zealand, data are based on employment estimates for fiscal years 2008/09 and 2011/12. Agriculture, forestry and fishing (01-03) includes Mining and quarrying (05-09).

The OECD aggregate does not include Chile and Turkey.

9. Where people lost their jobs in Europe, 2011-12

See general note under 8.

10. Job creation and destruction in the information industries, 2008-11

To assess the effects of the economic crisis on employment across information industries, sectoral changes in levels of employment can be "normalised" in order to highlight their relative contributions, within each country, to the total change in information industry employment between 2008 and 2011. This is achieved, for each country, by expressing the sectoral changes as a percentage of the sum of the absolute changes.

The four activity groups comprising "information industries" are defined according to ISIC Rev.4 Divisions 26 (CI), 58-60 (JA), 61 (JB) and 62-63 (JC) respectively.

The gains and losses, in thousands, represent the sum of the aggregate sectors with positive changes and the sum of the aggregate sectors with negative changes, respectively. With a finer activity breakdown (such as 3-digit ISIC Rev.4), the estimates for total gains and losses could differ. For example, within the losses noted for Manufacture of computer, electronic and optical products (26), certain (3- or 4-digit) activities may have experienced gains in employment.

The employment data are measured in terms of persons except for Canada and the United States where number of jobs is the unit of measurement.

For Spain, IT and other information services (JC) includes Telecommunications (JB).

11. Change in the skill mix in Europe, services and manufacturing, 2011-12

Occupations are defined according to International Standard Classification of Occupations 2008 (ISCO-08). The following major groups are used 1) Managers, 2) Professionals, 3) Technicians and associate professionals, 4) Clerical support workers, 5) Service and sales workers, 7) Craft and related trades workers, 8) Plant and machine operators and assemblers, and 9) Elementary occupations.

Craft and related trades workers includes ISCO-08 major group 6, Skilled agricultural, forestry and fishery workers, which are reported by a few countries under manufacturing and business-sector services.

Manufacturing corresponds to ISIC Rev.4 (NACE Rev.2) Divisions 10-33 (Section C) while business-sector services cover Divisions 45-82 (G-N).

12. R&D growth over the business cycle by source of financing, OECD area, 1982-2012

Business and government-financed R&D expenditures are subcomponents of gross domestic expenditure on R&D (GERD), i.e. intramural R&D expenditures on R&D performed in the national territory. Funding sources are typically identified by the R&D-performing units.

Estimates for government R&D budgets are based on GBAORD (government budget appropriations or outlays for R&D) data for OECD countries with information available for 2012 (Denmark, Estonia, Finland, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, the Slovak Republic, Slovenia and the United States). Rates of growth for this series only from 2008. Government budget data tend to be more timely but may not coincide with R&D performer-reported funding by government, owing to factors such as differences between budgetary plans and actual disbursements.

13. US GDP and trademark applications at the US Patent and Trademark Office, 2003-13

US GDP is based on the series of seasonally adjusted GDP, expenditure approach, in volume (chained volume estimates) contained in the OECD Quarterly National Accounts Database, June 2013.

The following aggregated fields based on the Nice Classification are used: Health, pharma and cosmetics: classes 3, 5, 10 and 44; Leisure and education: classes 13, 15, 16, 28 and 41; Advertising and business services: classes 35, 36 and 45; ICT and audiovisual: classes 9 and 38.

Raw GDP and trademark applications series were treated using the OECD's Composite Leading Indicators methodology. Monthly data were used for trademark applications and quarterly data for GDP, converted to a monthly frequency via linear interpolation and aligned with the mid-quarter month. This treatment removes seasonal patterns and trends (using the Hodrick-Prescott filter) in order to extract the cyclical pattern. The cyclical pattern presented on the graph is expressed as a percentage deviation from the long-term trend. Considering the filters applied, the remaining cycles are those with a period of between 18 months and 10 years. The analysis was performed on series from January 1990 to February 2013 for trademark applications and to March 2013 for GDP. For more information on the methodology, see OECD (2012), "OECD System of Composite Leading Indicators", *www.oecd.org/std/leading-indicators/41629509.pdf*.

The figure shows a peak around 2004 for the trademark series that does not correspond to economic activity. It corresponds to the accession of the United States to the Madrid Agreement in November 2003, which facilitated the filing procedure for foreign applications.

15. New enterprise creations, selected OECD countries, 2007-13

The trend cycle reflects the combined long-term (trend) and medium-to-long-term (cycle) movements in the original series.

For Australia, data exclude non-incorporated companies.

For Spain, data exclude natural persons and sole proprietors.

For the United States, data only refer to establishments with employees.

16. Trends in bankruptcies, 2007-11

For France, Norway and Spain, data refers to SMEs only.

17. Venture capital investment in the United States, 1995-2012 and in Europe, 1995-2010

Data for the United States refer to market statistics, data for Europe refer to industry statistics.

Europe includes Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Former Yugoslav Republic of Macedonia, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Ukraine and the United Kingdom.

18. Venture capital exits in the United States and Europe, 2007-12

Trade sale refers to the sale of company shares to industrial investors.

Initial public offering refers to the sale or distribution of a company's shares to the public for the first time.

Europe includes Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Former Yugoslav Republic of Macedonia, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Ukraine and United Kingdom.

19. Patents by technology fields, 1999-2011

The data refer to counts of patent applications filed under the Patent Cooperation Treaty (PCT), at international phase, by priority date. Data for 2011 are estimates.

Patents in biotechnologies, nanotechnologies health- and ICT-related technologies are based on a selection of International Patent Classification (IPC) classes.

Patents in environment-related technologies are defined using combinations of IPC classes and codes Y02 of the European Classification (ECLA).

20. The dynamics of merchandise exports in OECD and non-OECD economies, 2000-11

Underlying values are in current USD. Data refer to manufactured goods and goods stemming from primary activities (i.e. agriculture, fishing, forestry, mining and quarrying); a few utilities, such as electricity and some community services, are also covered.

22. Worldwide collapse in exports, in gross value added terms between 2008 and 2009

Gross exports of goods and services are estimated from the underlying inter-country input-output (ICIO) system used to produce the OECD-WTO Trade in Value Added (TiVA) indicators. Of necessity, the system requires consistent bilateral trade matrices in which exports of products X from country A to B are equal to imports of products X by B from A. Efforts are made to ensure consistency with aggregate exports and imports as reported in countries' National Accounts or Balance of Payments statistics. However, because of the required balancing of global bilateral trade matrices, certain results may not match countries' perceptions of their trading patterns.

23. Trends in world foreign direct investment flows, 1995-2011

From 2005, data refer to the definition of FDI of the 6th revision of the *Balance of Payments Manual*.

The OECD share in world total is based on the average of inward and outward FDI flows.

24. Decomposition of growth in GDP per capita, 2007-09 and 2009-12

Calculations are based on GDP at constant prices, converted to USD using 2005 purchasing power parities.

For Australia, estimates refer to fiscal years beginning 1st July.

For New Zealand, underlying GDP series refer to fiscal years beginning 1st April.

25. Gap in GDP per capita and GDP per person employed in the BRIICS, with respect to the United States, 1997-2012

Calculations are based on GDP at constant prices, converted to USD using 2005 purchasing power parities.

26. Labour productivity growth in non-agricultural business sector before the crisis, 2001-07

General notes:

The contribution of each sector to aggregate labour productivity growth is computed as the difference between the growth rate of real value added and that of hours worked, weighted by the sector's share in total nominal value added and total hours worked, respectively.

