

# The EU in the world 2014

A statistical portrait





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## Foreword

The first Eurostat publication to carry the name *The EU in the world* was a special edition produced in 2010 for World Statistics Day. Following on from the 2013 edition, *The EU in the world 2014* is the second edition of this publication in its current format.

*The EU in the world 2014* provides you with a selection of important and interesting statistics on the EU — considered as a single entity — in comparison with the 15 non-EU countries from the Group of Twenty (G20). Drawing from the huge amount of data available at Eurostat and from other international and national sources, we aim to give an insight into European society, the economy and the environment in comparison with the major economies from the rest of the world. I hope that you will find here information of interest both for your work and for your daily life.



Eurostat is the statistical office of the European Union. Working together with national statistical authorities in the European statistical system (ESS), we produce high quality statistics on Europe.

I wish you an enjoyable reading experience!

**Walter Radermacher**

Director-General, Eurostat

Chief Statistician of the European Union



## Abstract

This publication provides a statistical portrait of the European Union (EU) in relation to the rest of the world. It complements information found in the continuously updated online publication *Europe in figures — Eurostat yearbook* and in the *Eurostat regional yearbook*. It may be viewed as an introduction to European and international statistics and provides a starting point for those who wish to explore the wide range of data that are freely available from a variety of international organisations and on Eurostat's website at <http://ec.europa.eu/eurostat>

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## Data extraction period

The data presented within this publication were largely extracted during February 2014.

An online data code available under each table/figure can be used to directly access the most recent data on Eurostat's website.

All statements on policies within this publication are given for information purposes only. They do not constitute an official policy position of the European Commission and are not legally binding. To know more about such policies, please consult the European Commission's website at: <http://ec.europa.eu>

## Acknowledgements

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## National statistical authorities

The following list provides links to national statistics authorities of the individual countries included in this publication. Where available, the links below are to the English language page of the websites.

Authority	Website
National Institute of Statistics and Censuses (Argentina)	<a href="http://www.indec.gov.ar/el-indec_eng.asp">http://www.indec.gov.ar/el-indec_eng.asp</a>
Brazilian Institute of Geography and Statistics	<a href="http://www.ibge.gov.br/english">http://www.ibge.gov.br/english</a>
Statistics Canada	<a href="http://www.statcan.gc.ca/start-debut-eng.html">http://www.statcan.gc.ca/start-debut-eng.html</a>
National Bureau of Statistics of China	<a href="http://www.stats.gov.cn/english">http://www.stats.gov.cn/english</a>
Census and Statistics Department (Hong Kong special administrative region)	<a href="http://www.censtatd.gov.hk/home/index.jsp">http://www.censtatd.gov.hk/home/index.jsp</a>
Statistics and Census Service (Macao special administrative region)	<a href="http://www.dsec.gov.mo/default.aspx?lang=en-US">http://www.dsec.gov.mo/default.aspx?lang=en-US</a>
Ministry of Statistics and Programme Implementation (India)	<a href="http://mospi.nic.in/mospi_new/site/home.aspx">http://mospi.nic.in/mospi_new/site/home.aspx</a>
Statistics Indonesia	<a href="http://www.bps.go.id/eng/">http://www.bps.go.id/eng/</a>
Statistics Bureau (Japan)	<a href="http://www.stat.go.jp/english/index.htm">http://www.stat.go.jp/english/index.htm</a>
National Institute of Statistics and Geography (Mexico)	<a href="http://www.inegi.org.mx">http://www.inegi.org.mx</a> (in Spanish)
Federal State Statistics Service (Russia)	<a href="http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/en/main/">http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/en/main/</a>
Ministry of Economy and Planning (Saudi Arabia)	<a href="http://www.mep.gov.sa/themes/GoldenCarpet/index.jsp">http://www.mep.gov.sa/themes/GoldenCarpet/index.jsp</a>
Statistics South Africa	<a href="http://www.statssa.gov.za">http://www.statssa.gov.za</a>
Statistics Korea	<a href="http://kostat.go.kr/portal/english/index.action">http://kostat.go.kr/portal/english/index.action</a>
Turkish Statistical Institute	<a href="http://www.turkstat.gov.tr/Start.do">http://www.turkstat.gov.tr/Start.do</a>
United States Census Bureau	<a href="http://www.census.gov">http://www.census.gov</a>
United States Bureau of Labor Statistics	<a href="http://www.bls.gov">http://www.bls.gov</a>

# Introduction

## Eurostat and the European statistical system

Eurostat is the statistical office of the European Union (EU), situated in Luxembourg. Its task is to provide the EU with statistics at a European level that enable comparisons between countries and regions. Eurostat's mission is 'to be the leading provider of high quality statistics on Europe'. Eurostat aims:

- to provide other [European institutions](#) and the governments of the [EU Member States](#) with the information needed to design, implement, monitor and evaluate Community policies;
- to disseminate statistics to the European public and enterprises and to all economic and social agents involved in decision-making;
- to implement a set of standards, methods and organisational structures which allow comparable, reliable and relevant statistics to be produced throughout the EU, in line with the principles of the European statistics code of practice;
- to improve the functioning of the [European statistical system \(ESS\)](#), to support the EU Member States and to assist in the development of statistical systems at an international level.

Since the creation of a European statistical office in 1952, there has always been a realisation that the planning and implementation of European policies must be based on reliable and comparable statistics. As a result, the ESS was built-up gradually to provide comparable statistics across the EU.

The ESS is a partnership between Eurostat and the national statistical offices and other national authorities responsible in each EU Member State for the development, production and dissemination of European statistics; this partnership includes the member countries of the [European Free Trade Association \(EFTA\)](#). The ESS also coordinates its work with [candidate countries](#) and with other [European Commission](#) services, agencies, the [European Central Bank \(ECB\)](#) and international organisations such as the [United Nations \(UN\)](#), the [International Monetary Fund \(IMF\)](#), the [World Bank](#) and the [Organisation for Economic Co-operation and Development \(OECD\)](#).



Eurostat and its partners in the ESS aim to provide relevant, impartial, reliable and comparable statistical data. Indeed, access to high-quality statistics and Eurostat's obligation for trustworthiness is enshrined in law.

## Cooperation on statistics with international and global organisations

In a globalised world, statistical organisations are working to define and implement common concepts, classifications and methods for making global comparisons of official statistics. European and international standards have been developed through joint work conducted by national statistical systems and international organisations such as the European Commission, the UN, the IMF, the World Bank and the OECD. This work has led to the formation of a global statistical system that uses a common language, international methods and standards to produce comparable data at regional, national and international level.

Examples of the results of this work include:

- classifications — such as the [International standard classification of education](#) for education levels and fields of study and the [International standard industrial classification](#) for the classification of economic activities;
- manuals — for example, the [system of national accounts](#), the [Canberra handbook on household income statistics](#) and the [Frascati manual](#) for research and development statistics.

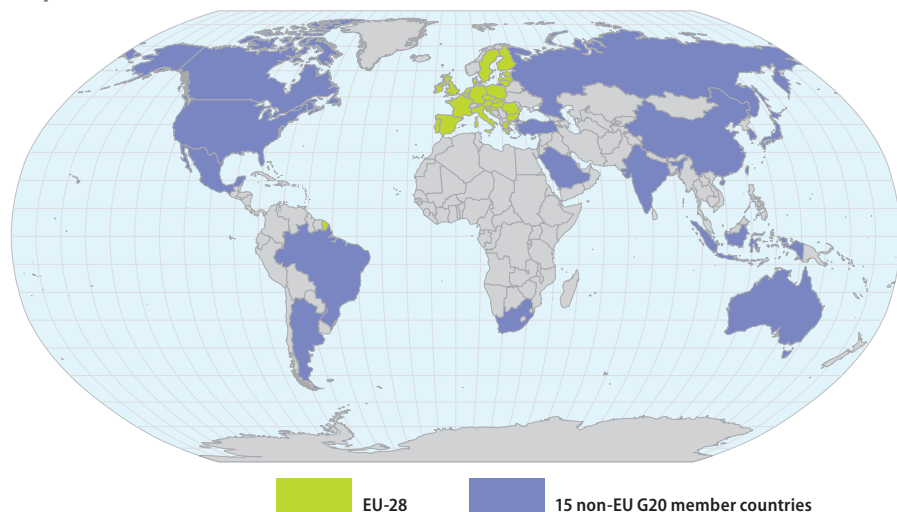
## The Group of Twenty or G20

In September 1999, the finance ministers and central bank governors of the Group of Seven (or G7) countries announced their intention to 'broaden the dialogue on key economic and financial policy issues.' The establishment of the G20 recognised the considerable changes in the international economic landscape, such as the growing importance of emerging economies, or the increasing integration of the global economy and financial markets. In November 2008, during the financial and economic crisis, the leaders of the G20 members convened for the first time in Washington D.C. (the United States). Between November 2008 and February 2014, the G20 held eight Leaders' Summits to seek agreements on global economic matters.

The G20 brings together the world's major advanced and emerging economies, comprising 19 country members and the EU. The country members include four EU Member States (Germany, France, Italy and the United Kingdom) and 15 countries from the rest of the world, namely: Argentina, Australia, Brazil, Canada, China, India, Indonesia, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey and the United States. The EU (coloured green) and the 15 countries from the rest of the world (purple) are shown in Map 1 and are listed in Table 1. The G20 members covered 60.8 % of the world's land area, generated 85.7 % of global [gross domestic product \(GDP\)](#) and were home to 64.5 % of the world's population in 2012.



Map 1: EU-28 and G20 countries



Source: Eurostat

Table 1: Key indicators, 2011 and 2012

	Total area, 2011 (km <sup>2</sup> )	GDP, 2012 (million EUR)	Population, 2012 (million)
<b>EU-28<sup>(1)</sup></b>	4 493 712	12 971 122	505.2
Argentina	2 780 400	370 704	41.1
Australia	7 741 220	1 217 794	22.7
Brazil	8 514 880	1 755 118	198.7
Canada	9 984 670	1 417 199	34.9
China	9 600 001	6 509 525	1 350.7
India	3 287 260	1 460 789	1 236.7
Indonesia	1 904 570	684 215	246.9
Japan	377 955	4 622 667	127.6
Mexico	1 964 380	922 214	120.8
Russia	17 098 240	1 567 869	143.5
Saudi Arabia	2 149 690	553 405	28.3
South Africa	1 219 090	299 039	51.2
South Korea	99 900	878 959	50.0
Turkey	783 562	611 967	75.2
United States	9 831 510	12 643 680	313.9
<b>World</b>	134 611 347	56 576 692	7 046.4

(<sup>1</sup>) Total area includes Croatian data for the land area only.

Source: Eurostat (online data codes: [demo\\_r\\_d3area](#), [nama\\_gdp\\_c](#) and [demo\\_gind](#)), the Food and Agriculture Organisation of the United Nations (FAOSTAT: Resources), the United Nations Statistics Division (National Accounts Main Aggregates Database) and the World Bank (Health Nutrition and Population Statistics)



## Publication structure and coverage

*The EU in the world* provides users of official statistics with a snapshot of the wealth of information that is available on [Eurostat's website](#) and the websites of other international organisations. The publication provides a balanced set of indicators, with a broad cross-section of information; it is composed of an introduction and 13 main chapters.

The publication aims to present information for the **EU-28** (the EU of 28 Member States), occasionally the **euro area** (generally based on 18 members), as well as 15 other major advanced or emerging economies from around the world, in other words, all members of the G20. Note that data are generally presented for the EU-28 aggregate and for the 15 other non-EU G20 countries. In the text, statements such as 'among G20 members' refer (unless otherwise specified) to the EU-28 as a whole and the 15 non-EU G20 countries. In exceptional cases when information for the EU-28 aggregate is not available, then data and comments for the four G20 countries which are also EU Member States — Germany, France, Italy and the United Kingdom — have been included instead.

### CHILDREN AND YOUTHS

In the second half of 2014, Eurostat plans to release a flagship publication on the children and youths in the EU. A selection of indicators related to children and youths can be found in the chapter on population (see Figures 1.1 and 1.5 and Tables 1.2, 1.3 and 1.8 on the population structure, Figure 1.7 on marriage and Table 1.4 and Figure 1.9 on fertility), while this subject matter is also covered in the chapters on living conditions (Figure 2.7 on child poverty), health (Figure 3.2 on infant mortality and Table 3.3 on causes of death), education and training, and the labour market (Figures 5.3 and 5.6 and Tables 5.4 and 5.6).

### Spatial data coverage

The EU-28 and euro area (**EA-18**) aggregates that are provided include information for all of the countries or estimates for missing information; any incomplete totals that are created are systematically footnoted. **Time series** for these geographical aggregates are based on a fixed set of countries for the whole of the time period (unless otherwise indicated) — any time series for the EU-28 refers to a sum or an average for all 28 current Member States regardless of when they joined the EU. In a similar vein, the data for the EA-18 are consistently presented for the 18 current members (euro area membership as of January 2014).





When available, information is also presented for a world total; in the event that data for the world is not available this heading has been excluded from tables and figures.

If data for a [reference period](#) are not available for a particular country, then efforts have been made to fill tables and figures with data for previous reference years (these exceptions are footnoted); generally an effort has been made to take account of at least two older reference periods.

The order of the G20 countries used in this publication follows the alphabetical order of the countries' names in English; in some of the figures the data are ranked according to the values of a particular indicator. The data for China presented in this publication systematically excludes Hong Kong and Macao (unless otherwise stated).

## Data sources

The indicators presented are often compiled according to international — sometimes global — standards, for example, UN standards for national accounts and the IMF's standards for balance of payments statistics. Although most data are based on international concepts and definitions there may be certain discrepancies in the methods used to compile the data.

## EU and euro area data

Almost all of the indicators presented for the EU and the euro area have been drawn from [Eurobase](#), Eurostat's online database. Eurobase is updated regularly, so there may be differences between the data presented in this publication and data that is subsequently downloaded. In exceptional cases some indicators for the EU have been extracted from international sources, for example, when values are expressed in purchasing power parities (based on constant price dollar series).

## G20 countries from the rest of the world

For the 15 G20 countries that are not members of the EU, the data presented in this publication have generally been extracted from a range of international sources listed overleaf. In a few cases the data available from these international sources have been supplemented by data for individual countries from national statistics authorities. For some of the indicators a range of international statistical sources are available, each with their own policies and practices concerning data management (for example, concerning data validation, correction of errors, estimation of missing data and frequency of updating). In general, attempts have been made to use only one source for each indicator in order to provide a comparable analysis between the countries.



The international data sources include:

Organisation	Data source(s)
<b>The United Nations (UN) and its agencies</b>	
The Food and Agriculture Organisation (FAO) of the United Nations	FAOSTAT; FishStatJ
The International Labour Organisation (ILO)	ILOSTAT; Key indicators of the labour market; Social Security Department
The United Nations	Comtrade; Service Trade
The United Nations Conference on Trade and Development (UNCTAD)	UNCTADstat; Maritime transport indicators; Core indicators on ICT use by business
The United Nations Department of Economic and Social Affairs (UN DESA)	Demographic statistics; World fertility data; World marriage data; World Population Prospects; World Urbanisation Prospects
The United Nations Economic Commission for Europe	UNECE Statistical Database
The United Nations Educational, Scientific and Cultural Organization (UNESCO)	UIS: Science & Technology; UIS: Education
The United Nations Environment Programme (UNEP)	Ozone Secretariat; World Conservation Monitoring Centre
The United Nations Framework Convention on Climate Change (UNFCCC)	Main website
The United Nations High Commissioner for Refugees (UNHCR)	UNHCR Statistical Online Population Database
The United Nations Industrial Development Organisation (UNIDO)	Indstat
The United Nations Statistics Division (UNSD)	National Accounts Main Aggregates Database; Economic Statistics Branch; Millennium Development Goals Database; Environment statistics; Waste section; Environmental indicators; Inland water resources; Social indicators; Education, Literacy
The United Nations World Tourism Organisation (UNWTO)	Tourism highlights; World tourism barometer
The World Health Organisation (WHO)	World Health Statistics; Global health observatory; Mortality database
The World Intellectual Property Organisation (WIPO)	Main website
<b>The International Monetary Fund (IMF)</b>	World Economic Outlook; International Financial Statistics
<b>The World Bank</b>	World DataBank; World Development Indicators; Global Development Finance; Poverty and Inequality Database; Health Nutrition and Population Statistics
<b>The Organisation for Economic Co-operation and Development (OECD)</b>	OECD.StatExtracts; Education at a Glance; Environment at a Glance; Health at a Glance; Income Distribution and Poverty; Social Expenditure Database; Environment; Green growth; Key Short-Term Economic Indicators; Main Economic Indicators; Non-medical determinants of health; Social Protection and Well-Being
<b>The International Energy Agency (IEA)</b>	Energy balances; Electricity
<b>The International Telecommunication Union (ITU)</b>	Main website
<b>The International Union of Railways (UIC)</b>	Synopsis 2012

For transport statistics:

- data concerning ports have been extracted from the World port rankings of the American Association of Port Authorities;
- data concerning airports have been compiled from information available from individual airports, regional or national civil aviation authorities.



## Data extraction and processing

The statistical data presented in this publication were mainly extracted during February 2014 and the accompanying text was also drafted in February 2014.

Many of the international sources from which data were extracted present monetary data in national currencies and/or United States dollars (USD), whereas Eurostat data are normally presented in national currencies and/or [euro \(EUR\)](#). Monetary data for the G20 countries from the rest of the world have been converted into euro using current exchange rates. Data that are expressed in USD having been converted from national currencies using [purchasing power parities](#) have been left in dollar based purchasing power standards. Equally, time series for indicators expressed in constant prices have not been converted from the original currency (whether for national currencies or in USD).

Several indicators have been standardised by expressing their values relative to an appropriate measure of the size of a country, for example, in relation to the surface or land area, the total population or the size of the economy (GDP). Whenever possible these size measures have been extracted from the same source as the indicator itself; otherwise data have been extracted from United Nations data sources, namely surface and land area data from the Food and Agriculture Organisation and population data from the Department of Economic and Social Affairs, while GDP data were extracted from the World Bank.

## Data presentation

Many of the data sources contain metadata that provide information on the status of particular values or data series. In order to improve readability, only the most significant information has been included as footnotes under the tables and figures. The following symbols are used, where necessary:

<i>Italic</i>	data value is forecasted, provisional or estimated and is likely to change;
billion	a thousand million;
:	not available, confidential or unreliable value;
–	not applicable.

Where appropriate, breaks in series are indicated in the footnotes provided under each table and figure.



## Access to Eurostat data

The simplest way to access Eurostat's broad range of statistical information is through the Eurostat website (<http://ec.europa.eu/eurostat>). Eurostat provides users with free access to its databases and all of its publications in portable document format (PDF) via the internet. The website is updated daily and gives access to the latest and most comprehensive statistical information available on: the EU and euro area; the EU Member States; the EFTA countries (Iceland, Liechtenstein, Norway and Switzerland); and the candidate countries (Albania, Montenegro, Iceland, the former Yugoslav Republic of Macedonia, Serbia and Turkey).

Furthermore, a number of databases provide statistical information for key indicators related to other non-member countries, notably:

- potential candidate countries — Bosnia and Herzegovina, and Kosovo (under United Nations Security Council Resolution 1244/99);
- the **European neighbourhood policy (ENP)** countries
  - ENP-East — Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine;
  - ENP-South — Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, Syria and Tunisia.

### Eurostat online data code(s) – easy access to the freshest data

Eurostat online data codes, such as **tps00001** and **nama\_gdp\_c** <sup>(1)</sup>, allow users easy access to the most recent data in the Eurobase database on Eurostat's website. In this publication these online data codes are given as part of the source below each table and figure that makes use of Eurobase data. In the PDF version of this publication, the reader is led directly to the freshest data when clicking on the hyper-links for each online data code. Readers can access the freshest data by typing a standardised hyper-link into a web browser, [http://ec.europa.eu/eurostat/product?code=<data\\_code>&mode=view](http://ec.europa.eu/eurostat/product?code=<data_code>&mode=view), where <data\_code> is to be replaced by the online data code in question. Online data codes can also be fed into the 'Search' function on Eurostat's website. The results from such a search present related dataset(s) and possibly publication(s) and metadata. By clicking on these hyper-links users are taken to product page(s) <sup>(2)</sup>, which provide some background information about each dataset/publication or set of metadata.

Note that the data on the Eurostat's website is frequently updated and that the description above presents the situation as of February 2014.

(1) There are two types of online data codes:

- Tables (accessed using the TGM interface) have 8-character codes, which consist of 3 or 5 letters – the first of which is 't' – followed by 5 or 3 digits, e.g. tps00001 and tsdph220.
- Databases (accessed using the Data Explorer interface) have codes that use an underscore '\_' within the syntax of the code, e.g. nama\_gdp\_c and proj\_08c2150p.

(2) The product page can also be accessed by using a hyper-link, for example, [http://ec.europa.eu/eurostat/product?code=<data\\_code>](http://ec.europa.eu/eurostat/product?code=<data_code>), where <data\_code> is to be replaced by the online data code in question.



## Eurostat publications and Statistics Explained

Eurostat produces a variety of publications, which are all available on the Eurostat website in PDF format, free of charge as well as the vast majority being available on Statistics Explained.

**Statistics Explained** is designed to be a user-friendly wiki-based online publishing system where a large amount of Eurostat's information is available. It also contains **online publications** in many statistical domains, both statistical and methodological ones. Examples are the present publication, the **Eurostat Yearbook**, Eurostat's **Regional Yearbook**, **Monitoring sustainable development** and **Quality of life indicators**.

Eurostat's publications are organised in several collections.

- **News releases** provide recent information on the euro-indicators (for example GDP, inflation and unemployment) and other statistical themes (such as agriculture, environment, social topics, regions, research and development).
- **Pocketbooks** are handy, pocket-sized publications aiming to give users a set of basic figures on a specific topic.
- **Statistical books** are larger publications with statistical analysis and data.
- **Manuals and guidelines** are dedicated to publications containing methodologies, guidelines and standards which are actually applied in the European statistical system (ESS).
- **Statistical working papers** are related to on-going statistical methodological developments and applied statistical studies, including significant strategic analyses written by Eurostat staff.
- **Statistics in focus** are relatively short publications presenting summaries of the main results of statistical surveys, studies or analyses. These are available as online publications in **Statistics Explained** and are also downloadable as PDF files.
- **Compact guides** are leaflets offering basic figures and guidance on how to obtain more information from the Eurostat website.

All publications are available in electronic formats free-of-charge from the Eurostat website. Some Eurostat publications, including this publication in English, are also printed; these can be ordered from the website of the EU bookshop (<http://bookshop.europa.eu>). The bookshop is managed by the Publications Office of the European Union (<http://publications.europa.eu>). Most printed publications are also free-of-charge.

While the majority of Eurostat's publications focus on the EU, the EU Member States and their regions, a number of publications focus on the EU's neighbours or countries further afield. Recent examples include:

- **Key figures on the enlargement countries — 2014 edition**
- **Pocketbook on Euro-Mediterranean statistics — 2013 edition**
- **Pocketbook on The European Union and the BRIC countries — 2012 edition**
- **Statistical book on The European Union and the African Union — 2013 edition**
- **Statistical book on The European Union and the Republic of Korea — 2012 edition**



# Population

As a population grows or contracts its structure changes. In many developed economies the population's age structure has become older as post-war baby-boom generations reach retirement age. Furthermore, many countries have experienced a general increase in life expectancy combined with a fall in fertility, in some cases to a level below that necessary to keep the size of the population constant in the absence of migration. If sustained over a lengthy period, these changes can pose considerable challenges associated with an ageing society which impact on a range of policy areas, including labour markets, pensions and the provision of healthcare, housing and social services.

In its 2009 Communication of an EU Strategy for Youth — Investing and Empowering, the European Commission states that 'Youth are a priority of the European Union's social vision' and that 'Young people are not a burdensome responsibility but a critical resource to society which can be mobilised to achieve higher social goals'. This chapter includes a selection of indicators related to children and youths: later in 2014, Eurostat plans to release a flagship publication on children and youths in the EU.

## Main findings

In 2012, the world's population exceeded 7 000 million inhabitants and continued to grow. Although all members of the G20 recorded higher population levels in 2012 than they did more than 50 years before, between 1960 and 2012 the share of the world's population living in G20 members fell from 73.8 % to 64.5 %. Russia recorded the smallest overall population increase (19.7 %) during these 52 years, while the fastest population growth among G20 members was recorded in Saudi Arabia, with a near seven-fold increase.

The most populous countries in the world in 2012 were China and India, together accounting for 36.7 % of the world's population (see Table 1.1) and 56.9 % of the population in the G20 members. The population of the [EU-28](#) in 2012 was 505.2 million inhabitants, 7.3 % of the world's total.

**Table 1.1:** Main indicators for population, 1960 and 2012

	Population (million)		Share in world population (% of total)		Population density (inhabitants per km <sup>2</sup> ) (°)	
	1960	2012	1960	2012	1960	2011
<b>EU-28 (°)</b>	408.4	505.2	13.4	7.3	92.9	116.9
Argentina	20.6	41.1	0.7	0.6	7.5	14.9
Australia	10.3	22.7	0.3	0.3	1.3	2.9
Brazil	72.8	198.7	2.4	2.8	8.6	23.3
Canada	17.9	34.9	0.6	0.5	2.0	3.8
China	667.1	1 350.7	22.0	19.2	71.5	144.1
India	449.6	1 236.7	14.8	17.6	151.2	410.7
Indonesia	88.7	246.9	2.9	3.5	49.0	134.6
Japan	92.5	127.6	3.0	1.8	252.3	350.7
Mexico	38.7	120.8	1.3	1.7	19.9	61.4
Russia	119.9	143.5	3.9	2.0	7.0	8.7
Saudi Arabia	4.1	28.3	0.1	0.4	1.9	12.9
South Africa	17.4	51.2	0.6	0.7	14.3	41.7
South Korea	25.1	50.0	0.8	0.7	254.0	512.7
Turkey	27.6	75.2	0.9	1.1	35.8	96.4
United States	180.7	313.9	5.9	4.5	19.7	34.1
<b>World</b>	3 036.8	7 046.4	100.0	100.0	23.3	53.6

(°) 1960 population: excluding French overseas departments and territories. Annual average.

(°) G20 countries: 1961 data for land area used instead of 1960.

Source: Eurostat (online data codes: [demo\\_gind](#) and [tps00003](#)), the World Bank (Health Nutrition and Population Statistics), the Food and Agriculture Organisation of the United Nations (FAOSTAT: Resources) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2012 revision)

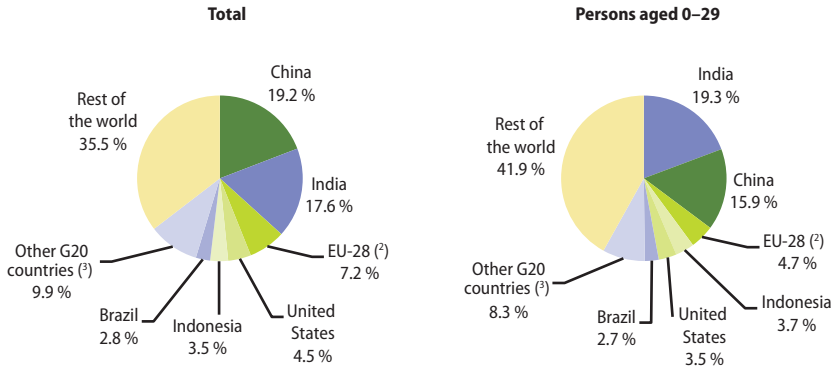
Figure 1.1 contrasts the population shares of the largest G20 members in the world in terms of total population and an analysis focused on children and youths, in other words, persons less than 30 years old. The G20 share of the world population was smaller when restricted to children and youths, 58.1 % compared with 64.5 % for the whole population. As can be seen from Figure 1.1, the EU-28, China and the United States had much smaller shares of the world's population of children and youths, due to the relatively low share of children and youths in their populations (and a relatively high share of older persons); this was also the case for Japan, South Korea, Canada, Russia and Australia as can be seen in Table 1.2. By contrast, children and youths made up a relatively large proportion of the populations of Indonesia, Mexico, Saudi Arabia, India and South Africa.

As well as having the largest populations, Asia had the most **densely populated** G20 members, namely South Korea, India and Japan — each with more than 300 inhabitants per km<sup>2</sup>, followed by China and Indonesia. The EU-28 followed with more than 100 inhabitants per km<sup>2</sup>.



**Figure 1.1: Share of world population, 2012 <sup>(1)</sup>**

(%)

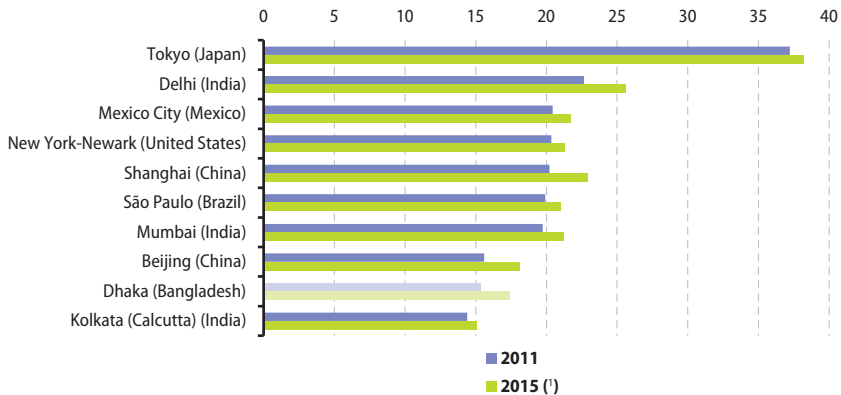
<sup>(1)</sup> Shares do not sum to 100 % due to rounding.<sup>(2)</sup> Provisional.<sup>(3)</sup> Russia, Japan, Mexico, Turkey, South Africa, South Korea, Argentina, Canada, Saudi Arabia and Australia. Data for Russia, South Africa and Australia: provisional.Source: Eurostat (online data code: [demo\\_pjangroup](#)) and the World Bank (Health Nutrition and Population Statistics)**Table 1.2: Population and share of children and youths, 2012**

	Population size (number)		Share of total population (%)						
	Total	Aged 0–29	0–29	0–4	5–9	10–14	15–19	20–24	25–29
<b>EU-28 <sup>(1)</sup></b>	506.3	170.9	33.8	5.3	5.1	5.2	5.5	6.2	6.5
Argentina	41.1	20.0	48.7	8.3	8.0	8.1	8.3	8.2	7.8
Australia	22.7	9.1	40.2	6.6	6.2	6.1	6.6	7.2	7.5
Brazil	198.7	99.8	50.2	7.5	8.3	8.8	8.4	8.4	8.8
Canada	34.9	12.7	36.5	5.6	5.3	5.4	6.2	6.9	7.0
China	1 350.7	579.4	42.9	6.4	5.8	5.7	7.0	9.3	8.6
India	1 236.7	702.0	56.8	9.8	9.8	9.8	9.5	9.2	8.6
Indonesia	246.9	134.1	54.3	9.9	10.0	9.4	8.6	8.1	8.4
Japan	127.6	36.4	28.6	4.2	4.3	4.6	4.7	5.1	5.6
Mexico	120.8	67.0	55.4	9.4	9.7	9.9	9.6	8.8	8.0
Russia	143.5	53.8	37.5	5.8	5.2	4.5	5.3	7.9	8.8
Saudi Arabia	28.3	15.7	55.5	10.6	10.4	8.7	7.7	8.7	9.4
South Africa	51.2	29.9	58.4	10.5	10.0	9.1	9.2	9.9	9.7
South Korea	50.0	18.0	36.0	4.7	4.7	5.9	7.0	6.6	7.1
Turkey	75.2	38.2	51.7	8.6	8.7	8.8	8.6	8.5	8.6
United States	313.9	126.9	40.4	6.5	6.5	6.6	6.9	7.0	6.9
<b>World</b>	7 046.4	3 638.9	51.8	9.3	8.7	8.4	8.4	8.7	8.3

<sup>(1)</sup> Population on 1 January 2012.Source: Eurostat (online data codes: [demo\\_pjangroup](#)) and the World Bank (Health Nutrition and Population Statistics)



**Figure 1.2:** Ten largest urban agglomerations in the world, 2011 and 2015 (million inhabitants)



(') Projection.

Source: the United Nations Department of Economic and Social Affairs (World Urbanisation Prospects: the 2011 Revision)

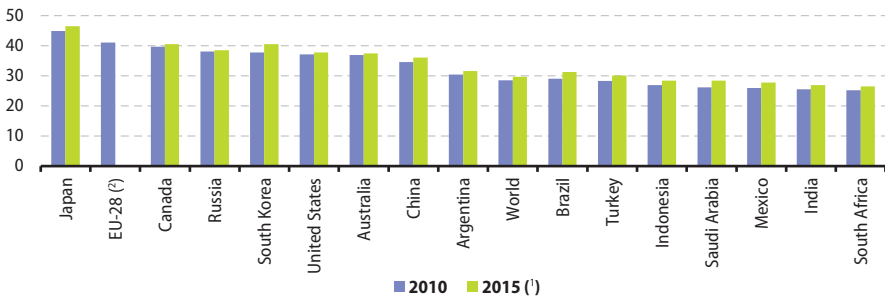
All but one of the 10 largest urban agglomerations in the world in 2011 were in G20 members, with Dhaka (Bangladesh) the only exception — see Figure 1.2. Including Dhaka, 7 of the 10 largest urban agglomerations were in Asia, with Mexico City, New York-Newark (United States) and São Paulo (Brazil) completing the list. Based on United Nations' projections, Shanghai will be the third largest city in the world by 2015, while Mumbai (Bombay) will overtake São Paulo to move into sixth place. Furthermore, by 2015 Karachi in Pakistan will move into the top 10, displacing Kolkata (Calcutta). Worldwide, there were more than 630 urban agglomerations with a population in excess of 750 000 inhabitants in 2011 and together their aggregated population of 1.5 billion people was equivalent to just over one fifth of the world's population; 46 of these agglomerations were in the EU-28.

The median age of the world's population in 2010 was 28.5 years and this is projected by the United Nations to reach 29.6 years by 2015. In China, Australia, the United States, South Korea and Russia the median age was at least five years higher in 2010 than the world average, while in Canada and the EU-28 the median age was more than 10 years higher and in Japan it was more than 15 years above the world average — see Figure 1.3. In all G20 members, the median age is projected to increase between 2010 and 2015, most notably in South Korea, Saudi Arabia and Brazil, where increases in excess of 2 years are expected. More information on the age structures of G20 members is presented in Table 1.2, while some of the factors influencing this structure are presented in the rest of this chapter and Chapter 3, for example, [fertility](#) and [migration](#) and [life expectancy](#).



**Figure 1.3:** Median age of the population, 2010 and 2015

(years)



(†) Projection (medium fertility).