The aggregate activity groups are defined according to ISIC Rev.4 Divisions 05-39 (Sections B-E), 41-43 (F), 45-56 (G-I), 58-63 (J), 64-66 (K) and 69-82 (M-N) respectively. Total non-agriculture business sector thus includes all activities except ISIC Rev.4 Sections A: Agriculture, forestry and fishing (Divisions 01-03), L: Real estate (68), and O-U: Public administration, education, health and other services (84-99).

Additional note:

Korean hours worked for 2001 are a Secretariat estimate which applies the 2004 industry distribution of hours worked to a 2001 total economy figure.

27. Labour productivity growth in non-agricultural business sector after the crisis, 2007-11

See general notes under 26.

28. Investment in fixed and knowledge-based capital, 2010

For Canada, Japan and Korea estimates refer to 2008.

Estimates refer to the business sector for all countries except Korea, for which estimates refer to the total economy. Value added in the business sector is adjusted to include knowledge-based investments.

Data on knowledge-based capital (KBC) for Australia provided by L. Talbott; all data for Canada provided by J. Baldwin, W. Gu and R. Macdonald; data on KBC and physical assets for members of the European Union, Norway and the United States provided by the INTAN-Invest consortium led by C. Corrado, J. Haskel, C. Jona-Lasinio and M. Iommi; all data for Japan provided by K. Fukao and T. Miyagawa; data on KBC for Korea provided by H. Chun. Data on tangible investment for Australia, Austria, Denmark, Finland, France, Ireland, Italy, Korea, Luxembourg, the Netherlands, Spain and Sweden and data on adjusted value added for Australia, Korea, Luxembourg and Portugal are OECD calculations based on OECD and Annual National Accounts Databases, May 2013.

29. Change in business investment intensity between 2008 and 2010

Estimates refer to the business sector for all countries.

Data on knowledge-based capital (KBC) for Australia provided by L. Talbott; data on KBC and physical assets for members of the European Union, Norway and the United States provided by the INTAN-Invest consortium led by C. Corrado, J. Haskel, C. Jona-Lasinio and M. Iommi. Data on tangible investment for Australia, Austria, Denmark, Finland, France, Ireland, Italy, Luxembourg, Netherlands, Spain and Sweden and data on adjusted value added for Australia, Luxembourg and Portugal are OECD calculations based on OECD and Annual National Accounts Databases, May 2013.

30. Foreign value added content of exports, 1995

Regional aggregations are as follows:

ASEAN: Brunei Darussalam, Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Thailand and Viet Nam. The aggregate does not include Laos and Myanmar.

EU15: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom.

Other EU: Bulgaria, Cyprus, the Czech Republic, Estonia, Hungary, Iceland, Latvia, Lithuania, Malta, Norway, Poland, Romania, the Slovak Republic, Slovenia and Switzerland.

Rest of the world (world excluding TiVA countries, see *www.oecd.org/sti/ind/TiVA_Guide_to_Country_Notes.pdf*).

For the regions ASEAN, EU15 and Other Europe, intra-regional trade is included. For example, the arrow from USA to EU15 includes USA value added embodied in EU15 countries' exports to other EU15 countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

31. Foreign value added content of exports, 2009

See notes under 30.

32. Foreign value added content of exports, non-OECD economies, 2009

OECD calculated as a weighted average of OECD countries.

33 Service value added in manufacturing exports by industry, 1995 and 2009

The manufacturing activities covered are based on the following ISIC Rev.3 industries: 15-16 (Food products, beverages and tobacco); 17-19 (Textiles, wearing apparel, leather and related products); 20-22 (Wood, paper products, printing and publishing); 23-26 (Chemicals, pharmaceuticals, plastics and other non-metallic mineral products); 27-28 (Basic metals and fabricated metal products); 29 (Machinery and equipment); 30-33 (Electrical and optical equipment); 34-35 (Transport equipment); 36-37 (Other manufacturing and recycling).

Outliers were excluded from the computation of indices.

34. Foreign direct investment inflows, 1995-2000, 2001-06 and 2007-11

Data from 2005 to 2011 refer to the IMF (2009), Balance of Payments and International Investment Position Manual, 6th edition, definition of FDI. Data prior to 2005 refer to the IMF (1993), Balance of Payments and International Investment Position Manual, 5th edition definition of FDI.

Other OECD includes: Australia, Canada, Chile, Iceland, Israel, Korea, Mexico, New Zealand, Norway, Switzerland and Turkey.

Other BRIICS includes: Brazil, India, Indonesia, Russian Federation and South Africa.

Southeast Asia includes: Cambodia, Chinese Taipei, Hong Kong (China), Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam.

35. Outward foreign direct investment flows from BRIICS, 2001-04, 2005-07 and 2008-11

For Indonesia, the 2001-04 average is not available.

The IMF (2009), Balance of Payments and International Investment Position Manual, 6th edition definition of FDI is used for 2005-07 and 2008-11, IMF (1993), Balance of Payments and International Investment Position Manual, 5th edition definition for 2001-04.

36. Outward foreign direct investment flows from China, yearly average 2007-11

Offshore financial centres include Antigua & Barbuda, the Bahamas, the British Virgin Islands, the Cayman Islands, St Vincent & the Grenadines, and Bermuda.

Southeast Asia includes Brunei Darussalam, Cambodia, Chinese Taipei, Indonesia, Laos, Macau, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam.

37. Top 20 countries, total stock of foreign direct investment, 2012

Top 20 countries by the sum of inward and outward positions.

Countries are ranked by their inward position.

38. Composition of GDP in OECD and BRIICS economies, 2011

The major activity groups defined according to ISIC Rev.4 are: Market services: ISIC Divisions 45-82 (G-N); Non-market services: 84-99 (O-U); Industry: 05-39 (B-E), i.e. Mining (05-09), Manufacturing (10-33) and Utilities (35-39); Construction: 41-43 (F); and Agriculture: 01-03 (A).

Value added is measured in basic prices except for Indonesia and Japan (market prices) and India and the United States (factor costs).

For Australia data refer to the fiscal year ending June 2012.

For Brazil and Canada data refer to 2009.

For India data refer to the fiscal year ending March 2012.

For New Zealand data refer to the fiscal year ending March 2010.

39. Top 20 OECD and BRIICS economies reliant on natural resources, 2011

For Estonia, previous year data refer to 1995.

Total natural resources rents are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents. Rents are estimated as the difference between the value of production at world prices and total costs of production, including depreciation of fixed capital and return on capital.

40. Top manufacturers, 1990, 2000 and 2011

For Canada the 2011 share is based on a Secretariat extrapolation from official current price value added statistics available up to 2009.

For China the 2011 share is based on an estimate calculated by the United Nations Statistics Division and derived by applying the average 2008-10 share of manufacturing value added to total industry value added published for 2011.

42. Exports from energy-intensive manufacturing industries, 2011

The five industries considered are those included in ISIC Rev.4 Divisions 17, 19, 20, 23 and 24.

43. Biggest net CO_2 importers and net CO_2 exporters, 2009

Countries are listed by production-based CO_2 emissions, in descending order on the left-hand side, in ascending order on the right-hand side.

44. R&D in OECD and key partner countries, 2011

Figures for researchers are in full-time equivalent units.