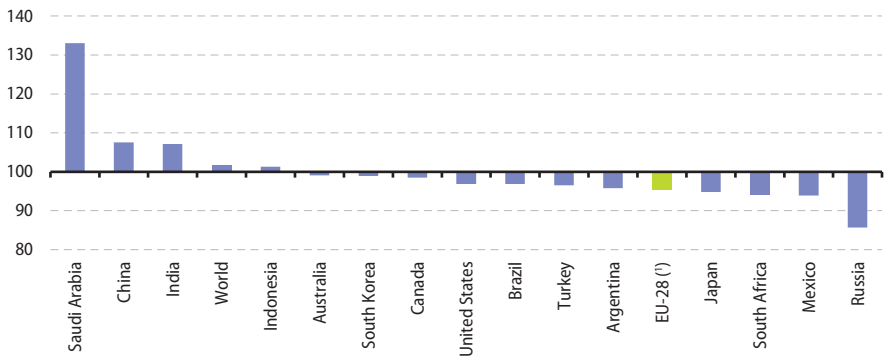
(‡) 2015: not available.

Source: Eurostat (online data code: [demo\\_pjanind](#)) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2012 Revision)

In the majority of G20 members the number of men and women in the population is relatively balanced, although women often account for a slight majority of the population reflecting among other factors women's higher life expectancy. The number of men per 100 women ranged from 85.7 in Russia to 133.0 in Saudi Arabia in 2012. Within this range, there were 101.6 men per 100 women across the whole of the world and 95.3 men per 100 women in the EU-28 (see Figure 1.4). The particularly high ratio of men to women in Saudi Arabia was concentrated in the adult working-age population (aged 15–64 years), with ratios more balanced for persons aged less than 15 or 65 and over; as such, the overall imbalance may reflect, in part, a gender imbalance among [immigrants](#) that have fuelled a rapid increase in population levels during recent decades.

**Figure 1.4:** Ratio of men to women in the population, 2012

(men per 100 women)



(†) Provisional.

Source: Eurostat (online data code: [demo\\_pjangroup](#)) and the World Bank (Health Nutrition and Population Statistics)

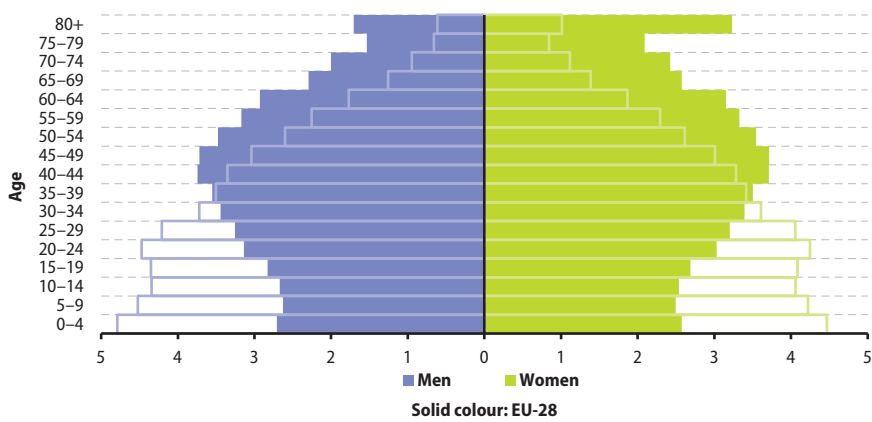


Ageing society represents a major demographic challenge for many economies and may be linked to a range of issues, including, persistently low levels of fertility rates and significant increases in life expectancy during recent decades.

Figure 1.5 shows how different the **age structure** of the EU-28's population is from the average for the whole world. Most notably the largest shares of the world's population are among the youngest age classes, reflecting a population structure that is younger, whereas for the EU-28 the share of the age groups below those aged 40–44 years gets progressively smaller approaching the youngest **cohorts**, reflecting falling fertility rates over several decades and the impact of the baby-boomer cohorts on the population structure (resulting from high fertility rates in several European countries up to the mid-1960s). Another notable difference is the greater gender imbalance within the EU-28 among older age groups than is typical for the world as a whole.

**Figure 1.5:** Age pyramids, 2012

(% of total population)



Source: Eurostat (online data code: [demo\\_pjangroup](#)) and the World Bank (Health Nutrition and Population Statistics)



The young and old [age dependency ratios](#) shown in Table 1.3 summarise the level of support for younger persons (aged less than 15 years) and older persons (aged 65 years and over) provided by the working-age population (those aged 15–64 years). The fall in the [young-age dependency ratio](#) for the EU-28 between 1960 and 2012 more than cancelled out an increase in the [old-age dependency ratio](#). Most of the G20 members displayed a similar pattern, with two exceptions: in Japan the increase in the old-age dependency ratio exceeded the fall in the young-age dependency ratio; in Saudi Arabia both the young and old-age dependency ratios were lower in 2012 than in 1960, reflecting a large increase in the working-age population in this country. The third dependency ratio shown in Table 1.3 is the ratio between children and youths (persons aged less than 30 years) and the working-age population. In 2012, this ratio exceeded 50 % in all G20 members except for Japan and South Korea and exceeded 80 % in Saudi Arabia, Indonesia, Mexico, India and South Africa.

**Table 1.3:** Dependency ratios, 1960 and 2012

(% of the population aged 15–64)

	Old-age dependency ratio (°)		Young-age dependency ratio (°)		Dependency ratio for children and youths (°)	
	1960	2012	1960	2012	1960	2012
<b>EU-28</b>	15.2	26.7	39.6	23.4	73.3	50.8
Argentina	8.8	16.7	48.3	37.7	86.3	75.2
Australia	14.1	20.9	49.3	28.3	82.6	59.9
Brazil	6.2	10.7	80.9	36.1	128.3	73.7
Canada	13.1	21.5	57.6	23.8	93.5	53.0
China	7.0	11.8	70.4	24.5	112.5	58.5
India	5.4	7.9	71.1	45.0	116.5	86.8
Indonesia	6.4	7.8	70.4	44.6	118.4	82.8
Japan	8.9	39.0	47.0	21.0	90.2	45.7
Mexico	6.6	9.7	90.3	44.8	138.7	85.6
Russia	9.6	18.1	48.0	21.6	86.1	52.3
Saudi Arabia	6.8	4.3	81.3	44.0	128.9	82.3
South Africa	7.0	8.4	74.2	45.4	120.0	89.7
South Korea	6.8	16.2	73.9	20.9	121.2	49.4
Turkey	5.8	10.9	78.6	39.0	125.6	77.4
United States	15.2	20.4	51.3	29.4	84.2	60.6
<b>World</b>	8.8	11.9	64.2	40.2	106.0	78.8

(°) Population aged 65 or more as a percentage of the population aged 15–64.

(°) Population aged 0–14 as a percentage of the population aged 15–64.

(°) Population aged 0–29 as a percentage of the population aged 15–64.

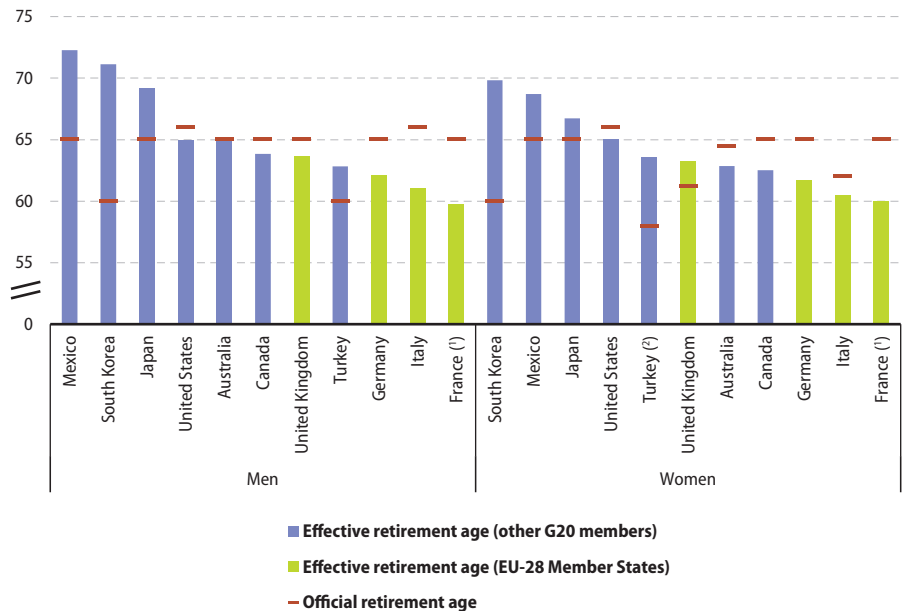
Source: Eurostat (online data code: [demo\\_pjanind](#) and [demo\\_pjangroup](#)) and the World Bank (Health Nutrition and Population Statistics)



One of the many issues related to ageing populations is the expected increase in the burden for pension payments. Many industrialised countries are in the process of progressively increasing their official retirement ages (especially for women). Figure 1.6 compares the effective and official retirement ages for men and women in a number of G20 members in 2012. For men the effective retirement age ranged from 59.7 years in France to 71.1 years in South Korea and 72.3 years in Mexico, while for women the same countries were at each end of the age range, 60.0 years in France to 68.7 years in Mexico and 69.8 years in South Korea. A majority of G20 members reported lower effective than official retirement ages, although there were several exceptions: in South Korea, Japan, Mexico and Turkey the effective retirement age was above the official retirement age for both men and women, while this was also the case in the United Kingdom for women.

**Figure 1.6:** Effective and official retirement ages, 2012

(years)



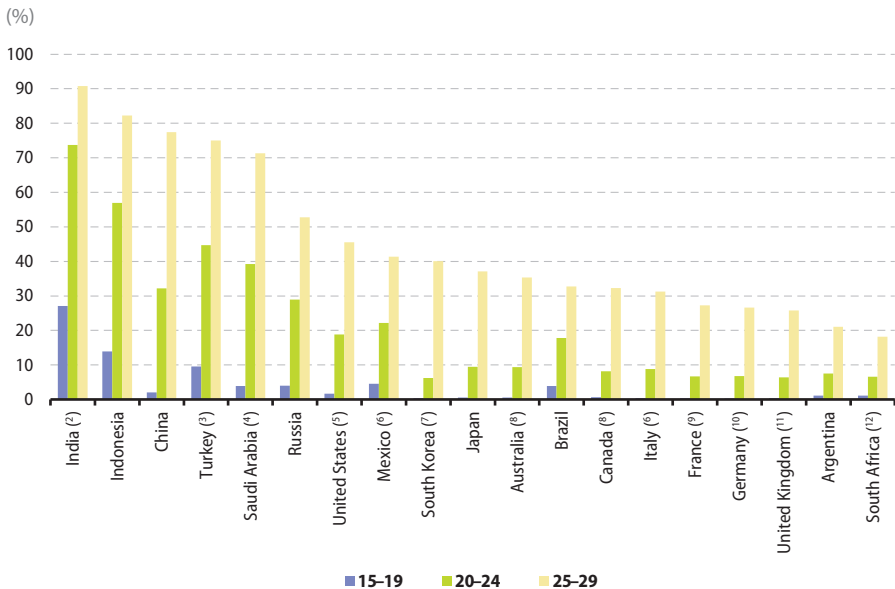
(1) Workers can retire at 60 with 41.5 years of contributions.

(2) Effective retirement age for women: 2008.

Source: OECD (Pensions at a glance)

Indicators for marriage provide information in relation to family formation. Marriage, as recognised by the law of each country, has long been considered as marking the formation of a family unit. While **marriage rates** are generally presented relative to 1 000 members of overall population the analysis by age group for 2010 shown in Figure 1.7 indicates the proportion of women from each age group that are married. Generally less than 5 % of women aged 14–19 in G20 members were married, with Turkey, Indonesia and India exceptions; in all four EU G20 members this proportion was less than 0.5 %. Among women aged 20–24, the share who were married was considerably higher than for 15–19 year old women, ranging from 6.2 % in South Korea to 39.2 % in Saudi Arabia, with the same three countries — Turkey, Indonesia and India — above this range. More than two thirds of women aged 25–29 in Saudi Arabia, Turkey, China, Indonesia and India were married in contrast to less than one third in Brazil, Canada and the four EU G20 members and less than one quarter in Argentina and South Africa.

**Figure 1.7:** Proportion of young women who were married, by age group, 2010 (%)<sup>(1)</sup>



(1) Ranked according to the proportion of women aged 25–29 who were married.

(2) 2005–06.

(3) 2008.

(4) 2007. Nationals only.

(5) 2009.

(6) Estimate.

(7) 2005. Nationals only.

(8) 2006.

(9) 2009. Provisional.

(10) 2007. Estimate.

(11) 2009. England and Wales only.

(12) 2007.

Source: the United Nations Department of Economic and Social Affairs (World marriage data 2012)



Fertility rates in industrialised countries have fallen substantially over several decades. The rates fell between 2001 and 2011 in more than half of the G20 members, most notably in Saudi Arabia, India and Brazil. Only Russia recorded an increase of more than 0.1 births per woman during this period. The average fertility rate in the EU-28 in 2011 was 1.6 births per woman, lower than in all of the other G20 members except Russia, Japan and South Korea.

Table 1.4 presents an analysis of fertility rates for women aged 15–49 in 2010: these rates are expressed in terms of birth per 1 000 women within that age group. In three of the four EU G20 members (France was the exception), fertility rates peaked in the 30–34 age group; this was also the case in Australia, Canada, Japan and South Korea. In France, the peak for the fertility rate was recorded for the age group 25–29; this was also the case in China, Russia, Saudi Arabia, South Africa, Turkey and the United States. In the remaining five G20 members, the highest fertility rates were recorded earlier in women's lives, among those in the age group 20–24. In most G20 members, women having reached the age group 45–49 had relatively low fertility rates, with only Saudi Arabia and China reporting higher fertility rates in this age group than for the age group 15–19.

**Table 1.4:** Fertility rates, by age group, 2010  
(births per 1 000 women)

	Age						
	15–19	20–24	25–29	30–34	35–39	40–44	45–49
Germany	9	38	81	90	47	8	0
France (1)	12	63	138	128	60	12	1
Italy	6	34	75	95	61	14	1
United Kingdom (1)	25	74	108	110	59	12	1
Argentina	68	113	112	101	63	18	1
Australia	15	52	100	123	70	15	1
Brazil (2)	71	100	88	64	35	10	1
Canada (1)	14	51	101	107	51	9	0
China (3)	5	95	101	54	22	10	7
India	37	199	157	66	30	9	4
Indonesia (4)	51	135	134	108	65	19	6
Japan (2)	5	34	85	94	46	8	0
Mexico (2)	87	160	143	99	50	15	2
South Korea	2	17	85	119	35	4	0
Russia (5)	28	87	95	67	30	6	0
Saudi Arabia (7)	7	62	267	125	115	50	28
South Africa (8)	54	119	122	103	68	27	7
Turkey	30	108	120	85	43	10	2
United States (2)	41	103	115	99	47	10	1

(1) 2009.

(2) 2008.

(3) 2007–08.

(4) 2004–07.

(5) Japanese nationals in Japan only.

(6) Excluding infants born alive of less than 28 weeks' gestation, of less than 1 000 grams in weight and 35 centimetres in length, who die within seven days of birth.

(7) 2006–07. Nationals only.

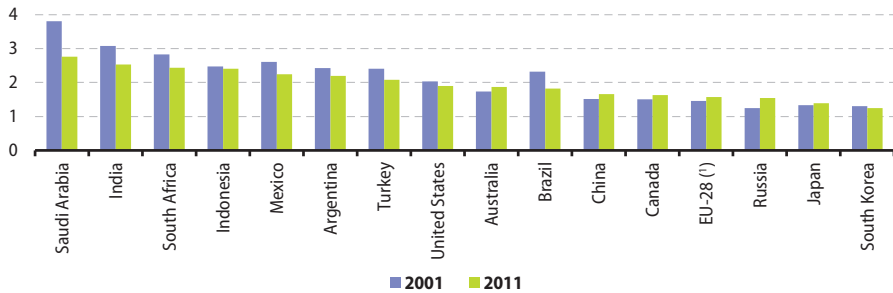
(8) 2006.

Source: the United Nations Department of Economic and Social Affairs (World fertility data 2012)



**Figure 1.8: Fertility rate, 2001 and 2011**

(births per woman)



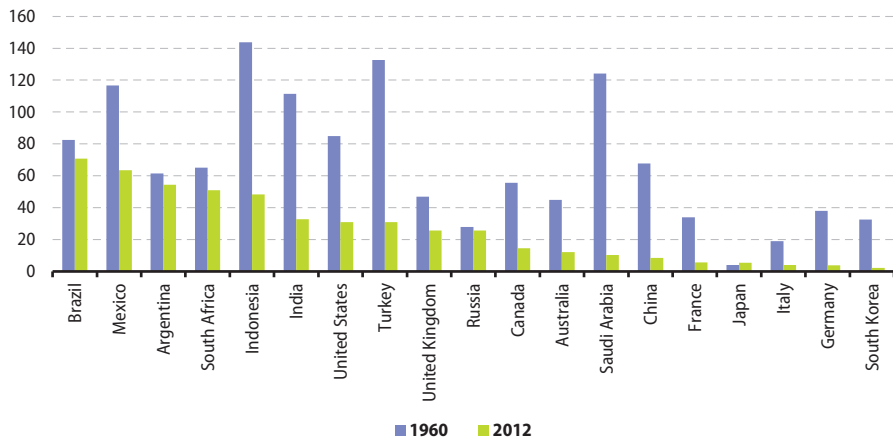
(1) Break in series.