For Brazil, Chile and the Netherlands, data refer to 2010.

For Iceland, Indonesia and South Africa data refer to 2009.

For Switzerland, data refer to 2008.

For Greece, data refer to 2007.

For Australia, data refer to 2010 for R&D expenditures and 2008 for researchers.

For India, data refer to 2007 for R&D expenditures and 2005 for researchers.

For Canada, France and Germany, data for researchers refer to 2010.

For United States, data for researchers refer to 2007.

Data for Brazil are provided by Brazil's Ministry of Science, Technology and Innovation. Data for India and Indonesia from the Science & Technology Statistics collected and published by the UNESCO Institute for Statistics. Owing to methodological differences, data for these countries may not be fully comparable with those for other countries.

45. Business R&D intensity and government support to business R&D, 2011

This is an experimental indicator. International comparability may be limited. For more information, see *www.oecd.org/sti/rd-tax-stats.htm*.

For Australia, Belgium, Brazil, Chile, Ireland, Israel and Spain, figures refer to 2010. For China, Luxembourg and South Africa, figures refer to 2009 and for Switzerland to 2008.

Estimates of direct funding for Belgium, France, Italy and Portugal are based on imputing the share of direct government-funded BERD in the previous year to the current ratio of BERD to GDP. For Austria, the 2009 share is used for 2011. For Brazil, the 2008 share, based on national sources, is used for 2010.

In Austria, Poland and South Africa, R&D tax incentive support is included in official estimates of direct government funding of business R&D. It is removed from direct funding estimates to avoid double-counting.

Estonia, Finland, Germany, Luxembourg, Mexico, New Zealand, Sweden and Switzerland did not provide information on expenditure-based R&D tax incentives for 2011. For Israel the R&D component of incentives cannot be separately identified at present.

Estimates do not cover sub-national and income-based R&D tax incentives and are limited to the business sector (excluding tax incentive support to individuals). Data refer to estimated initial revenue loss (foregone revenues) unless otherwise specified.

Estimates refer to costs of incentives for business expenditures on R&D, both intramural and extramural unless otherwise specified. Direct support figures refer only to intramural R&D expenditures, except for Brazil.

Country specific notes are available at *www.oecd.org/sti/rd-tax-stats.htm*.

46. Global Internet Protocol (IP) traffic, 2005-13

VoD: video on demand. WAN: wide area network.

2013: estimates.

47. IPv6 deployment by country, November 2012

Data collected on 19 November 2012.

48. Mobile cellular and broadband penetration worldwide, 2001-11

OECD series are computed with OECD data.

For Brazil, China, India and World, data are from ITU for mobile subscriptions and from the United Nations for population.

49. University hotspots, geographical distribution of highest impact institutions, 2007-11

Other OECD includes Australia, Canada, Israel, Japan, Korea, Mexico, New Zealand, Norway and Switzerland.

Other EU (and OECD) includes Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Poland, Portugal, Spain and Sweden.

Non-OECD includes Brazil, China, Chinese Taipei, Hong Kong (China), India, Iran, Lithuania, Malaysia, Singapore, South Africa and Thailand.

50. Innovation hotspots in ICT, biotechnology and nanotechnology, 1998-2000 and 2008-10

Data relate to patent applications filed under the Patent Cooperation Treaty (PCT) in ICT, biotechnology and nanotechnology. Patent counts are based on the priority date, the inventor's region of residence and fractional counts. The regional breakdown used is the OECD's Territorial Level 2.

51. Service-related trademark applications at USPTO and OHIM, selected OECD and non-OECD economies, 2000-02 and 2010-12

Shares of service trademarks are calculated using fractional counts of the classes designated in the trademark application. Classes 1 to 34 relate to goods; classes 35 to 45 relate to services.

Trademarks in knowledge-intensive services refer to applications in classes 35, 36, 38 and 42 of the Nice Classification. Trademarks in other services refer to applications in classes 37, 39, 40, 41, 43, 44 and 45 of the Nice Classification.

52. Trademarks in knowledge-intensive services, selected OECD and non-OECD economies, 2010-12

Shares of knowledge-intensive service trademarks are calculated using fractional counts of the classes designated in the trademark application. The following classes of the 10th edition of the Nice Classification are covered: class 35, business services; class 36, finance and insurance; class 38, telecommunications; and class 42, R&D.

53. Patents and trademarks per capita, 2000-02 and 2009-11

Patent families are counted using fractional counts and according to the earliest priority date (first patent application worldwide) and the inventor's country of residence.

Trademarks abroad are counted according to the application date and the address of the applicant.

55. The impact of scientific production and the extent of international scientific collaboration, 2003-11

The international institutional collaboration indicator is based on the proportion of documents involving institutional affiliations with other countries or economies, as a proportion of documents attributed to authors with an affiliation in the reference economy. Single-authored documents with multiple affiliations across boundaries can therefore count as institutional international collaboration.

56. The impact of internationally mobile scientists, inflows versus outflows, 1996-2011

International mobility of scientific researchers is inferred from authors listed in the Scopus Custom database of peer-reviewed scientific publications with at least two documents during the reference period, based on changes in the location of their institutional affiliation. Outflows are defined on the basis of their first affiliation. Inflows are defined on the basis of the final affiliation and exclude individual authors who "return" to their original country of affiliation.

A proxy measure of scientific impact for researchers with different mobility patterns is estimated by calculating, for each author and mobility profile, the median across the relevant journals' Source-Normalized Impact per Paper (SNIP) over the entire period. A SNIP impact value that is higher than one means that the median-attributed SNIP for authors of that country/category is above average.

58. The innovation-science link by technology area, 2001-11

To identify whether NPL corresponds to a scientific document, NPL references were matched to Thomson Reuters Web of Science database, an index of scientific literature. For matched references, scientific domains correspond to Thomson Reuters Essential Science Indicators 22-field classification (*http://archive.sciencewatch.com/about/met/fielddef/*). For presentational purposes, the fields are combined into a reduced set of 11 categories. Medical sciences encompasses clinical medicine, neuroscience, psychiatry and psychology. Life sciences covers biology and biochemistry, immunology, microbiology, molecular biology and genetics. Earth science includes geosciences and environment/ecology. Economics is included in social sciences. Other items are as indicated.

59. International collaboration in science and innovation, 2007-11

International co-authorship of scientific publications is defined at institutional level. A scientific document is deemed to involve an international collaboration if there are institutions from different countries or economies in the list of affiliations reported by single or multiple authors. Estimates are based on whole counts from information contained in the Scopus® database (Elsevier B.V.).

International co-inventions are measured as the share of patent applications filed under the Patent Cooperation Treaty (PCT) with at least one co-inventor located in a different country in total patents invented domestically. Patent counts are based on the priority date, the inventor's country of residence and whole counts.

60. Cross-border ownership of patents, 2009-11

The data refer to counts of patent applications filed under the Patent Cooperation Treaty (PCT), at international phase, by priority date, country and fractional counts.

61. Scientific collaboration with the BRIICS countries, 2001 and 2011

Numbers are based on whole counts.

North America includes the United States, Canada and Mexico.

Far East and Oceania includes Australia, Japan, Korea, Malaysia, New Zealand, Singapore and Thailand.

62. Co-inventions with the BRIICS countries, 1991-2011

Co-inventions are measured as the share of patent applications with at least one co-inventor located in a BRIICS country in total patents invented domestically.

Data refer to counts of patent applications filed under the Patent Cooperation Treaty (PCT), at international phase, by priority date, inventor's country of residence and whole counts.

63. Triadic patent families by blocs, 2001 and 2011

"Triadic" patent families refer to patents filed at the European Patent Office (EPO), the Japan Patent Office (JPO) and the United States Patent and Trademark Office (USPTO) that protect the same invention. Patent counts are based on the priority date, the inventor's country of residence and fractional counts.

Data for 2011 are estimates.

64. Technology transfers to selected BRIICS, 2005-09

Data refer to patent families, i.e. patents applied for at more than one patent office, one of which is among the following: Canadian Intellectual Property Office (CIPO, Canada); Companies and Intellectual Property Commission (CIPC, South Africa); Deutsches Patent- und Markenamt (DPMA, Germany); European Patent Office (EPO); Federal Service for Intellectual Property (ROSPATENT, Russian Federation); Institut National de la Propriété Industrielle (INPI, France); Instituto Nacional de Propriedade Industrial (INPI, Brazil); Japan Patent Office (JPO, Japan); Korean Intellectual Property Office (KIPO, Korea); State Intellectual Property Office of the People's Republic of China (SIPO, China); UK Intellectual Patent Office (UKIPO, United Kingdom); and the United States Patent and Trademark Office (USPTO, United States).

Patents are allocated to technology fields using the International Patent Classification (IPC) codes and the classification presented in Schmoch (2008, revised in 2013). Patent counts are based on the earliest priority date, the inventor's country of residence and fractional counts.

65. Gender differences in seeking health-related information on the Internet, 2011

Except where otherwise stated, the recall period is three months.

Averages are calculated using data from available OECD countries for which data are strictly comparable.

The national source for the Russian Federation is the Institute for Statistical Studies and Economics of Knowledge, Higher School of Economics (HSE) of the National Research University, May 2013.

For Canada, individuals aged 16 and over. Internet users are defined for a recall period of 12 months.

For Korea and New Zealand, data refer to 2012. Internet users are defined for a recall period of 12 months.

For Switzerland, data refer to 2010. Internet users are defined for a recall period of 6 months.

For the United States, data refer to May 2011 and are from the Pew Research Center. Percentages refer to adult Internet users (aged 18 or more) who have ever looked on line for health or medical information. There is no recall period.

66. Age differences in seeking employment-related information on the Internet, 2011

The recall period is three months, except for Canada, Chile, Japan and Korea (12 months), and the United States, which has no recall period (see note below).

The national source for the Russian Federation is the Institute for Statistical Studies and Economics of Knowledge, Higher School of Economics (HSE) of the National Research University, May 2013.

For Canada, data refer to 2010 and to search for employment only. The recall period is 12 months.

For Chile, data refer to 2012. Calculations for 16-64 year-olds are based on population figures for the group of individuals 15-64 years old.

For Japan, data refer to 2012 with different age groups: 15-59 year-olds, 15-19 year-olds and 50-59 year-olds.

For Korea data refer to 2012.

For the United States, data refer to May 2011 and are from the Pew Research Center. Percentages refer to adult Internet users (aged 18 or more) who have ever looked on line for information about a job. Internet users aged 18 or more instead of 16-64, 18-29 instead of 16-24 and 50-64 instead of 55-64.

67. Public perception of the impact of science and technology on personal well-being, 2010

For Japan and the Russian Federation, data refer to 2011.

For Korea, data refer to 2012.

For the United States, data refer to 2004.

For India, data refer to 2004.

Based on surveys conducted by means of face-to-face interviews. Results for Japan are based on web-based questionnaire.

Respondents in Japan, the Russian Federation and the United States were offered the following options (Strongly agree, Agree, Disagree, Strongly disagree, Don't know). Respondents in India were presented with three options (Agree, Disagree, Don't know). For Korea, only results for Strongly agree and Agree to some extent are available.

National sources within the following publications:

China: Ministry of Science and Technology of the People's Republic of China (2010). EU countries: European Commission (2010). Japan: National Institute of Science and Technology Policy (2011). Korea: Korea Foundation for the Advancement of Science and Creativity (2012). Russian Federation: National Research University – Higher School of Economics (2012). United States: National Science Board (2012). India: National Science Board (2012).

68. Public perception of scientific research benefits, 2010

For Japan and the Russian Federation, data refer to 2011.

For Korea, data refer to 2006.

Based on surveys conducted by means of face-to-face interviews.

For Japan, Korea, the Russian Federation and the United States, respondents were invited to choose among the following options: Benefits are much greater than harm, Benefits are slightly greater than harm, Benefits and harm are about equal, Harm is slightly greater than benefits, Harm is much greater than benefits, and Don't know.

For Brazil, respondents are asked to choose among the following options: Only benefits, More benefits than harm, Both benefit and harm, More harm than benefits, Only harm, and Don't know.

For EU countries and China, the question invited respondents to express their (dis)agreement with the statement, "The benefits of science are greater than any harmful effects it may have", by choosing among the following: Totally agree, Tend to agree, Neither agree nor disagree, Tend to disagree, Totally disagree, Don't know.

National sources within the following publications:

Brazil: Ministry of Science and Technology of Brazil (2010). China: Ministry of Science and Technology of the People's Republic of China (2010). EU countries: European Commission (2010). Japan: National Institute of Science and Technology Policy (2011). Korea: National Science Board (2012). The Russian Federation: National Research University – Higher School of Economics (2012). United States: National Science Board (2012).

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Notes and References

Cyprus

The following note is included at the request of Turkey:

"The information in this document with reference to 'Cyprus' relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognizes the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the 'Cyprus issue'."

The following note is included at the request of all the European Union Member States of the OECD and the European Union:

"The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus."

Israel

"The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities or third party. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

"It should be noted that statistical data on Israeli patents and trademarks are supplied by the patent and trademark offices of the relevant countries."

1. Labour productivity growth based on hours worked, total economy level, 2001-12

Euro area here excludes Cyprus and Malta.

2. Growth in GDP per capita and GDP per person employed in the BRIICS and the OECD, 2007-09 and 2009-12

Calculations are based on GDP at constant prices, converted to USD using 2005 purchasing power parities. GDP for Brazil, Indonesia and South Africa are from OECD, Quarterly National Accounts, April 2013. GDP for India is from OECD, Annual National Accounts, April 2013; the series was extended after 2009 using OECD, Quarterly National Accounts, April 2013.

Employment estimates for Brazil, China, India and Indonesia are based on GGDC, Total Economy Database, January 2013.

Employment data for South Africa are from OECD, Annual National Accounts, April 2013; the series was extended after 2010 using GGDC, Total Economy Database, January 2013.

3. Job recovery across socio-economic groups, 2008 Q1-2012 Q4

The skill dimension is based on ISCED97 as follows: low-skilled (ISCED97 0/1/2), less than upper secondary education; medium-skilled (IECD97 3/4), upper secondary education; high-skilled (ISCED97 5/6); tertiary education.

4. Harmonised unemployment rates, OECD, Euro area, United States and Japan, July 2008-April 2013

The OECD harmonised unemployment rates, compiled for all 34 OECD member countries, are based on the International Labour Office (ILO) guidelines. The unemployed are persons of working age who, in the reference period: are without work; are available for work; and have taken specific steps to find work.

Rates are seasonally adjusted.