Source: Eurostat (online data codes: [demo\\_gind](#) and [demo\\_fnd](#)) and the World Bank (World Development Indicators)

Figure 1.9 presents data for the same fertility indicator, focusing on the youngest age group, namely those women aged 15–19: the data source is different but provides somewhat fresher data, namely for 2012, which is compared with 1960. The 2012 data shows relatively low fertility rates in this age group for three of the four EU G20 members (the United Kingdom was the exception) as well as Japan and South Korea; the rate for the United Kingdom was closer to that for Russia. All G20 members reported falling fertility rates for this age group between 1960 and 2012, most notably in Saudi Arabia, Indonesia and Turkey.

**Figure 1.9: Adolescent fertility, 1960 and 2012 (1)**

(live births per 1 000 women aged 15–19)



(1) The adolescent fertility rate is defined as the annual number of live births born to women aged 15 to 19 years per 1 000 women in the same age group.

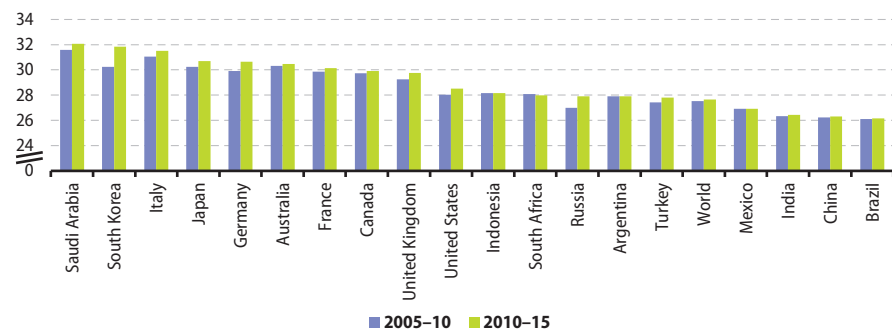
Source: the World Bank (World Development Indicators; from the United Nations Population Division, World Population Prospects)



Falling fertility rates have been accompanied by a postponement of motherhood, which may in part be attributed to increases in the average length of education of women, increased female employment rates, as well as changes in attitudes towards the position of women within society and the roles of men and women within families. Figure 1.10 shows a range in the average age of women at childbearing in the period 2010–15, from 26.2 years in Brazil to 32.1 years in Saudi Arabia. The mean age at childbearing increased in most G20 members between 2005–10 and 2010–15; the exceptions were Argentina, Indonesia and Mexico where it remained stable and South Africa where it fell slightly.

**Figure 1.10:** Mean age at childbearing, 2005–10 and 2010–15 <sup>(1)</sup>

(years)



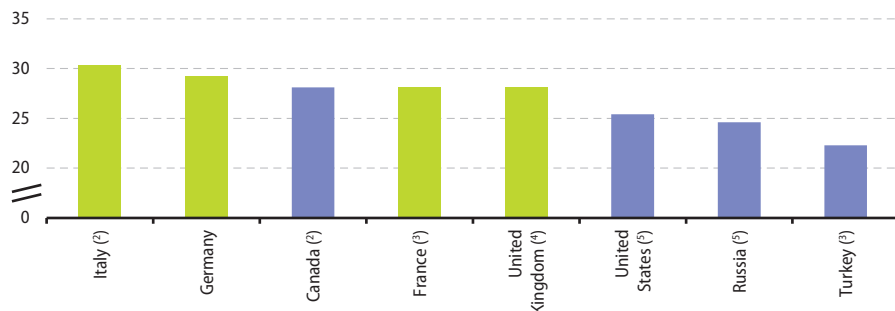
<sup>(1)</sup> Estimates.

Source: the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2012 Revision)

Figure 1.11 focuses on the average age of women at the time of the birth of their first child. Although the years for which data are available are not strictly comparable between Figures 1.10 and 1.11, it can be noted that the average age at the time of the birth of a woman's first child was considerably lower than the overall average age for childbirth in Turkey and to a lesser extent in Russia and the United States, while in the four EU Member States for which data are shown the differences were much smaller.

**Figure 1.11:** Mean age of women at birth of first child, 2012 <sup>(1)</sup>

(years)



<sup>(1)</sup> Estimates. Argentina, Brazil, China and Saudi Arabia: not available. <sup>(2)</sup> 2011. <sup>(3)</sup> 2010. <sup>(4)</sup> England and Wales only. <sup>(5)</sup> 2009.

Source: the United Nations Economic Commission for Europe (UNECE Statistical Database)

There are two distinct components of population change: the **natural change** that results from the difference between the number of **live births** and the number of **deaths**; and the **net effect of migration**, in other words, the balance between people coming into and people leaving a territory. The following tables and figures look at several indicators related to births, deaths and migration and their impact on the overall level of population.

The **crude birth rate** in the EU-28 in 2011 was unchanged when compared with 2001 and remained among the lowest across the G20 members, with only South Korea and Japan recording lower birth rates. Crude birth rates recorded in India and South Africa in 2011 were more than double the average rate for the EU-28.

When the death rate exceeds the birth rate there is **negative natural population change**; this situation was experienced in Russia and Japan in 2011. The reverse situation, **natural population growth** due to a higher birth rate, was observed for all of the remaining G20 members (see Tables 1.5 and 1.6) with the largest differences recorded in Saudi Arabia, Mexico, Indonesia and India. Russia and South Africa recorded the highest **crude death rates**, in the latter case reflecting in part an HIV/AIDS epidemic which has resulted in a high number of deaths among relatively young persons, such that that the difference between crude birth and death rates in South Africa was not large despite the high birth rate.

**Table 1.5:** Birth, fertility and death rates, 2001 and 2011

	Crude birth rate (per 1 000 population)		Fertility rate (births per woman)		Crude death rate (per 1 000 population)	
	2001	2011	2001	2011	2001	2011
EU-28 (¹)	10.4	10.4	1.5	1.6	9.9	9.6
Argentina	18.4	17.1	2.4	2.2	7.8	7.7
Australia	12.7	13.3	1.7	1.9	6.6	6.6
Brazil	20.5	15.3	2.3	1.8	6.4	6.4
Canada	10.6	11.0	1.5	1.6	7.1	7.2
China	13.4	11.9	1.5	1.7	6.4	7.1
India	25.2	21.0	3.1	2.5	8.8	7.9
Indonesia	21.5	19.6	2.5	2.4	6.7	6.3
Japan	9.3	8.3	1.3	1.4	7.7	9.9
Mexico	23.6	19.2	2.6	2.2	4.6	4.5
Russia	9.1	12.6	1.3	1.5	15.6	13.5
Saudi Arabia	26.2	20.3	3.8	2.8	3.9	3.3
South Africa	23.8	21.3	2.8	2.4	12.5	13.5
South Korea	11.6	9.5	1.3	1.2	5.1	5.1
Turkey	21.0	17.4	2.4	2.1	6.3	5.7
United States	14.1	12.7	2.0	1.9	8.5	8.1
<b>World</b>	20.8	20.0	2.6	2.5	8.7	8.4

(¹) Break in series.

Source: Eurostat (online data codes: [demo\\_gind](#) and [demo\\_find](#)) and the World Bank (World Development Indicators)



The combined effect of natural population change and net migration including statistical adjustment (which refers to changes observed in the population figures which cannot be attributed to births, deaths, immigration or emigration) can be seen in the total change in population levels. During the five years between 2005 and 2010 all of the G20 members, except Russia, experienced an increase in their population numbers. Russia's declining population resulted from net inward migration being smaller than the negative natural population change. Argentina, Brazil, China, India, Indonesia, Mexico and Turkey experienced negative net migration that was less than the positive increase from natural population change. The EU-28, Australia, Canada, Saudi Arabia, South Africa and the United States experienced the cumulative effects of positive natural population change and net migration. This situation was broadly similar to that observed 10 years earlier, between 1995 and 2000, with the notable exception of Saudi Arabia which had then experienced relatively strong outward net migration in contrast to the more recent pattern for net inward migration, although in 1995–2000 this was outweighed by higher natural population growth.

**Table 1.6:** Population change, annual averages for July 1995 to June 2000 and July 2005 to June 2010  
(per 1 000 population)

	Total population change		Natural population change		Net migration	
	1995–2000	2005–10	1995–2000	2005–10	1995–2000	2005–10
<b>EU-28<sup>(1)</sup></b>	1.9	3.5	0.4	1.0	1.5	2.5
Argentina	11.5	8.7	11.8	9.8	-0.3	-1.0
Australia	12.2	17.6	6.6	6.9	5.6	10.6
Brazil	15.0	9.5	15.1	10.0	-0.1	-0.5
Canada	9.4	11.3	4.3	3.7	5.1	7.5
China	6.8	6.2	6.9	6.5	-0.1	-0.3
India	17.3	13.5	17.4	14.0	-0.1	-0.5
Indonesia	14.7	13.9	14.9	14.6	-0.2	-0.6
Japan	2.0	0.6	1.9	-0.1	0.0	0.7
Mexico	17.0	12.5	20.7	16.1	-3.7	-3.6
Russia	-2.5	-0.4	-5.6	-3.6	3.1	3.1
Saudi Arabia	16.3	19.8	25.4	18.6	-9.1	1.2
South Africa	15.9	12.9	15.1	7.3	0.7	5.6
South Korea	5.8	6.0	8.1	4.5	-2.3	1.4
Turkey	15.3	12.6	15.8	12.7	-0.5	-0.1
United States	12.0	9.2	5.9	5.8	6.1	3.4
<b>World</b>	13.0	12.0	13.0	12.0	-	-

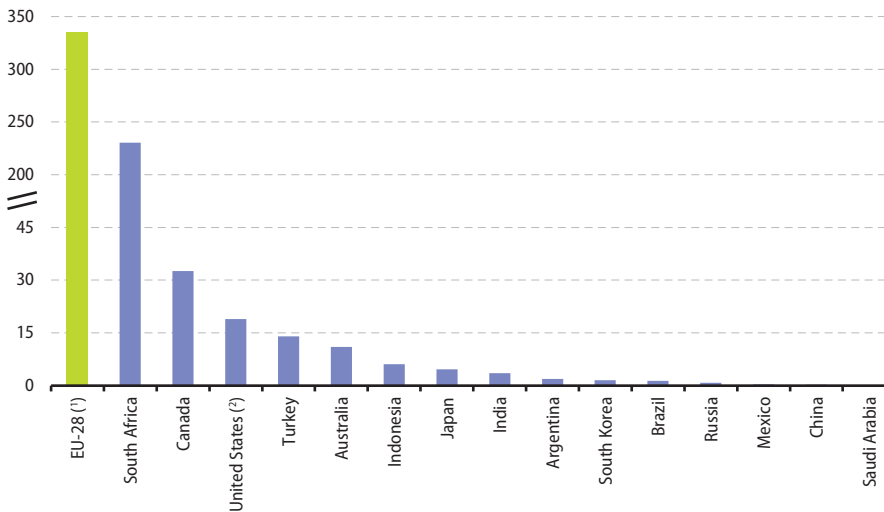
(<sup>1</sup>) Net migration includes statistical adjustment and migrant flows between EU Member States. Annual averages for 1996–2000 and 2006–10. Break in series.

Source: Eurostat (online data code: [demo\\_gind](#)) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2010 Revision)

In 2012, the [United Nations High Commissioner for Refugees](#) reported that there were 928 200 [asylum applicants](#) across the world, of which 335 300 (from non-member countries) were in the EU-28. Among those seeking asylum in the EU-28, a relatively high proportion of applicants were from Afghanistan, Russia, Syria, Pakistan, Serbia, Somalia, Iran, Iraq, Georgia and Kosovo (each accounting for between 28 000 and 10 000 asylum seekers). The highest numbers of asylum applicants into the EU-28 from G20 countries came from Russia (24 290), Turkey (6 210) and China (5 185); note, the latter figure includes applicants from Hong Kong. Figure 1.12 shows that aside from the EU-28, there were relatively high numbers of asylum seekers in 2012 in South Africa (many of whom originated from Zimbabwe, Ethiopia, Nigeria and the Democratic Republic of Congo) and to a lesser extent in Canada; note that the figures for the United States exclude individuals pending a decision on their asylum claim.

**Figure 1.12:** Asylum seekers, 2012

(1 000 applicants)



(1) Asylum-seekers from non-member countries.

(2) Excludes individuals pending a decision on their asylum claim with the Executive Office for Immigration Review.

Source: Eurostat (online data code: [migr\\_asyappctza](#)) and the United Nations High Commissioner for Refugees (UNHCR Statistical Online Population Database)



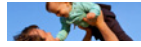
The latest United Nations population projections suggest that the pace at which the world's population is expanding will slow in the coming decades; however, the total number of inhabitants is projected to reach 9 960 million by 2060, representing an overall increase of 41.3 % compared with 2012. This slowdown in population growth will be particularly evident for developed and emerging economies as the number of inhabitants within the G20 — excluding the EU — is projected to increase by 16.0 % between 2012 and 2060 while the EU-27's population is projected (by Eurostat) to increase by 3.3 % over the same period. The population of many developing countries, in particular, those in Africa, is likely to continue growing at a rapid pace. Among the G20 members, the fastest population growth between 2012 and 2060 is projected to be in Australia and Saudi Arabia, while the populations of Russia, Japan, China and South Korea are projected to be smaller by 2060 than they were in 2012. Despite the projection of rapid population growth, Australia is expected to remain the least densely populated G20 member through until 2060 when it will draw level with Canada.

**Table 1.7:** Projections for population and density, 2011 to 2060 (1)

	Total population (millions)				Population density (inhabitants per km <sup>2</sup> )			
	2012	2020	2040	2060	2011	2020	2040	2060
<b>EU-27</b>	500.4	514.4	525.7	516.9	116.9	119.8	122.4	120.4
Argentina	41.1	43.8	49.3	52.0	14.9	15.8	17.7	18.7
Australia	22.7	25.4	31.0	36.1	2.9	3.3	4.0	4.7
Brazil	198.7	211.1	229.4	228.4	23.3	24.8	26.9	26.8
Canada	34.9	37.6	43.0	47.1	3.8	3.8	4.3	4.7
China	1 350.7	1 432.9	1 435.5	1 313.3	144.1	149.3	149.6	136.8
India	1 236.7	1 353.3	1 565.5	1 643.5	410.7	411.7	476.2	500.0
Indonesia	246.9	269.4	311.3	325.6	134.6	141.5	163.5	171.0
Japan	127.6	125.4	114.5	102.5	350.7	331.8	303.1	271.3
Mexico	120.8	132.0	151.8	156.9	61.4	67.4	77.5	80.1
Russia	143.5	140.0	127.0	115.0	8.7	8.2	7.4	6.7
Saudi Arabia	28.3	32.3	38.2	41.3	12.9	15.0	17.8	19.2
South Africa	51.2	55.1	60.9	65.1	41.7	45.2	49.9	53.3
South Korea	50.0	50.8	52.3	49.0	512.7	510.0	525.1	491.9
Turkey	75.2	80.3	91.8	95.3	96.4	102.5	117.1	121.7
United States	313.9	338.0	383.2	417.8	34.1	35.1	39.8	43.4
<b>World</b>	7 046.4	7 716.7	9 038.7	9 957.4	53.6	56.7	66.4	73.1

(1) EU-27 population projections made on the basis of EuroPop2010 convergence scenario. All remaining projections are made on the basis of the UN's medium fertility projection variant.

Source: Eurostat (online data codes: [demo\\_gind](#), [tps00003](#) and [proj\\_10c2150p](#)), the World Bank (Health Nutrition and Population Statistics) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2012 Revision)



Old-age dependency ratios are projected to continue to rise in all G20 members, suggesting that there will be an increasing burden to provide for social expenditure related to population ageing (for example, for pensions, healthcare and institutional care). The EU-27's old-age dependency ratio is projected to nearly double from 26.7 % in 2012 to 52.6 % by 2060, when it is forecast to be 24.2 percentage points above the world average, but considerably lower than in South Korea or Japan. With relatively low fertility rates the young-age dependency ratio is projected to be lower in 2060 than it was in 2010 in several G20 members, dropping by more than 10.0 percentage points in Saudi Arabia, Mexico, India, Indonesia, South Africa, Turkey and Brazil. Projected increases for this ratio are relatively small, reaching 5.9 percentage points in Russia. In the EU-27 the young-age dependency ratio is projected to increase from 23.4 % in 2012 to 25.4 % by 2060, but will remain well below the world average of 33.1 %. A similar situation can be observed for the dependency ratio for children and youths, with rates dropping between 2012 and 2060 by more than 20.0 percentage points in Mexico, Saudi Arabia, India, South Africa, Indonesia, Turkey and Brazil. The largest increase is projected for Japan (up 6.7 percentage points), while the increase projected for the EU-27 is somewhat lower (up 2.2 percentage points), again leaving the rate in the EU-27 in 2060 (53.0 %) below the world average (65.4 %).