Euro area here excludes Cyprus and Malta.

5. Net job growth, younger versus older firms, 2001-11

Establishments and firms that appear only for one year are excluded.

Mergers and acquisitions are not taken into account in determining firm age and firm exit.

The shares are calculated as shares of total employment, job destruction and job creation.

Small firms have between 1 and 49 employees, medium firms have between 50 and 249 employees, and large firms have more than 250 employees.

For Austria, data are at the establishment level.

For Japan, data are at the establishment level and refer to the manufacturing sector only.

For Austria, Italy, Luxembourg and Sweden, data refer to 2001-10.

For Brazil, data refer to 2002-10.

For France, data refer to 2002-07.

For Japan and New Zealand, data refer to 2001-09.

For Spain, data refer to 2003-09.

6. Employment, job creation and job destruction, by firm age and size, 2001-11

See notes under 5.

7. Employment, job creation and job destruction, manufacturing and services 2001-11

See notes under 5.

8. Where people lost their jobs, 2008-11

General note:

The aggregate activity groups are defined according to ISIC Rev.4 Divisions 01-03 (Section A), 05-39 (B-E), 41-43 (F), 45-56 G-I), 58-63 (J), 64-68 (K-L), 69-82 (M-N) and 84-99 (O-U).

Additional notes:

For Australia, calendar year averages from the Quarterly Labour Force Survey (QLFS), June 2013. Finance, insurance and real estate activities includes renting and hiring of machinery and equipment (77).

For Iceland, Annual Labour Force Survey (LFS) data by industry are used in the absence of employment by activity statistics published in an SNA context.

For Israel, estimates based on SNA employment data provided to OECD according to ISIC Rev.3. Professional, scientific, technical and other business services (69-82) includes Information and communication (58-63) and Finance, insurance and real estate activities (64-68).

For Japan, public administration, education, health and other services (84-99) includes Professional, scientific, technical and other business services (69-82).

For New Zealand, data are based on employment estimates for fiscal years 2008/09 and 2011/12. Agriculture, forestry and fishing (01-03) includes Mining and quarrying (05-09).

The OECD aggregate does not include Chile and Turkey.

9. Where people lost their jobs in Europe, 2011-12

See general note under 8.

10. Job creation and destruction in the information industries, 2008-11

To assess the effects of the economic crisis on employment across information industries, sectoral changes in levels of employment can be "normalised" in order to highlight their relative contributions, within each country, to the total change in information industry employment between 2008 and 2011. This is achieved, for each country, by expressing the sectoral changes as a percentage of the sum of the absolute changes.

The four activity groups comprising "information industries" are defined according to ISIC Rev.4 Divisions 26 (CI), 58-60 (JA), 61 (JB) and 62-63 (JC) respectively.

The gains and losses, in thousands, represent the sum of the aggregate sectors with positive changes and the sum of the aggregate sectors with negative changes, respectively. With a finer activity breakdown (such as 3-digit ISIC Rev.4), the estimates for total gains and losses could differ. For example, within the losses noted for Manufacture of computer, electronic and optical products (26), certain (3- or 4-digit) activities may have experienced gains in employment.

The employment data are measured in terms of persons except for Canada and the United States where number of jobs is the unit of measurement.

For Spain, IT and other information services (JC) includes Telecommunications (JB).

11. Change in the skill mix in Europe, services and manufacturing, 2011-12

Occupations are defined according to International Standard Classification of Occupations 2008 (ISCO-08). The following major groups are used 1) Managers, 2) Professionals, 3) Technicians and associate professionals, 4) Clerical support workers, 5) Service and sales workers, 7) Craft and related trades workers, 8) Plant and machine operators and assemblers, and 9) Elementary occupations.

Craft and related trades workers includes ISCO-08 major group 6, Skilled agricultural, forestry and fishery workers, which are reported by a few countries under manufacturing and business-sector services.

Manufacturing corresponds to ISIC Rev.4 (NACE Rev.2) Divisions 10-33 (Section C) while business-sector services cover Divisions 45-82 (G-N).

12. R&D growth over the business cycle by source of financing, OECD area, 1982-2012

Business and government-financed R&D expenditures are subcomponents of gross domestic expenditure on R&D (GERD), i.e. intramural R&D expenditures on R&D performed in the national territory. Funding sources are typically identified by the R&D-performing units.

Estimates for government R&D budgets are based on GBAORD (government budget appropriations or outlays for R&D) data for OECD countries with information available for 2012 (Denmark, Estonia, Finland, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, the Slovak Republic, Slovenia and the United States). Rates of growth for this series only from 2008. Government budget data tend to be more timely but may not coincide with R&D performer-reported funding by government, owing to factors such as differences between budgetary plans and actual disbursements.

13. US GDP and trademark applications at the US Patent and Trademark Office, 2003-13

US GDP is based on the series of seasonally adjusted GDP, expenditure approach, in volume (chained volume estimates) contained in the OECD Quarterly National Accounts Database, June 2013.

The following aggregated fields based on the Nice Classification are used: Health, pharma and cosmetics: classes 3, 5, 10 and 44; Leisure and education: classes 13, 15, 16, 28 and 41; Advertising and business services: classes 35, 36 and 45; ICT and audiovisual: classes 9 and 38.

Raw GDP and trademark applications series were treated using the OECD's Composite Leading Indicators methodology. Monthly data were used for trademark applications and quarterly data for GDP, converted to a monthly frequency via linear interpolation and aligned with the mid-quarter month. This treatment removes seasonal patterns and trends (using the Hodrick-Prescott filter) in order to extract the cyclical pattern. The cyclical pattern presented on the graph is expressed as a percentage deviation from the long-term trend. Considering the filters applied, the remaining cycles are those with a period of between 18 months and 10 years. The analysis was performed on series from January 1990 to February 2013 for trademark applications and to March 2013 for GDP. For more information on the methodology, see OECD (2012), "OECD System of Composite Leading Indicators", *www.oecd.org/std/leading-indicators/41629509.pdf*.

The figure shows a peak around 2004 for the trademark series that does not correspond to economic activity. It corresponds to the accession of the United States to the Madrid Agreement in November 2003, which facilitated the filing procedure for foreign applications.

15. New enterprise creations, selected OECD countries, 2007-13

The trend cycle reflects the combined long-term (trend) and medium-to-long-term (cycle) movements in the original series.

For Australia, data exclude non-incorporated companies.

For Spain, data exclude natural persons and sole proprietors.

For the United States, data only refer to establishments with employees.

16. Trends in bankruptcies, 2007-11

For France, Norway and Spain, data refers to SMEs only.

17. Venture capital investment in the United States, 1995-2012 and in Europe, 1995-2010

Data for the United States refer to market statistics, data for Europe refer to industry statistics.

Europe includes Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Former Yugoslav Republic of Macedonia, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Ukraine and the United Kingdom.

18. Venture capital exits in the United States and Europe, 2007-12

Trade sale refers to the sale of company shares to industrial investors.

Initial public offering refers to the sale or distribution of a company's shares to the public for the first time.

Europe includes Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Former Yugoslav Republic of Macedonia, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Ukraine and United Kingdom.

19. Patents by technology fields, 1999-2011

The data refer to counts of patent applications filed under the Patent Cooperation Treaty (PCT), at international phase, by priority date. Data for 2011 are estimates.

Patents in biotechnologies, nanotechnologies health- and ICT-related technologies are based on a selection of International Patent Classification (IPC) classes.