**Table 1.8:** Projections for dependency ratios, 2012 to 2060 <sup>(1)</sup>

(% of the population aged 15–64)

	Old-age dependency ratio <sup>(2)</sup>			Young-age dependency ratio <sup>(3)</sup>			Dependency ratio for children and youths <sup>(4)</sup>		
	2012	2040	2060	2012	2040	2060	2012	2040	2060
<b>EU-27</b>	26.7	45.5	52.6	23.4	24.0	25.4	50.7	51.4	53.0
Argentina	16.7	24.5	36.9	37.7	29.7	28.0	75.2	61.0	57.4
Australia	20.9	34.2	39.5	28.3	29.2	29.7	59.9	60.7	60.2
Brazil	10.7	26.7	44.3	36.1	25.2	24.5	73.7	53.2	51.2
Canada	21.5	40.3	44.2	23.8	27.0	28.9	53.0	56.7	58.5
China	11.8	34.8	49.0	24.5	23.0	25.6	58.5	50.4	52.9
India	7.9	14.8	23.6	45.0	31.3	27.5	86.8	64.1	57.1
Indonesia	7.8	19.0	26.9	44.6	30.8	27.3	82.8	62.2	56.5
Japan	39.0	64.7	73.3	21.0	22.9	25.3	45.7	48.4	52.4
Mexico	9.7	24.5	40.1	44.8	28.7	25.4	85.6	59.7	52.9
Russia	18.1	27.8	36.5	21.6	24.2	27.5	52.3	52.7	57.4
Saudi Arabia	4.3	16.7	38.1	44.0	21.0	24.4	82.3	50.6	49.8
South Africa	8.4	12.3	19.8	45.4	34.2	29.6	89.7	70.2	61.7
South Korea	16.2	53.7	73.5	20.9	22.3	24.9	49.4	46.9	51.0
Turkey	10.9	25.2	41.2	39.0	27.4	25.6	77.4	57.1	53.4
United States	20.4	35.0	37.6	29.4	30.4	30.4	60.6	61.5	61.0
<b>World</b>	11.9	21.6	28.3	40.2	34.5	33.1	78.8	68.3	65.4

<sup>(1)</sup> EU-27 projections made on the basis of EuroPop2010 convergence scenario. All remaining projections are made on the basis of the UN's medium fertility projection variant.

<sup>(2)</sup> Population aged 65 or more as a percentage of the population aged 15–64.

<sup>(3)</sup> Population aged 0–14 as a percentage of the population aged 15–64.

<sup>(4)</sup> Population aged 0–29 as a percentage of the population aged 15–64.

Source: Eurostat (online data codes: [demo\\_pjanind](#), [demo\\_pjangroup](#) and [proj\\_10c2150p](#)), the World Bank (Health Nutrition and Population Statistics) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2012 Revision)







## Living conditions

The data on living conditions and social protection shown in this chapter aim to provide a picture of the social situation covering indicators related to income, expenditure, poverty and social protection. The distribution of income is often used to measure inequalities in society. On the one hand, differences in income may provide an incentive to individuals to improve their situation (for example, through looking for a new job or acquiring new skills). On the other, crime, poverty and social exclusion are often linked to income inequalities.

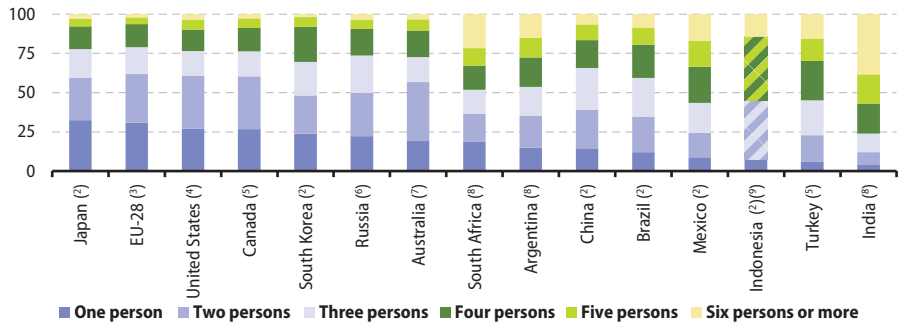
### Main findings

Many statistical analyses of social and living conditions focus on **households**, in other words a person or group of persons living together (but separate from others), regardless of whether they are family members or not. Many factors influence household formation, for example, **marriage, divorce, fertility** and **life expectancy**, as well as geographical mobility, and economic and cultural factors. Figure 2.1 shows that more than half of all households in the **EU-28**, the United States, Canada, Japan and Australia were one and two person households, whereas the majority of households in India, Mexico, Turkey and Indonesia had four or more persons.

Table 2.1 provides an analysis of the distribution of **household consumption expenditure** for various purposes. Factors such as culture, income, weather, household composition, economic structure and degree of urbanisation can all influence expenditure patterns. In most G20 members the highest proportion of expenditure was normally devoted to food and non-alcoholic beverages or housing (including also expenditure for water and fuels). A notable exception to this general pattern was the United States where household expenditure on health had the highest share. The share of expenditure on food and non-alcoholic beverages was particularly low in the United States, as it was to a lesser extent in Canada and Australia.

**Figure 2.1:** Analysis of households by the number of household members, 2012 <sup>(1)</sup>

(% of total)



<sup>(1)</sup> Saudi Arabia: not available. Ranked on one person households. <sup>(2)</sup> 2010. <sup>(3)</sup> Estimates. <sup>(4)</sup> 2009. <sup>(5)</sup> 2006. <sup>(6)</sup> 2002. <sup>(7)</sup> 2011. <sup>(8)</sup> 2001. <sup>(9)</sup> Two persons includes three persons. Four persons includes five persons.

Source: Eurostat (online data code: [ilc\\_lvph03](#)), the United Nations Department of Economic and Social Affairs (Demographic statistics) and national surveys

**Table 2.1:** Analysis of household consumption expenditure, 2011

(% of total household consumption expenditure)

	Food & non-alcoholic beverages	Alcoholic beverages, tobacco	Clothing & footwear	Housing, water, elec., gas & other fuels	Furnishings, household equipment etc.	Health	Transport	Communications	Recreation & culture	Education	Restaurants & hotels	Miscellaneous goods & services
EU-28 <sup>(1)</sup>	13.0	3.6	5.2	24.2	5.6	3.7	13.0	2.6	8.7	1.1	8.5	10.8
Argentina <sup>(2)(3)</sup>	33.4		8.3	10.8	7.2	7.6	15.2		8.2	3.1	:	6.1
Australia	10.2	3.5	3.1	22.9	4.5	5.9	10.7	2.4	10.5	4.3	7.0	15.1
Brazil <sup>(4)(5)</sup>	20.3		5.5	35.9		7.2	19.6	:	2.0	3.0	:	6.4
Canada <sup>(4)</sup>	9.7	3.6	4.4	24.0	6.2	4.8	13.9	2.4	9.8	1.4	6.8	12.8
China <sup>(6)(7)</sup>	36.5		10.5	10.0	6.4	7.0	13.7			12.0		3.9
India <sup>(4)</sup>	31.3	3.0	7.2	13.3	4.0	3.9	15.4	1.7	1.3	1.3	2.2	15.2
Indonesia <sup>(4)</sup>	50.6		3.3	19.9	5.9				20.3			
Japan	13.9	2.7	3.4	25.3	4.1	4.4	11.0	3.0	9.9	2.1	6.4	13.7
Mexico	24.7	2.2	2.4	15.7	5.1	4.2	21.6	4.2	5.0	2.6	4.0	8.3
Russia	30.7	8.3	9.2	10.3	5.0	3.7	12.5	4.7	5.2	1.1	3.4	6.0
Saudi Arabia <sup>(8)</sup>	17.4	0.4	6.7	17.0	7.3	2.1	8.3	6.5	2.9	2.4	4.7	24.5
South Africa <sup>(1)</sup>	26.0		5.1	15.8	6.8	9.5	16.2		3.8	3.0	2.4	11.3
South Korea <sup>(1)</sup>	13.6	2.1	5.2	16.5	3.3	6.6	12.0	4.3	7.8	6.7	8.2	13.8
Turkey <sup>(1)</sup>	26.8		5.0	18.9	7.6	3.1	19.4		3.9	1.3	6.4	7.7
United States	6.7	2.0	3.5	18.7	4.1	20.6	10.3	2.4	9.2	2.4	6.4	13.7

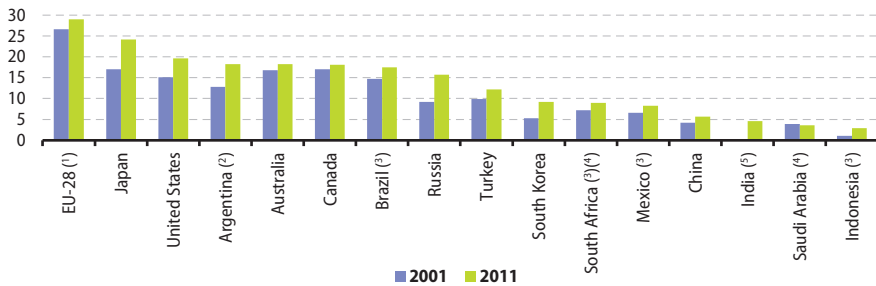
<sup>(1)</sup> 2012.<sup>(2)</sup> 2004/2005.<sup>(3)</sup> Information for which no data is available is distributed among the remaining expenditure items.<sup>(4)</sup> 2010.<sup>(5)</sup> Urban households only.<sup>(6)</sup> 2006.

Source: Eurostat (online data code: [nama\\_co3\\_c](#)), the United Nations Statistics Division (Economic Statistics Branch, National Accounts Official Country Data) and national household surveys

Social protection encompasses all interventions from public or private bodies intended to relieve households and individuals from the burden of a defined set of risks or needs. Figure 2.2 shows the level of **social protection expenditure** in the G20 members relative to **GDP**. The EU-28 recorded the highest expenditure on social protection (using this measure) in 2011, ahead of Japan which was the only other G20 member with a ratio above 20 %. Three G20 members recorded social protection expenditure of 5 % of GDP or lower, namely India (2007 data), Saudi Arabia and Indonesia (2010 data). Apart from Saudi Arabia, all G20 members (see footnotes for exceptions) reported that social protection expenditure relative to GDP increased between 2001 and 2011.

**Figure 2.2:** Public expenditure on social protection, 2001 and 2011

(% of GDP)



(1) 2001: EU-25.

(2) Data for 2008 instead of 2011.

(3) Data for 2010 instead of 2011.

(4) Data for 2002 instead of 2001.

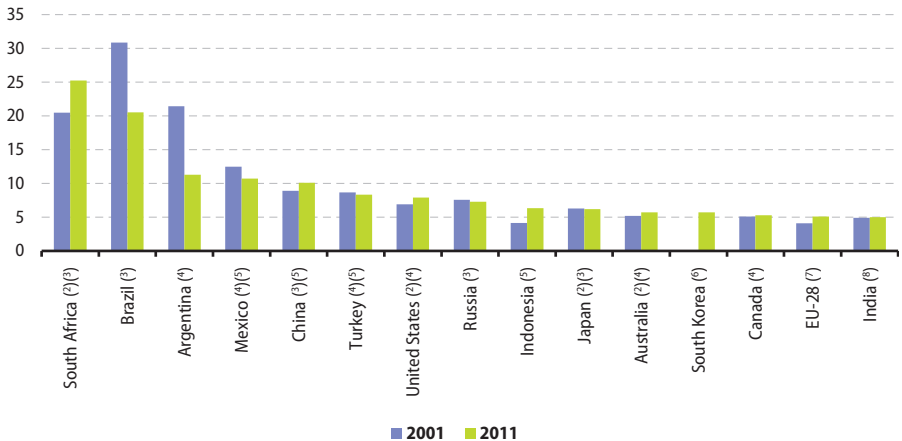
(5) 2001: not available; data for 2007 instead of 2011.

Source: Eurostat (online data code: [spr\\_exp\\_sum](#)), OECD (Social Expenditure Database) and the International Labour Organisation (SecSoc, Social Security Department)

Income generally has a major impact on an individual's living conditions. Figures 2.3 and 2.4 present two commonly used measures for studying income distribution. The income quintile share ratio is calculated as the ratio of the proportion of income received by the 20 % of the population with the highest income (the top quintile) compared with the proportion received by the 20 % of the population with the lowest income. The Gini coefficient measures dispersion on a range from zero for perfect equality to one for maximal inequality and for income gives a summary measure of income dispersion across all income levels, not just the extremes of the highest and lowest incomes. South Africa, Brazil, Argentina and China were among the G20 members with the highest **income inequality** according to both of these measures, whereas the EU-28 was among the members with the lowest income inequality. Between the two years shown in Figure 2.3 (see footnotes for exceptions), the income quintile share ratio fell by more than one third in Brazil and Argentina, while it increased by as much as 52 % in Indonesia. The Gini coefficient also alluded to this relatively large increase in inequality in Indonesia, while this was also the case, to a lesser degree, in South Korea.

**Figure 2.3: Income quintile share ratio, 2001 and 2011 <sup>(1)</sup>**

(ratio)

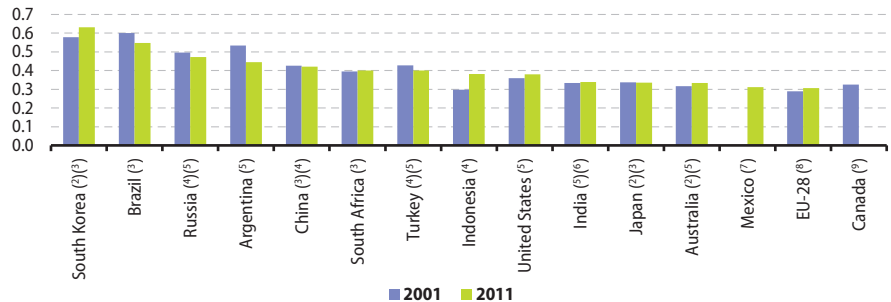


<sup>(1)</sup> The indicator shows the ratio of the proportion of total national income that is earned by the top 20% of income earners compared with the proportion of total national income that is earned by the bottom 20% of income earners; Saudi Arabia: not available. <sup>(2)</sup> Data for 2000 instead of 2001. <sup>(3)</sup> Data for 2009 instead of 2011. <sup>(4)</sup> Data for 2010 instead of 2011. <sup>(5)</sup> Data for 2002 instead of 2001. <sup>(6)</sup> 2001: not available. <sup>(7)</sup> 2001: EU-25. Data for 2012 instead of 2011. Estimates. <sup>(8)</sup> Data for 2005 instead of 2001. Data for 2010 instead of 2011.

Source: Eurostat (online data code: [ilc\\_dii1](#)), the World Bank (Poverty and Inequality Database) and OECD (Income Distribution and Poverty)

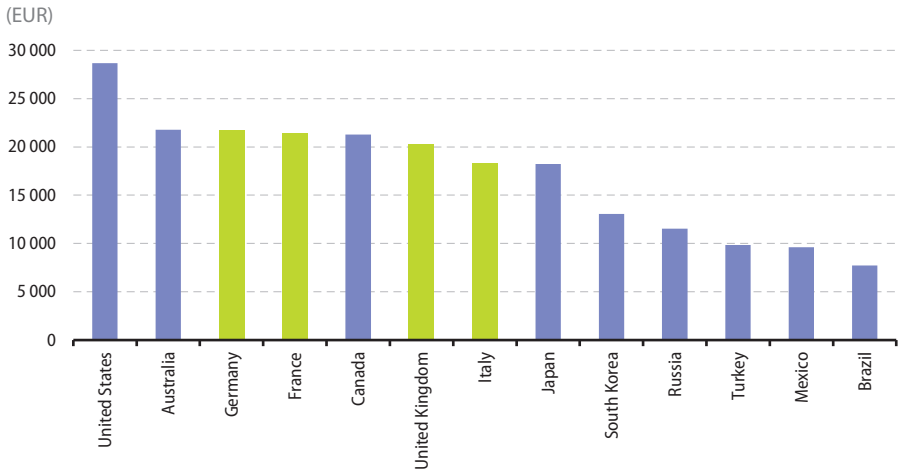
**Figure 2.4: Gini coefficient for income distribution, 2001 and 2011 <sup>(1)</sup>**

(ratio)



<sup>(1)</sup> This indicator measures inequality. A Gini coefficient of zero (perfect equality) would mean that everyone has the same income; a Gini coefficient of one (maximum inequality) would mean that only one person has all the income. Saudi Arabia: not available. <sup>(2)</sup> Data for 2000 instead of 2001. <sup>(3)</sup> Data for 2009 instead of 2011. <sup>(4)</sup> Data for 2002 instead of 2001. <sup>(5)</sup> Data for 2010 instead of 2011. <sup>(6)</sup> Data for 2005 instead of 2001. <sup>(7)</sup> 2001: not available. <sup>(8)</sup> 2001: EU-25. Data for 2012 instead of 2011. Estimates. <sup>(9)</sup> Data for 2000 instead of 2001. 2011: not available.

Source: Eurostat (online data code: [ilc\\_dii2](#)), the World Bank (Poverty and Inequality Database) and OECD (Income Distribution and Poverty)

**Figure 2.5:** Household net adjusted disposable income, 2010 <sup>(1)</sup>

<sup>(1)</sup> Data are adjusted to reflect price differences between countries. Argentina, China, India, Indonesia, Saudi Arabia and South Africa: not available.

Source: OECD (Income distribution database (IDD))

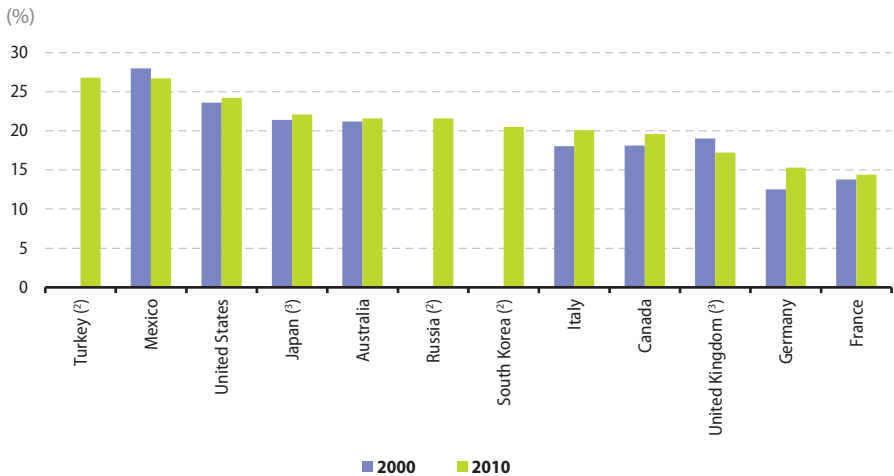
Eurostat has worked for a number of years on a project titled [GDP and beyond](#) which aims to extend the traditional description of economic developments (using indicators such as GDP), complementing any analyses with indicators that monitor social and environmental developments. In a similar vein, the [OECD's Better Life Initiative](#) was launched in 2011 and looks at material living conditions and the quality of life, analysed across 11 dimensions: income and wealth; jobs and earnings; housing; health status; work–life balance; education and skills; social connections; civic engagement and governance; environmental quality; personal security; and subjective well-being.

Figure 2.5 presents information on income levels compiled by the OECD and published in [How's life? 2013: measuring well-being](#). Household net adjusted disposable income reflects a household member's gross income including social transfers in-kind received (such as education and healthcare) minus taxes on income and wealth and social security contributions and depreciation of capital goods. Six of the G20 members had an annual household net adjusted income above EUR 20 000 in 2010.



Figure 2.6 shows the poverty rate, calculated as the proportion of the population with an income (after taxes and transfers) below the poverty threshold, where the threshold is set independently in each country as 60 % of the **median** income level. The four EU members of the G20 shown in the figure rank among the five G20 members (for which data are available) with the lowest poverty rates, joined by Canada. Contrasting Figures 2.5 and 2.6 it can be noted that the United States and Australia were at the top of the ranking by net household adjusted disposable income but also figured in the top half of the ranking in terms of their respective poverty rates. The poverty rate can also be seen as a measure of inequality, and as such the higher rates in the United States and in Australia reflect higher income inequality.

**Figure 2.6:** Poverty rate after taxes and transfers, 2000 and 2010 (%)



(†) This indicator measures the proportion of the population living in poverty after taxes and transfers — as defined by those living below 60 % of the median income level. Argentina, Brazil, China, India, Indonesia, Saudi Arabia and South Africa: not available.

(‡) 2000: not available.

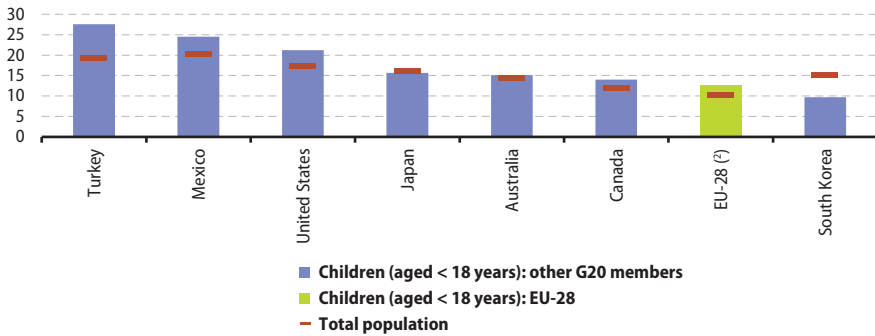
(§) Data for 2009 instead of 2010.

Source: OECD (Income Distribution and Poverty)

Children growing up facing poverty are generally more likely to experience social exclusion and health problems later in life. Figure 2.7 contrasts the poverty rate for children aged less than 18 years with that for the population as a whole: note that the poverty rates here are based on a poverty threshold set in each country at 50 % of the median income. In Japan, and more notably South Korea, poverty rates for children were lower than for the total population. By contrast, child poverty rates were higher in the other G20 members, particularly so in Turkey, Mexico and the United States where more than one fifth of all persons aged less than 18 years faced poverty. In the EU-28 the child poverty rate was 12.6 % in 2011, some 2.3 percentage points higher than the poverty rate for the total population.

**Figure 2.7: Poverty rates for children and the total population, 2009–11<sup>(1)</sup>**

(% of age-specific population)



<sup>(1)</sup> Poverty thresholds are set at 50% of the median income for the entire population. Australia, Brazil, China, India, Indonesia, Russia, Saudi Arabia and South Africa: not available.

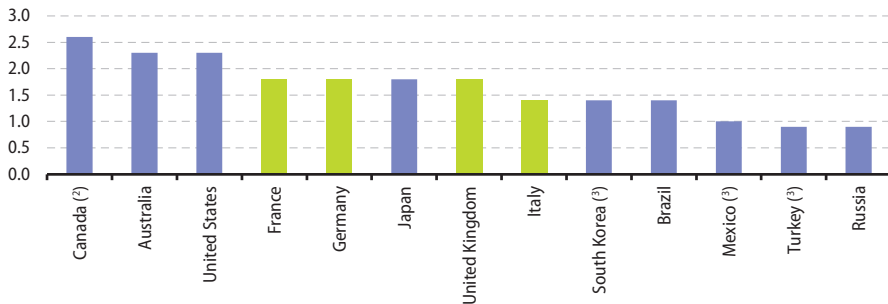
<sup>(2)</sup> 2011.

Source: OECD (Income Distribution Questionnaire)

Overcrowding is an issue related to housing quality: Figure 2.8 shows an indicator compiled by the OECD based on the number of rooms per person in a dwelling. Canada, Australia and the United States had the highest ratio of rooms per person, all over two rooms per person, followed by three of the EU G20 members (Italy was the exception) and Japan with ratios of 1.8. The lowest ratios, where there was an average of one room or less per person, were recorded for Mexico, Turkey and Russia. More information on overcrowding in the EU Member States is available on [Eurobase](#), Eurostat's online database.

**Figure 2.8: Overcrowding — average number of rooms, 2011<sup>(1)</sup>**

(average number of rooms per person per dwelling)



<sup>(1)</sup> Excluding kitchenettes, bathrooms, toilets and garages. Argentina, China, India, Indonesia, Saudi Arabia and South Africa: not available.

<sup>(2)</sup> 2006.

<sup>(3)</sup> 2010.

Source: OECD (Social Protection and Well-being)







Health issues cut across a range of topics — including the provision of healthcare and protection from illness and accidents, such as consumer protection (food safety issues), workplace safety, environmental or social policies. The health statistics presented in this publication address public health issues such as healthcare expenditure, provision and resources as well as the health status of populations and causes of death.

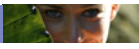
In many developed countries life expectancy at birth has risen rapidly during the last century due to a number of factors, including reductions in infant mortality, rising living standards, improved lifestyles and better education, as well as advances in healthcare and medicine. Life expectancy at birth is one of the most commonly used indicators for analysing mortality. Indicators of health expectancies, such as healthy life years (also called disability-free life expectancy) have been developed to study whether extra years of life gained through increased longevity are spent in good or bad health; these focus on the quality of life spent in a healthy state, rather than total life spans.

## Main findings

Healthcare systems are organised and financed in different ways. Monetary and non-monetary statistics may be used to evaluate how a healthcare system aims to meet basic needs for healthcare, through measuring financial, human and technical resources within the healthcare sector.

Public expenditure on healthcare is often funded through government financing (general taxation) or **social security funds**. Private expenditure on healthcare mainly comes from direct **household** payments (also known as out-of-pocket expenditure) and private health insurance.

The United States had by far the highest expenditure on health relative to **GDP**, 17.9 % in 2011. Seven of the G20 members committed 8 % and 12 % of their GDP to health in 2011: Canada, the EU, Japan, Australia, Brazil, South Africa and Argentina. These were followed by a smaller grouping of South Korea, Turkey, Mexico and Russia (6 % to 7 % of GDP). China spent 5.2 % of its GDP on health with the remaining G20 members spending less than 4 % of GDP; the lowest

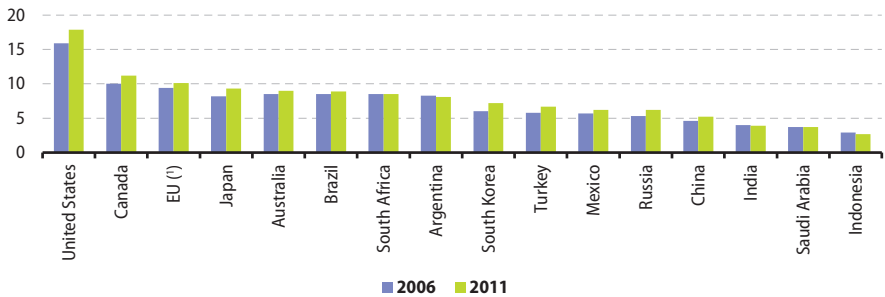


relative expenditure was recorded for Indonesia (2.7 %). Relative to GDP, expenditure on health increased in nearly all G20 members between 2006 and 2011, with the exceptions of Argentina, Indonesia and India (where relative expenditure fell slightly). The largest increase was recorded for the United States, where health expenditure relative to GDP increased by 2 percentage points.

In broad terms, expenditure on health relative to GDP was higher in G20 members with a higher average level of income per capita, although there were a number of exceptions: Brazil and South Africa ranked higher in terms of their expenditure on health than they did in terms of GNI per capita, while Saudi Arabia, and to a lesser extent Russia and Australia, ranked lower.

**Figure 3.1:** Expenditure on health, 2006 and 2011

(% of GDP)

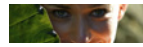


(1) EU-28 excluding Ireland, Greece, Italy, Croatia, Malta and the United Kingdom. Estimate for 2011 including: 2008 data for Bulgaria, Cyprus and Luxembourg; 2009 data for Latvia; 2010 data for the Czech Republic and Denmark.

Source: Eurostat (online data codes: [hlth\\_sha\\_hf](#) and [nama\\_gdp\\_c](#)) and the World Health Organisation (World Health Statistics)

Table 3.1 shows the absolute level of health expenditure per person — note that this is shown at current [exchange rates](#) and so does not reflect differences in price levels of healthcare among the G20 members; the other indicators in this table are non-monetary indicators and are therefore not affected by price level differences. An alternative measure to the relative expenditure on health as a percentage of GDP is provided by a ranking based on the absolute level of expenditure per inhabitant. This shows relatively high levels of expenditure per inhabitant in the United States, Australia, Canada, Japan and the [EU-28](#), whereas Indonesia and India recorded by far the lowest ratios.

The need for [hospital beds](#) may be influenced by the relative importance of inpatient and outpatient care and the use of technical resources. The number of hospital beds per 100 000 inhabitants averaged 538 in the EU-28 in 2010 which was the fourth highest ratio among G20 members behind Japan, South Korea and Russia. The lowest availability of hospital beds relative to the size of the population was in India and Indonesia, both with less than 100 beds per 100 000 inhabitants (see Table 3.1).

**Table 3.1:** Main indicators for health resources, 2010 and 2011

	Expenditure on health, 2011 (EUR per inhabitant) (1)	Number of hospital beds (2)	Number of physicians (3)	Number of nurses and midwives (4)	Number of dentists (5)
<b>EU-28</b>	2 486	538	331	683	64
Argentina	641	450	316	48	92
Australia	4 266	380	385	959	69
Brazil	805	240	176	642	117
Canada	4 044	320	207	1 049	126
China	200	420	146	151	4
India	42	90	65	100	8
Indonesia	68	60	20	138	10
Japan	3 052	1 370	214	414	74
Mexico	445	160	196	398	142
Russia	580	970	431	852	32
Saudi Arabia	544	220	94	210	23
South Africa	495	280	76	:	19
South Korea	1 161	1 030	202	529	50
Turkey	500	250	171	240	29
United States	6 184	300	242	982	163

(1) EU-28: estimate, excluding Ireland, Greece, Italy, Croatia, Malta and the United Kingdom; 2008 data for Bulgaria, Cyprus and Luxembourg; 2009 data for Latvia; 2010 data for the Czech Republic and Denmark.

(2) Australia, Canada, China, Japan, Mexico, Saudi Arabia, South Korea, Turkey and the United States: 2009. Russia: 2006. India and South Africa: 2005.

(3) EU-28: estimate based on data for 2010 other than France (2011), Denmark, Italy, the Netherlands and Sweden (all 2009), Finland (2008) and Slovakia (2007). Indonesia: 2012. South Africa and Turkey: 2011. India, Mexico and the United States: 2009. Brazil, Japan and Saudi Arabia: 2008. Russia: 2006. Argentina: 2004.

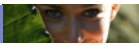
(4) EU-28: estimate based on data for 2010 other than Denmark, Greece, Finland and Sweden (all 2009), the Netherlands (2008), Belgium, the Czech Republic, Ireland, Italy and Cyprus (no data available). Indonesia: 2012. Turkey: 2011. Australia and Canada: 2009. Brazil, India, Saudi Arabia and South Korea: 2008. Japan and Russia: 2006. The United States: 2005. Argentina and Mexico: 2004.

(5) EU-28: estimate based on data for 2010 other than Denmark, the Netherlands, Finland and Sweden (all 2009) and Slovakia (2007). Indonesia: 2012. South Africa and Turkey: 2011. Australia: 2009. Brazil, Canada, India and South Korea: 2008. Saudi Arabia: 2007. Japan and Russia: 2006. China: 2005. Argentina and Mexico: 2004. The United States: 2000.

Source: Eurostat (online data codes: [hlth\\_sha\\_hf](#), [demo\\_gind](#), [hlth\\_rs\\_bds](#), [hlth\\_rs\\_prs](#) and [hlth\\_rs\\_prsns](#)) and the World Health Organisation (World Health Statistics)

One of the key indicators for measuring healthcare personnel is the total number of **physicians**, expressed per 100 000 inhabitants. The variation between the G20 members in the number of physicians was relatively low in comparison with the other personnel indicators in Table 3.1. In 2010, the highest number of physicians relative to the overall population size among the G20 members was recorded in Russia, followed by Australia and the EU-28; the lowest number was recorded in Indonesia. Argentina was the only G20 member to record more physicians than nurses and midwives and had by far the lowest number of nurses and midwives relative to population size.

Among the three indicators concerning healthcare personnel, the number of dentists per 100 000 inhabitants showed the greatest variation (when accounting for their relatively low number) among the G20 members. China, India and Indonesia recorded 10 or fewer dentists per 100 000 inhabitants while in South Africa and Saudi Arabia the ratio was more than twice this level. In the United States, Mexico, Canada and Brazil there were more than 100 dentists per 100 000 inhabitants.



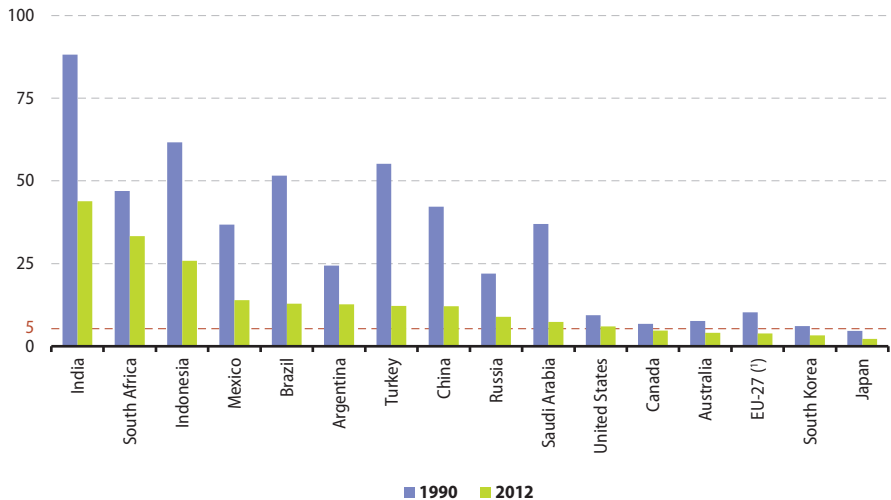
The **infant mortality rate** presents the ratio between the number of deaths of children aged less than one year and the number of **live births** in the same **reference period**; the resulting value is generally expressed per 1 000 live births. This is one of the many indicators monitored by Eurostat under the heading ‘**Investing in children**’: more of these indicators are presented in the chapters on population, living conditions and education. The progress made in medical healthcare services is reflected in the rapid decrease of infant mortality rates, with the world average — according to the United Nations **World Population Prospects** — falling from 135 deaths per 1 000 live births in the period 1950–55 to 42 deaths per 1 000 live births in the period 2005–10.

All of the G20 members recorded a fall in infant mortality rates between 1990 and 2012 as shown in Figure 3.2. The largest overall reductions (in percentage terms) were recorded by Saudi Arabia, Turkey, Brazil and China, while South Africa was the only G20 member where the infant mortality rate did not fall by at least 30 %.

Data for 2012 show that the lowest infant mortality rates among G20 members were recorded in Japan, South Korea, the **EU-27** (2011 data), Australia and Canada, all of these countries averaged under 5 deaths per 1 000 live births. By contrast, infant mortality rates in South Africa, India and Indonesia were more than 10 times as high as in Japan and substantially higher than the rate in Mexico which had the next highest rate.

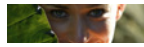
**Figure 3.2:** Infant mortality rate, 1990 and 2012

(infant deaths per 1 000 live births)



(\*) Data for 2011 instead of 2012.