Patents in environment-related technologies are defined using combinations of IPC classes and codes Y02 of the European Classification (ECLA).

20. The dynamics of merchandise exports in OECD and non-OECD economies, 2000-11

Underlying values are in current USD. Data refer to manufactured goods and goods stemming from primary activities (i.e. agriculture, fishing, forestry, mining and quarrying); a few utilities, such as electricity and some community services, are also covered.

22. Worldwide collapse in exports, in gross value added terms between 2008 and 2009

Gross exports of goods and services are estimated from the underlying inter-country input-output (ICIO) system used to produce the OECD-WTO Trade in Value Added (TiVA) indicators. Of necessity, the system requires consistent bilateral trade matrices in which exports of products X from country A to B are equal to imports of products X by B from A. Efforts are made to ensure consistency with aggregate exports and imports as reported in countries' National Accounts or Balance of Payments statistics. However, because of the required balancing of global bilateral trade matrices, certain results may not match countries' perceptions of their trading patterns.

23. Trends in world foreign direct investment flows, 1995-2011

From 2005, data refer to the definition of FDI of the 6th revision of the *Balance of Payments Manual*.

The OECD share in world total is based on the average of inward and outward FDI flows.

24. Decomposition of growth in GDP per capita, 2007-09 and 2009-12

Calculations are based on GDP at constant prices, converted to USD using 2005 purchasing power parities.

For Australia, estimates refer to fiscal years beginning 1st July.

For New Zealand, underlying GDP series refer to fiscal years beginning 1st April.

25. Gap in GDP per capita and GDP per person employed in the BRIICS, with respect to the United States, 1997-2012

Calculations are based on GDP at constant prices, converted to USD using 2005 purchasing power parities.

26. Labour productivity growth in non-agricultural business sector before the crisis, 2001-07

General notes:

The contribution of each sector to aggregate labour productivity growth is computed as the difference between the growth rate of real value added and that of hours worked, weighted by the sector's share in total nominal value added and total hours worked, respectively.

The aggregate activity groups are defined according to ISIC Rev.4 Divisions 05-39 (Sections B-E), 41-43 (F), 45-56 (G-I), 58-63 (J), 64-66 (K) and 69-82 (M-N) respectively. Total non-agriculture business sector thus includes all activities except ISIC Rev.4 Sections A: Agriculture, forestry and fishing (Divisions 01-03), L: Real estate (68), and O-U: Public administration, education, health and other services (84-99).

Additional note:

Korean hours worked for 2001 are a Secretariat estimate which applies the 2004 industry distribution of hours worked to a 2001 total economy figure.

27. Labour productivity growth in non-agricultural business sector after the crisis, 2007-11

See general notes under 26.

28. Investment in fixed and knowledge-based capital, 2010

For Canada, Japan and Korea estimates refer to 2008.

Estimates refer to the business sector for all countries except Korea, for which estimates refer to the total economy. Value added in the business sector is adjusted to include knowledge-based investments.

Data on knowledge-based capital (KBC) for Australia provided by L. Talbott; all data for Canada provided by J. Baldwin, W. Gu and R. Macdonald; data on KBC and physical assets for members of the European Union, Norway and the United States provided by the INTAN-Invest consortium led by C. Corrado, J. Haskel, C. Jona-Lasinio and M. Iommi; all data for Japan provided by K. Fukao and T. Miyagawa; data on KBC for Korea provided by H. Chun. Data on tangible investment for Australia, Austria, Denmark, Finland, France, Ireland, Italy, Korea, Luxembourg, the Netherlands, Spain and Sweden and data on adjusted value added for Australia, Korea, Luxembourg and Portugal are OECD calculations based on OECD and Annual National Accounts Databases, May 2013.

29. Change in business investment intensity between 2008 and 2010

Estimates refer to the business sector for all countries.

Data on knowledge-based capital (KBC) for Australia provided by L. Talbott; data on KBC and physical assets for members of the European Union, Norway and the United States provided by the INTAN-Invest consortium led by C. Corrado, J. Haskel, C. Jona-Lasinio and M. Iommi. Data on tangible investment for Australia, Austria, Denmark, Finland, France, Ireland, Italy, Luxembourg, Netherlands, Spain and Sweden and data on adjusted value added for Australia, Luxembourg and Portugal are OECD calculations based on OECD and Annual National Accounts Databases, May 2013.

30. Foreign value added content of exports, 1995

Regional aggregations are as follows:

ASEAN: Brunei Darussalam, Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Thailand and Viet Nam. The aggregate does not include Laos and Myanmar.

EU15: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom.

Other EU: Bulgaria, Cyprus, the Czech Republic, Estonia, Hungary, Iceland, Latvia, Lithuania, Malta, Norway, Poland, Romania, the Slovak Republic, Slovenia and Switzerland.

Rest of the world (world excluding TiVA countries, see *www.oecd.org/sti/ind/TiVA_Guide_to_Country_Notes.pdf*).

For the regions ASEAN, EU15 and Other Europe, intra-regional trade is included. For example, the arrow from USA to EU15 includes USA value added embodied in EU15 countries' exports to other EU15 countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

31. Foreign value added content of exports, 2009

See notes under 30.

32. Foreign value added content of exports, non-OECD economies, 2009

OECD calculated as a weighted average of OECD countries.

33 Service value added in manufacturing exports by industry, 1995 and 2009

The manufacturing activities covered are based on the following ISIC Rev.3 industries: 15-16 (Food products, beverages and tobacco); 17-19 (Textiles, wearing apparel, leather and related products); 20-22 (Wood, paper products, printing and publishing); 23-26 (Chemicals, pharmaceuticals, plastics and other non-metallic mineral products); 27-28 (Basic metals and fabricated metal products); 29 (Machinery and equipment); 30-33 (Electrical and optical equipment); 34-35 (Transport equipment); 36-37 (Other manufacturing and recycling).

Outliers were excluded from the computation of indices.

34. Foreign direct investment inflows, 1995-2000, 2001-06 and 2007-11

Data from 2005 to 2011 refer to the IMF (2009), Balance of Payments and International Investment Position Manual, 6th edition, definition of FDI. Data prior to 2005 refer to the IMF (1993), Balance of Payments and International Investment Position Manual, 5th edition definition of FDI.

Other OECD includes: Australia, Canada, Chile, Iceland, Israel, Korea, Mexico, New Zealand, Norway, Switzerland and Turkey.

Other BRIICS includes: Brazil, India, Indonesia, Russian Federation and South Africa.

Southeast Asia includes: Cambodia, Chinese Taipei, Hong Kong (China), Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam.

35. Outward foreign direct investment flows from BRIICS, 2001-04, 2005-07 and 2008-11

For Indonesia, the 2001-04 average is not available.

The IMF (2009), Balance of Payments and International Investment Position Manual, 6th edition definition of FDI is used for 2005-07 and 2008-11, IMF (1993), Balance of Payments and International Investment Position Manual, 5th edition definition for 2001-04.

36. Outward foreign direct investment flows from China, yearly average 2007-11

Offshore financial centres include Antigua & Barbuda, the Bahamas, the British Virgin Islands, the Cayman Islands, St Vincent & the Grenadines, and Bermuda.

Southeast Asia includes Brunei Darussalam, Cambodia, Chinese Taipei, Indonesia, Laos, Macau, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam.