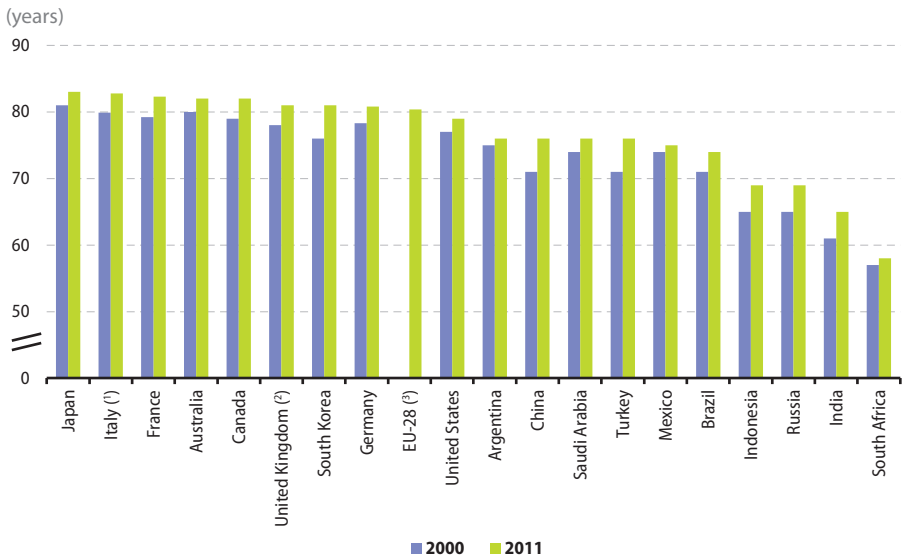
Source: Eurostat (online data code: [demo\\_minfind](#)) and the World Health Organisation (World Health Statistics)



According to the United Nations World Population Prospects, the average **life expectancy** of a newborn baby in the world was 69 years during the period from 2005–10, which was 22 years higher than the corresponding figure for the period from 1950–55. Among the G20 members, the highest life expectancy at birth in 2011 was in Japan (83 years), while in Australia, Canada, South Korea and the EU-28 life expectancy also reached or passed 80 years. In four G20 members, life expectancy at birth remained below 70 years, ranging from 69 years in Indonesia and Russia and 65 years in India, down to 58 years in South Africa. The relatively low life expectancy for South Africa may be largely attributed to the impact of an HIV/AIDS epidemic.

All G20 members recorded an increase in life expectancy at birth between 2000 and 2011. The largest overall increases in life expectancy during this period were in China, South Korea and Turkey (an increase of 5 years), while the smallest increases in life expectancy were in Argentina, Mexico and South Africa (1 year).

**Figure 3.3:** Life expectancy at birth, 2000 and 2011

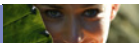


(1) 2011: estimate.

(2) Break in series.

(3) 2000: not available.

Source: Eurostat (online data code: [demo\\_mlexpec](#)) and the World Health Organisation (World Health Statistics)



Statistics on causes of death may be used to evaluate the state of health and healthcare as well as to identify potential areas for preventive and medical-curative measures and research. As most causes of death vary with people's age and sex, the use of **standardised death rates** improves comparability, as death rates can be measured independently of the population structure. Note that the standard reference population that is used in the compilation of Eurostat's standardised death rates was re-computed during the course of 2013; the new European standard population is the unweighted average of the individual populations of EU and EFTA countries for five-year age bands calculated on the basis of 2010 population projections, averaged over the period 2011–30. This process of recalculation may explain the sometimes considerable differences if comparing the data presented here with data that has been previously published.

In most G20 members the two most common causes of death were diseases of the circulatory system and cancer (malignant neoplasms); the order was reversed in Japan, Canada, South Korea and Australia, while in South Africa death rates from diseases of the respiratory system (in particular tuberculosis) were higher than those from cancer. Among the causes of death shown in Table 3.2, death rates from cancer were the most similar among the G20 members, while the greatest variation was recorded in relation to death rates for assault, the latter being particularly high in Brazil.

**Table 3.2:** Selected causes of death – standardised death rates, 2010  
(per 100 000 inhabitants)

	All causes of death	Circulatory system	Malignant neoplasms	Respiratory system	Digestive system	Accidents <sup>(1)</sup>	Self-harm	Assault
<b>EU-28</b>	1 056.3	418.3	270.4	81.2	48.3	32.0	11.8	0.9
Argentina <sup>(2)</sup>	604.5	170.4	125.2	80.9	26.8	14.1	7.5	4.5
Australia <sup>(3)</sup>	370.8	113.1	118.3	27.7	12.6	14.3	7.4	0.7
Brazil <sup>(4)</sup>	629.2	190.7	100.5	62.7	32.3	27.9	4.8	24.1
Canada <sup>(4)</sup>	431.4	125.9	137.3	33.3	16.5	16.2	10.1	1.6
China	:	:	:	:	:	:	:	:
India	:	:	:	:	:	:	:	:
Indonesia	:	:	:	:	:	:	:	:
Japan <sup>(5)</sup>	328.9	85.4	109.6	39.6	13.3	9.1	19.1	0.3
Mexico <sup>(2)</sup>	576.4	140.8	79.3	48.8	56.9	21.7	4.2	12.4
Russia <sup>(5)</sup>	980.0	515.4	140.9	40.1	46.3	53.0	22.8	13.0
Saudi Arabia	:	:	:	:	:	:	:	:
South Africa <sup>(2)</sup>	1 603.0	283.2	109.4	207.6	42.7	17.9	1.0	11.1
South Korea <sup>(6)</sup>	420.7	91.9	115.9	29.5	17.3	17.5	26.3	1.3
Turkey	:	:	:	:	:	:	:	:
United States <sup>(6)</sup>	497.1	149.2	125.5	42.7	19.3	29.2	10.3	6.4

(1) For G20 countries: includes transport accidents, falls, accidental drowning and accidental poisoning.

(2) 2008.

(3) 2006.

(4) 2004.

(5) 2009.

(6) 2007.

Source: Eurostat (online data code: [hlth\\_cd\\_asdr](#)) and the World Health Organisation (Mortality database)

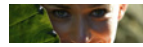


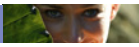
Table 3.3 focuses on causes of death in 2010 for children aged less than five: presented as the distribution of all deaths among children aged less than five (rather than as standardised death rates). As can be seen, the main causes were very different from those commonly found in the population as a whole, with deaths related to congenital anomalies or premature birth the most prevalent. Among the very large range of other causes of child deaths, two specific cases stand out: 13 % of the deaths among children aged less than five years in India were caused by diarrhoeal diseases, while 28 % of deaths among children aged less than five years in South Africa were caused by HIV/AIDS; none of these other causes accounted for a substantial proportion of the overall deaths among children in the EU-28.

**Table 3.3:** Distribution of causes of death for children aged less than five, 2010

(%)

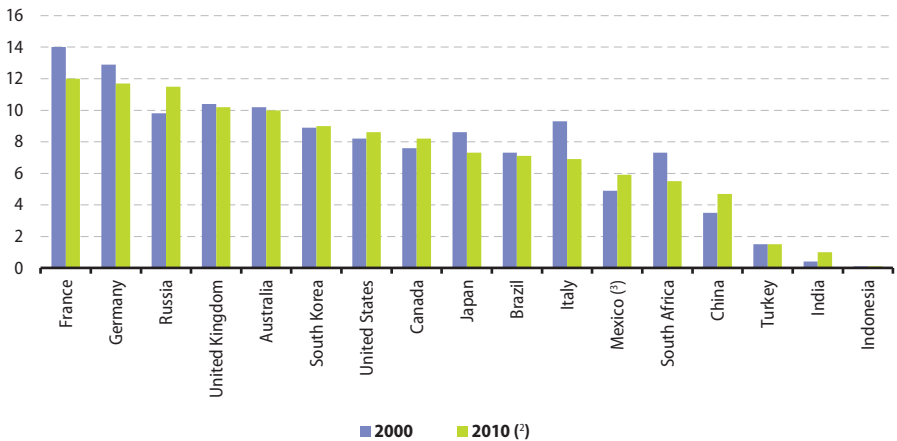
	Congenital anomalies	Prematurity	Acute lower respiratory infections	Birth asphyxia and birth trauma	Injuries	Sepsis and other infectious conditions of the newborn	Other
Germany	31	26	2	6	6	2	26
France	26	12	2	12	7	4	39
Italy	28	23	1	8	4	2	32
United Kingdom	27	35	4	7	4	1	23
Argentina	27	24	10	4	7	5	23
Australia	24	20	3	9	8	1	35
Brazil	19	22	7	11	4	10	26
Canada	23	26	1	11	6	2	31
China	11	15	17	16	10	1	28
India	7	20	24	11	3	8	27
Indonesia	9	25	14	11	6	5	31
Japan	40	8	6	4	10	2	29
Mexico	23	17	12	6	9	6	26
Russia	25	21	8	7	7	4	28
Saudi Arabia	23	30	7	8	13	2	17
South Africa	8	16	11	8	4	3	49
South Korea	19	24	2	6	13	5	30
Turkey	23	24	11	7	4	7	24
United States	22	20	2	3	22	3	26

Source: the World Health Organisation (Global health observatory)



Figures 3.4–3.6 provide information on three non-medical health determinants, namely alcohol consumption, smoking and overweightness/obesity. Russia, Australia and three of the EU's four G20 members (Italy was the exception) recorded the highest annual alcohol consumption among G20 members in 2010, at 10 litres or more of alcohol per person. The lowest average levels of alcohol consumption were recorded for Turkey, India and Indonesia. Between 2000 and 2010, annual alcohol consumption increased by an average of 1 litre or more per person in Mexico, China and Russia, although it should be noted that there is a break in the time series for Mexico. Average annual alcohol consumption fell by 1 litre or more in Germany, Japan, South Africa, France and Italy over the same period.

**Figure 3.4:** Annual alcohol consumption, persons aged 15 and over, 2000 and 2010 <sup>(1)</sup> (litres per person)



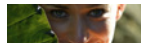
<sup>(1)</sup> Argentina and Saudi Arabia: not available.

<sup>(2)</sup> Germany, India, Indonesia, Italy and South Africa: 2009. Mexico and Russia: 2008. Brazil and China: 2007.

<sup>(3)</sup> Break in series.

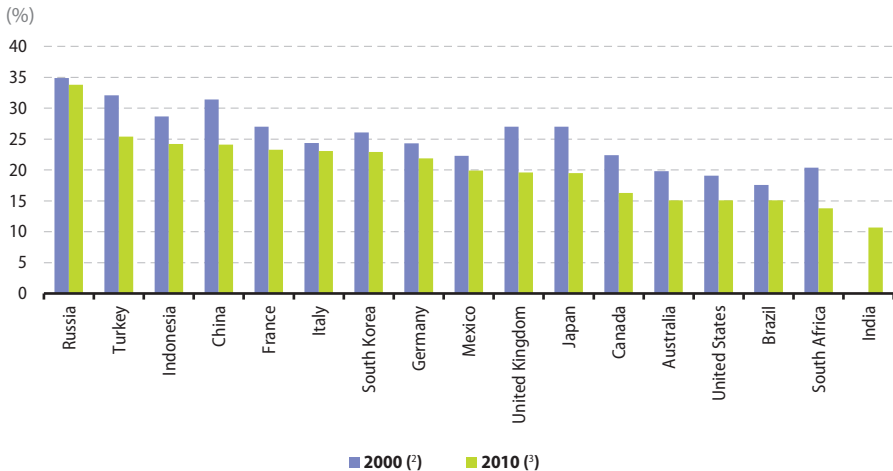
Source: OECD (non-medical determinants of health)





Russia reported by far the highest proportion of daily smokers, just over one third (33.8 %) of the population aged 15 and over. Around one quarter of the population in Turkey, Indonesia and China smoked daily, with the incidence of smoking among the populations of G20 members dropping below 15 % only in South Africa and India. Between 2000 and 2010, the incidence of smoking fell in all G20 members (for which data are available — see Figure 3.5), with the strongest falls in percentage point terms in Japan, South Africa, the United Kingdom, China and Turkey.

**Figure 3.5:** Proportion of the population aged 15 and over who are daily smokers, 2000 and 2010 <sup>(1)</sup>

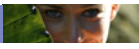


(1) Argentina and Saudi Arabia: not available.

(2) Australia, Canada, South Korea and Indonesia: 2001. China: 2002. Brazil, Germany, South Africa and Turkey: 2003. India: not available.

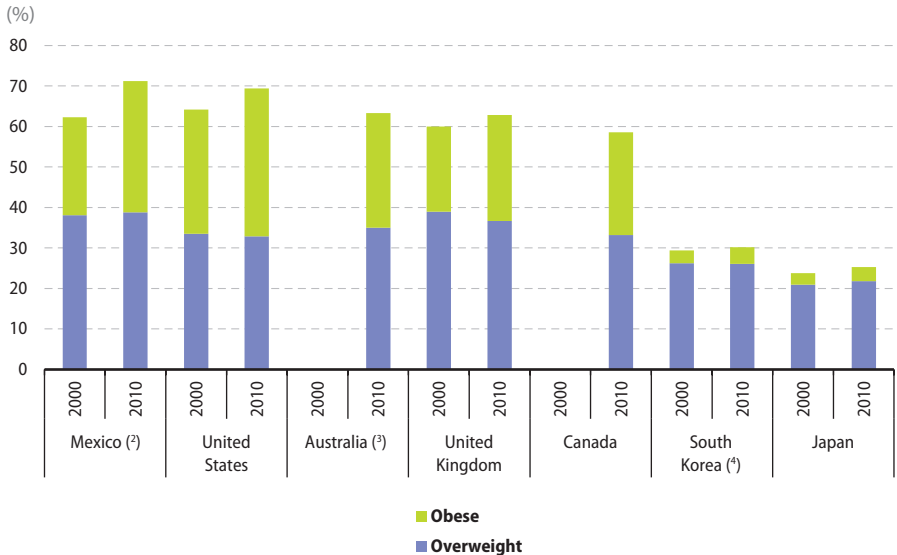
(3) Indonesia: 2007. Germany and Russia: 2009. Mexico: 2012. South Africa: estimate.

Source: OECD (non-medical determinants of health)



The most frequently used measure for assessing overweightness is based on the **body mass index**, which evaluates weight in relation to height. According to the **World Health Organisation**, adults with a body mass index between 25 and 30 are overweight and those with an index over 30 are obese. The data presented in Figure 3.6 are limited to those countries for which measured results are available, rather than self-reported data. Among this relatively small selection of G20 members, the highest proportions of the population that were either obese or overweight were observed for Mexico (71.2 %) and the United States (69.4 %). By far the lowest proportions were observed for South Korea and Japan, both of which recorded very low rates of obesity.

**Figure 3.6:** Proportion of the population aged 15 and over who are obese or overweight, 2000 and 2010 <sup>(1)</sup>



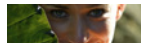
<sup>(1)</sup> Based on measured rather than self-reported data. Germany, France, Italy, Argentina, Brazil, China, India, Indonesia, Russia, Saudi Arabia, South Africa and Turkey: not available.

<sup>(2)</sup> Data for 2012 instead of 2010.

<sup>(3)</sup> Data for 2011 instead of 2010.

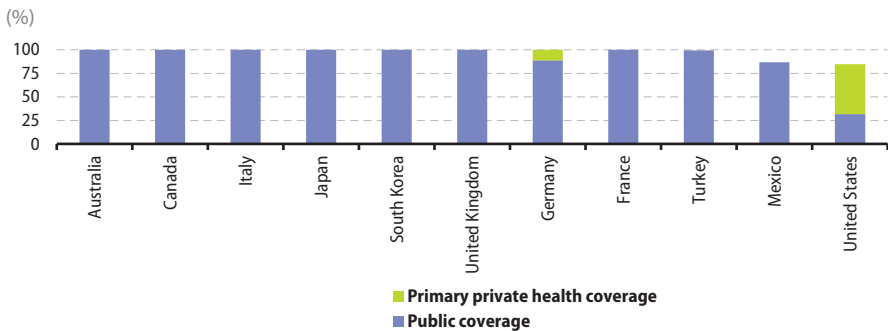
<sup>(4)</sup> Data for 2001 instead of 2000.

Source: OECD (non-medical determinants of health)



Access to healthcare is an aspect of the quality of life, an issue addressed by Eurostat as part of its project titled [GDP and beyond](#) and the [OECD's Better Life Initiative](#). The vast majority of the G20 members shown in Figure 3.7 reported universal health insurance coverage, with only Mexico (86.7 %) and the United States (84.9 %) reporting coverage below 99 %. Mexico and the United States also figured among the G20 members with the highest proportion of final household consumption expenditure allocated to out-of-pocket medical spending, in other words, medical expenditure not covered by health insurance. By contrast, the lowest out-of-pocket expenditures (as a proportion of final household consumption expenditure) were recorded by France, the United Kingdom and Turkey (see Figure 3.8).