37. Top 20 countries, total stock of foreign direct investment, 2012

Top 20 countries by the sum of inward and outward positions.

Countries are ranked by their inward position.

38. Composition of GDP in OECD and BRIICS economies, 2011

The major activity groups defined according to ISIC Rev.4 are: Market services: ISIC Divisions 45-82 (G-N); Non-market services: 84-99 (O-U); Industry: 05-39 (B-E), i.e. Mining (05-09), Manufacturing (10-33) and Utilities (35-39); Construction: 41-43 (F); and Agriculture: 01-03 (A).

Value added is measured in basic prices except for Indonesia and Japan (market prices) and India and the United States (factor costs).

For Australia data refer to the fiscal year ending June 2012.

For Brazil and Canada data refer to 2009.

For India data refer to the fiscal year ending March 2012.

For New Zealand data refer to the fiscal year ending March 2010.

39. Top 20 OECD and BRIICS economies reliant on natural resources, 2011

For Estonia, previous year data refer to 1995.

Total natural resources rents are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents. Rents are estimated as the difference between the value of production at world prices and total costs of production, including depreciation of fixed capital and return on capital.

40. Top manufacturers, 1990, 2000 and 2011

For Canada the 2011 share is based on a Secretariat extrapolation from official current price value added statistics available up to 2009.

For China the 2011 share is based on an estimate calculated by the United Nations Statistics Division and derived by applying the average 2008-10 share of manufacturing value added to total industry value added published for 2011.

42. Exports from energy-intensive manufacturing industries, 2011

The five industries considered are those included in ISIC Rev.4 Divisions 17, 19, 20, 23 and 24.

43. Biggest net CO_2 importers and net CO_2 exporters, 2009

Countries are listed by production-based CO_2 emissions, in descending order on the left-hand side, in ascending order on the right-hand side.

44. R&D in OECD and key partner countries, 2011

Figures for researchers are in full-time equivalent units.

For Brazil, Chile and the Netherlands, data refer to 2010.

For Iceland, Indonesia and South Africa data refer to 2009.

For Switzerland, data refer to 2008.

For Greece, data refer to 2007.

For Australia, data refer to 2010 for R&D expenditures and 2008 for researchers.

For India, data refer to 2007 for R&D expenditures and 2005 for researchers.

For Canada, France and Germany, data for researchers refer to 2010.

For United States, data for researchers refer to 2007.

Data for Brazil are provided by Brazil's Ministry of Science, Technology and Innovation. Data for India and Indonesia from the Science & Technology Statistics collected and published by the UNESCO Institute for Statistics. Owing to methodological differences, data for these countries may not be fully comparable with those for other countries.

45. Business R&D intensity and government support to business R&D, 2011

This is an experimental indicator. International comparability may be limited. For more information, see *www.oecd.org/sti/rd-tax-stats.htm*.

For Australia, Belgium, Brazil, Chile, Ireland, Israel and Spain, figures refer to 2010. For China, Luxembourg and South Africa, figures refer to 2009 and for Switzerland to 2008.

Estimates of direct funding for Belgium, France, Italy and Portugal are based on imputing the share of direct government-funded BERD in the previous year to the current ratio of BERD to GDP. For Austria, the 2009 share is used for 2011. For Brazil, the 2008 share, based on national sources, is used for 2010.

In Austria, Poland and South Africa, R&D tax incentive support is included in official estimates of direct government funding of business R&D. It is removed from direct funding estimates to avoid double-counting.

Estonia, Finland, Germany, Luxembourg, Mexico, New Zealand, Sweden and Switzerland did not provide information on expenditure-based R&D tax incentives for 2011. For Israel the R&D component of incentives cannot be separately identified at present.

Estimates do not cover sub-national and income-based R&D tax incentives and are limited to the business sector (excluding tax incentive support to individuals). Data refer to estimated initial revenue loss (foregone revenues) unless otherwise specified.

Estimates refer to costs of incentives for business expenditures on R&D, both intramural and extramural unless otherwise specified. Direct support figures refer only to intramural R&D expenditures, except for Brazil.

Country specific notes are available at *www.oecd.org/sti/rd-tax-stats.htm*.

46. Global Internet Protocol (IP) traffic, 2005-13

VoD: video on demand. WAN: wide area network.

2013: estimates.

47. IPv6 deployment by country, November 2012

Data collected on 19 November 2012.

48. Mobile cellular and broadband penetration worldwide, 2001-11

OECD series are computed with OECD data.

For Brazil, China, India and World, data are from ITU for mobile subscriptions and from the United Nations for population.

49. University hotspots, geographical distribution of highest impact institutions, 2007-11

Other OECD includes Australia, Canada, Israel, Japan, Korea, Mexico, New Zealand, Norway and Switzerland.

Other EU (and OECD) includes Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Poland, Portugal, Spain and Sweden.

Non-OECD includes Brazil, China, Chinese Taipei, Hong Kong (China), India, Iran, Lithuania, Malaysia, Singapore, South Africa and Thailand.

50. Innovation hotspots in ICT, biotechnology and nanotechnology, 1998-2000 and 2008-10

Data relate to patent applications filed under the Patent Cooperation Treaty (PCT) in ICT, biotechnology and nanotechnology. Patent counts are based on the priority date, the inventor's region of residence and fractional counts. The regional breakdown used is the OECD's Territorial Level 2.

51. Service-related trademark applications at USPTO and OHIM, selected OECD and non-OECD economies, 2000-02 and 2010-12

Shares of service trademarks are calculated using fractional counts of the classes designated in the trademark application. Classes 1 to 34 relate to goods; classes 35 to 45 relate to services.

Trademarks in knowledge-intensive services refer to applications in classes 35, 36, 38 and 42 of the Nice Classification. Trademarks in other services refer to applications in classes 37, 39, 40, 41, 43, 44 and 45 of the Nice Classification.

52. Trademarks in knowledge-intensive services, selected OECD and non-OECD economies, 2010-12

Shares of knowledge-intensive service trademarks are calculated using fractional counts of the classes designated in the trademark application. The following classes of the 10th edition of the Nice Classification are covered: class 35, business services; class 36, finance and insurance; class 38, telecommunications; and class 42, R&D.

53. Patents and trademarks per capita, 2000-02 and 2009-11

Patent families are counted using fractional counts and according to the earliest priority date (first patent application worldwide) and the inventor's country of residence.

Trademarks abroad are counted according to the application date and the address of the applicant.

55. The impact of scientific production and the extent of international scientific collaboration, 2003-11

The international institutional collaboration indicator is based on the proportion of documents involving institutional affiliations with other countries or economies, as a proportion of documents attributed to authors with an affiliation in the reference economy. Single-authored documents with multiple affiliations across boundaries can therefore count as institutional international collaboration.

56. The impact of internationally mobile scientists, inflows versus outflows, 1996-2011

International mobility of scientific researchers is inferred from authors listed in the Scopus Custom database of peer-reviewed scientific publications with at least two documents during the reference period, based on changes in the location of their institutional affiliation. Outflows are defined on the basis of their first affiliation. Inflows are defined on the basis of the final affiliation and exclude individual authors who "return" to their original country of affiliation.

A proxy measure of scientific impact for researchers with different mobility patterns is estimated by calculating, for each author and mobility profile, the median across the relevant journals' Source-Normalized Impact per Paper (SNIP) over the entire period. A SNIP impact value that is higher than one means that the median-attributed SNIP for authors of that country/category is above average.

58. The innovation-science link by technology area, 2001-11

To identify whether NPL corresponds to a scientific document, NPL references were matched to Thomson Reuters Web of Science database, an index of scientific literature. For matched references, scientific domains correspond to Thomson Reuters Essential Science Indicators 22-field classification (*http://archive.sciencewatch.com/about/met/fielddef/*). For presentational purposes, the fields are combined into a reduced set of 11 categories. Medical sciences encompasses clinical medicine, neuroscience, psychiatry and psychology. Life sciences covers biology and biochemistry, immunology, microbiology, molecular biology and genetics. Earth science includes geosciences and environment/ecology. Economics is included in social sciences. Other items are as indicated.

59. International collaboration in science and innovation, 2007-11

International co-authorship of scientific publications is defined at institutional level. A scientific document is deemed to involve an international collaboration if there are institutions from different countries or economies in the list of affiliations reported by single or multiple authors. Estimates are based on whole counts from information contained in the Scopus® database (Elsevier B.V.).

International co-inventions are measured as the share of patent applications filed under the Patent Cooperation Treaty (PCT) with at least one co-inventor located in a different country in total patents invented domestically. Patent counts are based on the priority date, the inventor's country of residence and whole counts.

60. Cross-border ownership of patents, 2009-11

The data refer to counts of patent applications filed under the Patent Cooperation Treaty (PCT), at international phase, by priority date, country and fractional counts.

61. Scientific collaboration with the BRIICS countries, 2001 and 2011

Numbers are based on whole counts.

North America includes the United States, Canada and Mexico.

Far East and Oceania includes Australia, Japan, Korea, Malaysia, New Zealand, Singapore and Thailand.

62. Co-inventions with the BRIICS countries, 1991-2011

Co-inventions are measured as the share of patent applications with at least one co-inventor located in a BRIICS country in total patents invented domestically.

Data refer to counts of patent applications filed under the Patent Cooperation Treaty (PCT), at international phase, by priority date, inventor's country of residence and whole counts.

63. Triadic patent families by blocs, 2001 and 2011

"Triadic" patent families refer to patents filed at the European Patent Office (EPO), the Japan Patent Office (JPO) and the United States Patent and Trademark Office (USPTO) that protect the same invention. Patent counts are based on the priority date, the inventor's country of residence and fractional counts.

Data for 2011 are estimates.

64. Technology transfers to selected BRIICS, 2005-09

Data refer to patent families, i.e. patents applied for at more than one patent office, one of which is among the following: Canadian Intellectual Property Office (CIPO, Canada); Companies and Intellectual Property Commission (CIPC, South Africa); Deutsches Patent- und Markenamt (DPMA, Germany); European Patent Office (EPO); Federal Service for Intellectual Property (ROSPATENT, Russian Federation); Institut National de la Propriété Industrielle (INPI, France); Instituto Nacional de Propriedade Industrial (INPI, Brazil); Japan Patent Office (JPO, Japan); Korean Intellectual Property Office (KIPO, Korea); State Intellectual Property Office of the People's Republic of China (SIPO, China); UK Intellectual Patent Office (UKIPO, United Kingdom); and the United States Patent and Trademark Office (USPTO, United States).

Patents are allocated to technology fields using the International Patent Classification (IPC) codes and the classification presented in Schmoch (2008, revised in 2013). Patent counts are based on the earliest priority date, the inventor's country of residence and fractional counts.

65. Gender differences in seeking health-related information on the Internet, 2011

Except where otherwise stated, the recall period is three months.

Averages are calculated using data from available OECD countries for which data are strictly comparable.

The national source for the Russian Federation is the Institute for Statistical Studies and Economics of Knowledge, Higher School of Economics (HSE) of the National Research University, May 2013.

For Canada, individuals aged 16 and over. Internet users are defined for a recall period of 12 months.

For Korea and New Zealand, data refer to 2012. Internet users are defined for a recall period of 12 months.

For Switzerland, data refer to 2010. Internet users are defined for a recall period of 6 months.

For the United States, data refer to May 2011 and are from the Pew Research Center. Percentages refer to adult Internet users (aged 18 or more) who have ever looked on line for health or medical information. There is no recall period.

66. Age differences in seeking employment-related information on the Internet, 2011

The recall period is three months, except for Canada, Chile, Japan and Korea (12 months), and the United States, which has no recall period (see note below).

The national source for the Russian Federation is the Institute for Statistical Studies and Economics of Knowledge, Higher School of Economics (HSE) of the National Research University, May 2013.

For Canada, data refer to 2010 and to search for employment only. The recall period is 12 months.

For Chile, data refer to 2012. Calculations for 16-64 year-olds are based on population figures for the group of individuals 15-64 years old.

For Japan, data refer to 2012 with different age groups: 15-59 year-olds, 15-19 year-olds and 50-59 year-olds.

For Korea data refer to 2012.

For the United States, data refer to May 2011 and are from the Pew Research Center. Percentages refer to adult Internet users (aged 18 or more) who have ever looked on line for information about a job. Internet users aged 18 or more instead of 16-64, 18-29 instead of 16-24 and 50-64 instead of 55-64.

67. Public perception of the impact of science and technology on personal well-being, 2010

For Japan and the Russian Federation, data refer to 2011.

For Korea, data refer to 2012.

For the United States, data refer to 2004.

For India, data refer to 2004.

Based on surveys conducted by means of face-to-face interviews. Results for Japan are based on web-based questionnaire.

Respondents in Japan, the Russian Federation and the United States were offered the following options (Strongly agree, Agree, Disagree, Strongly disagree, Don't know). Respondents in India were presented with three options (Agree, Disagree, Don't know). For Korea, only results for Strongly agree and Agree to some extent are available.

National sources within the following publications:

China: Ministry of Science and Technology of the People's Republic of China (2010). EU countries: European Commission (2010). Japan: National Institute of Science and Technology Policy (2011). Korea: Korea Foundation for the Advancement of Science and Creativity (2012). Russian Federation: National Research University – Higher School of Economics (2012). United States: National Science Board (2012). India: National Science Board (2012).

68. Public perception of scientific research benefits, 2010

For Japan and the Russian Federation, data refer to 2011.

For Korea, data refer to 2006.

Based on surveys conducted by means of face-to-face interviews.

For Japan, Korea, the Russian Federation and the United States, respondents were invited to choose among the following options: Benefits are much greater than harm, Benefits are slightly greater than harm, Benefits and harm are about equal, Harm is slightly greater than benefits, Harm is much greater than benefits, and Don't know.

For Brazil, respondents are asked to choose among the following options: Only benefits, More benefits than harm, Both benefit and harm, More harm than benefits, Only harm, and Don't know.

For EU countries and China, the question invited respondents to express their (dis)agreement with the statement, "The benefits of science are greater than any harmful effects it may have", by choosing among the following: Totally agree, Tend to agree, Neither agree nor disagree, Tend to disagree, Totally disagree, Don't know.

National sources within the following publications:

Brazil: Ministry of Science and Technology of Brazil (2010). China: Ministry of Science and Technology of the People's Republic of China (2010). EU countries: European Commission (2010). Japan: National Institute of Science and Technology Policy (2011). Korea: National Science Board (2012). The Russian Federation: National Research University – Higher School of Economics (2012). United States: National Science Board (2012).

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