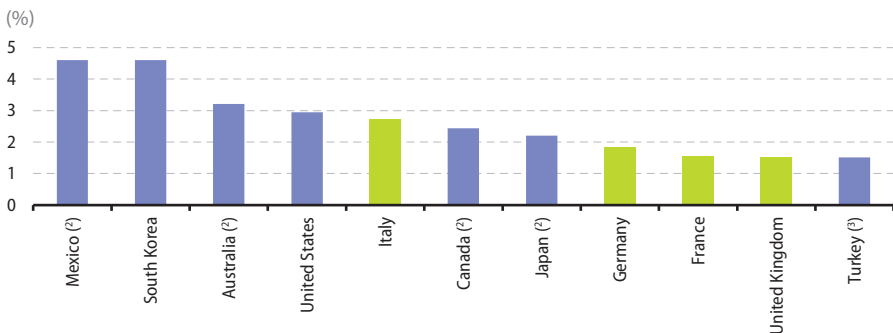
**Figure 3.7:** Proportion of the population covered by health insurance for a core set of services, 2011 <sup>(1)</sup>



<sup>(1)</sup> Argentina, Brazil, China, India, Indonesia, Russia, Saudi Arabia and South Africa: not available.

Source: OECD (Health at a Glance 2013 — OECD indicators)

**Figure 3.8:** Proportion of final household consumption for out-of-pocket medical spending, 2011 <sup>(1)</sup>



<sup>(1)</sup> Argentina, Brazil, China, India, Indonesia, Russia, Saudi Arabia and South Africa: not available. Current health spending excluding long-term health care expenditure.

<sup>(2)</sup> 2010.

<sup>(3)</sup> 2008.

Source: OECD (Health at a Glance 2013 — OECD indicators)



# 4

## Education and training

Education and training help foster economic growth, enhance productivity, contribute to people's personal and social development, and help reduce social inequalities. In this light, education and training has the potential to play a vital role in both an economic and social context. Education statistics cover a range of subjects, including: expenditure, personnel, participation rates and attainment. The standards for international statistics on education are set by three international organisations: the UNESCO Institute for Statistics, the [OECD](#) and Eurostat.

### Main findings

The level of educational enrolment depends on a wide range of factors, such as the age structure of the population, legal requirements concerning the start and end of compulsory education and the availability of educational resources. The earliest starting age for compulsory education among G20 members (excluding the [EU-28](#)) was four years old in Mexico, while the latest was seven years old in Indonesia and South Africa; the range among the EU-28 [Member States](#) was generally from five to seven years old; in Luxembourg and Northern Ireland (United Kingdom) compulsory education starts from age four.

The youngest age for completing compulsory education in G20 members (again excluding the EU-28) was 11 years old in Saudi Arabia, while the oldest was 17 years old in Argentina and the United States; within the EU-28 the range was narrower, from 14 to 18 years old. Combining these two measures, the overall duration of compulsory education among the G20 members ranged from a total of six years in Saudi Arabia to 13 years in Argentina and among the EU-28 Member States from eight years to 13 years.

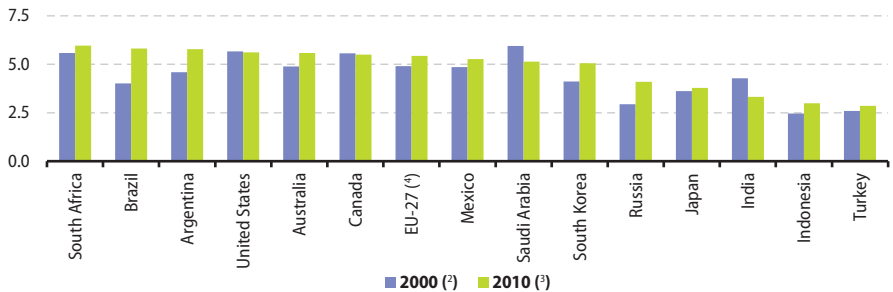
Public expenditure on education includes spending on schools, universities and other public and private institutions involved in delivering educational services or providing financial support to students. The cost of teaching increases significantly as a child moves through the education system, with expenditure per pupil/student considerably higher in universities than in primary schools.



Comparisons between countries relating to levels of public expenditure on education are influenced by differences in price levels and by the number of students. Public educational expenditure relative to GDP was highest in South Africa at 6.0 %, while it was less than 5 % in Russia, Japan, India, Indonesia and Turkey. The EU-27 ranked among a larger group of G20 members where public expenditure on education accounted for 5.0–5.8 % of GDP. Between 2000 and 2010, the share of GDP committed to public expenditure on education increased in nearly all G20 members, the main exceptions being India and Saudi Arabia. The largest increases in public expenditure (relative to GDP) were recorded in Brazil, Argentina and Russia.

**Figure 4.1:** Public expenditure on education, 2000 and 2010 <sup>(1)</sup>

(% of GDP)



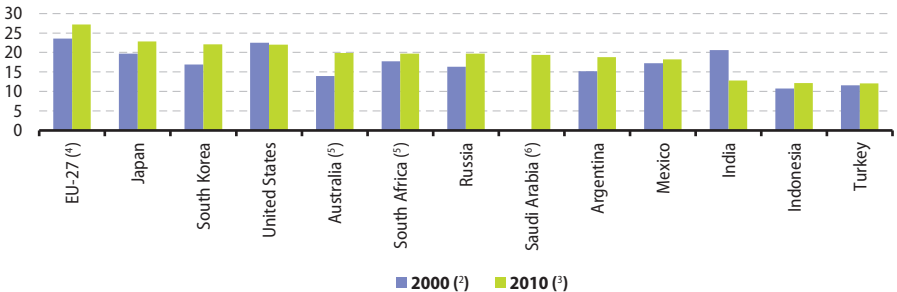
<sup>(1)</sup> China: not available. <sup>(\*)</sup> Indonesia, South Korea and the United States: 2001. <sup>(†)</sup> South Korea: 2009. Russia and Saudi Arabia: 2008. Turkey: 2006. <sup>(\*)</sup> Estimates.

Source: Eurostat (online data code: [educ\\_figdp](#)) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Education)

Comparing the public expenditure in Figure 4.1 with Figure 4.2 it can be seen that the EU-27's public expenditure on education relative to GDP was the highest among the G20 members when the relatively small number of pupils and students within the whole population is taken into account; Japan, South Korea and the United States also recorded relatively high values for this indicator.

**Figure 4.2:** Public expenditure on education per pupil/student, 2000 and 2010 <sup>(1)</sup>

(% of GDP per capita)



<sup>(1)</sup> Brazil, Canada and China: not available. <sup>(†)</sup> Russia: 2003. Indonesia, South Korea and the United States: 2001. <sup>(†)</sup> South Korea: 2009. Saudi Arabia and Russia: 2008. Turkey: 2006. <sup>(\*)</sup> Estimates. <sup>(†)</sup> Secondary education only. <sup>(\*)</sup> 2000: not available.

Source: Eurostat (online data code: [educ\\_fipubin](#)) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Education)



In 2011, there were more than 8.4 million teachers and academic staff in the EU-28's education system, ranging from 1.2 million in **pre-primary education** through 2.1 million in **primary** and 3.7 million in **secondary**, to 1.4 million in **tertiary education** — see Table 4.1. In the EU-28, the United States, Mexico and South Korea more than one tenth of teaching and academic staff were in pre-primary education, a share that fell to 3.2 % in Saudi Arabia. More than one quarter of teaching and academic staff in the United States were in tertiary education, a share that rose close to one third in Japan and South Korea; in the EU-28 this share was 16.8 %.

There were around 87.3 million pupils in the EU-28 in 2011 within pre-primary to upper secondary levels of education, of which 15.4 million (17.7 % of the total) were in pre-primary education, 28.1 million (32.2 %) were in primary education and 43.8 million (50.2 %) were in secondary education. Worldwide, the total enrolment in these education levels was more than 1.4 billion pupils and students, with 170 million (12.0 %) in pre-primary education, 699 million (49.5 %) in primary education and 544 million (38.5 %) in secondary education.

**Table 4.1:** Number of teachers and academic staff, 2011

(1 000)

	Pre-primary	Primary	Lower secondary	Upper secondary	Tertiary
<b>EU-28 (1)</b>	1 162	2 118	1 944	1 798	1 417
Argentina (2)	72	289	153	171	142
Australia	:	:	:	:	:
Brazil	409	:	:	:	357
Canada (3)	29	141	:	147	133
China	1 286	5 939	3 656	2 775	1 607
India (4)	738	3 918	1 887	2 500	539
Indonesia	387	1 923	837	570	239
Japan	110	402	271	347	532
Mexico	185	531	404	266	326
Russia (5)	607	278	:	:	670
Saudi Arabia (6)	20	304	145	119	54
South Africa (7)	:	232	:	:	:
South Korea	72	165	106	133	230
Turkey	48	:	:	223	111
United States	602	1 710	854	817	1 481
<b>World</b>	<b>8 245</b>	<b>28 870</b>	<b>:</b>	<b>:</b>	<b>11 081</b>

(1) Estimate based on the latest available data (generally 2010) for each EU Member State with the exception of: Denmark, 2001 for pre-primary and upper secondary, 2007 for lower secondary and tertiary not available; Estonia, 2004 for tertiary; Ireland, pre-primary not available, 2003 for lower secondary and 2010 for tertiary; Greece, 2007 for all levels; Luxembourg, 2010 for tertiary.

(2) 2008 except 2009 for tertiary.

(3) 2000 except 2010 for upper secondary.

(4) Pre-primary: 2006. Tertiary: 2004.

(5) 2009.

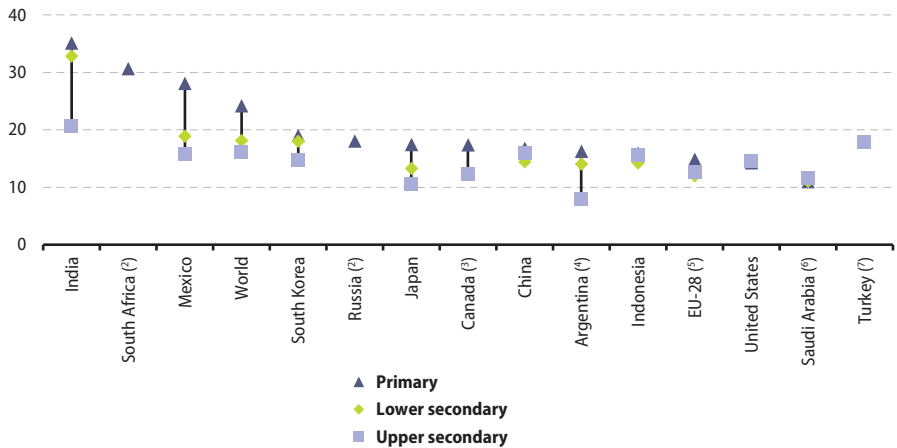
(6) Lower and upper secondary: 2009.

Source: Eurostat (online data code: [educ\\_pers1d](#)) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Education)



Figure 4.3 shows the pupil-teacher ratio for primary and secondary education among the G20 members: these ratios are calculated by dividing the number of **full-time equivalent** pupils and students by the number of full-time equivalent educational personnel. In 2011, the average number of pupils per teacher was generally lowest for upper secondary education and highest for primary education, with the main exceptions recorded for countries where the ratios were very similar across all three levels of education, such as in the United States and Saudi Arabia, and to a lesser extent, Indonesia, China and the EU-28. Overall, Saudi Arabia had the lowest pupil-teacher ratios and India the highest.

**Figure 4.3:** Pupil-teacher ratios, 2011 <sup>(1)</sup>  
(average number of pupils per teacher)



<sup>(1)</sup> Australia and Brazil: not available. Ranked on primary.

<sup>(2)</sup> Primary: 2009, Secondary: not available.

<sup>(3)</sup> Primary: 2000. Lower secondary: not available. Upper secondary: 2010.

<sup>(4)</sup> 2008.

<sup>(5)</sup> Estimates for the purpose of this publication based on information available for the majority of EU Member States.

<sup>(6)</sup> Secondary: 2009.

<sup>(7)</sup> Primary and lower secondary: not available.

Source: Eurostat (online data codes: [educ\\_iste](#) and [educ\\_perstd](#)) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Education)





**Investment** in appropriate educational services can help to reduce the risk of poverty and social exclusion. The EU has set a target of 95 % participation in early childhood education by 2015: this indicator relates to the share of the population aged between four years and the age when compulsory education starts which participates in early education. In 2001, the early childhood education rate in the EU-27 was 86.4 % and this rose to 93.2 % by 2011 (see Table 4.2).

For the remaining G20 members, Table 4.2 shows a similar indicator, namely the gross enrolment rate for pre-primary education, which is the number of pupils enrolled as a percentage of the population in the theoretical age group for pre-primary education: rates in excess of 100 % indicate that children outside of the theoretical age group were also enrolled. Apart from in Australia, the gross enrolment rate for pre-primary education was seen to rise between 2001 and 2011 in all G20 members (for which data are available).

**Table 4.2:** School enrolments, 2001 and 2011

	Gross enrolment rate for pre-primary education (%) (1)		Primary		Lower secondary		Upper secondary	
			(gender ratio: male / female)					
	2001	2011	2001	2011	2001	2011	2001	2011
<b>EU-27 (2)</b>	86.4	93.2	1.06	1.05	1.06	1.07	0.97	1.03
Argentina (3)	60.9	75.1	1.05	1.05	1.04	0.99	0.94	0.83
Australia	102.9	94.9	1.06	1.06	1.05	1.10	1.09	1.13
Brazil	:	:	:	:	:	:	:	:
Canada (3)(4)	63.3	71.3	1.05	1.05	1.06	1.06	1.02	1.08
China	39.4	62.0	1.10	1.16	1.13	1.12	1.16	1.13
India	25.5	58.1	1.28	1.09	1.44	1.12	1.62	1.24
Indonesia	24.8	41.5	1.06	1.02	1.05	1.02	1.06	1.06
Japan	85.5	87.3	1.05	1.05	1.05	1.05	1.03	1.05
Mexico	70.6	99.4	1.05	1.05	0.98	0.95	0.98	0.97
Russia (5)	80.9	89.9	1.06	1.04	1.03	1.03	:	1.15
Saudi Arabia	:	11.4	:	1.03	:	1.15	:	1.18
South Africa (6)	36.6	66.1	1.05	1.05	0.95	1.00	0.89	0.93
South Korea	:	117.7	1.13	1.09	1.10	1.10	1.09	1.14
Turkey	6.7	29.2	1.12	1.05	1.24	1.06	1.67	1.20
United States	62.5	73.3	1.05	1.04	1.06	1.06	1.02	1.03
<b>World</b>	34.8	50.2	1.14	1.10	:	:	:	:

(1) The gross enrolment rate for pre-primary education is the enrolment in this level of education, regardless of age, as a percentage of the population in the official age group for this level of education. Rates can exceed 100 %.

(2) Participation in early childhood education rate instead of the gross enrolment rate for pre-primary education.

(3) Data for 2010 instead of 2011.

(4) Data for 2000 instead of 2001.

(5) Data for 2009 instead of 2011.

Source: Eurostat (online data codes: [tps00179](#) and [educ\\_enr11t](#)) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Education)

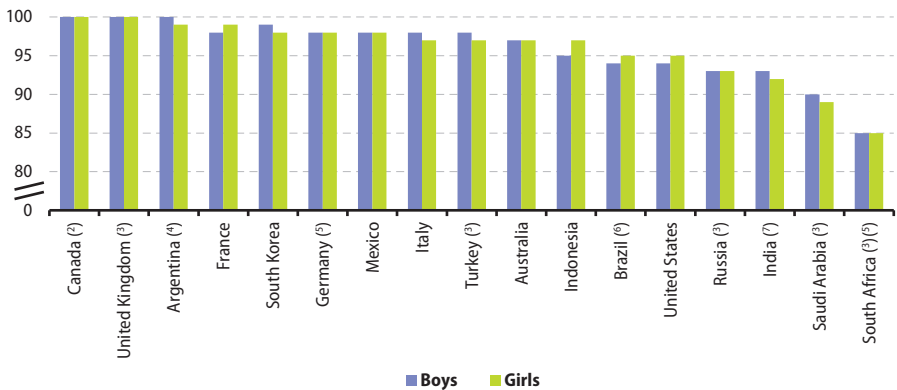


Moving on from pre-primary education, enrolment in primary education was universal in Canada and the United Kingdom for both boys and girls, with rates of 98 % or higher also recorded for Argentina, France, South Korea, Germany and Mexico — see Figure 4.4. Among the G20 members (China and Japan not available) the primary education enrolment rate for girls fell just below 90 % in Saudi Arabia, while in South Africa the rate was 85 % for both boys and girls. Enrolment rates for boys and girls were very similar in all G20 members, with Indonesia the only country where the gender difference reached 2 percentage points (with a higher proportion of girls attending primary school).

Despite the relatively similar enrolment rates, there were more boys than girls in primary education in all G20 members. The imbalance in primary education enrolment narrowed between 2001 and 2011, with China the only G20 member reporting a notable increase. Within lower and upper secondary education, boys also outnumbered girls in most G20 members, with a few exceptions such as in Mexico and Argentina. A small majority of G20 members reported an increasing gender imbalance within their secondary education systems between 2001 and 2011, regardless of whether it was in favour of girls (as was the case in Argentina and Mexico) or in favour of boys (as was the case in several other G20 members). India reported a particularly large narrowing of the gender imbalance in schools between 2001 and 2011 in all three stages of education shown in Table 4.2, as did Turkey, particularly in upper secondary education.

**Figure 4.4:** Primary education net enrolment ratio, 2010 <sup>(1)</sup>

(% of total population of primary school age)



<sup>(1)</sup> Ranked on the average for boys and girls. The primary-level net enrolment ratio (NER) is the number of boys and girls of primary-school age that are enrolled in primary education, expressed as a percentage of the total population in that age group. China and Japan: not available.

<sup>(2)</sup> 1999.

<sup>(3)</sup> 2009.

<sup>(4)</sup> 2003.

<sup>(5)</sup> Estimates.

<sup>(6)</sup> 2005.

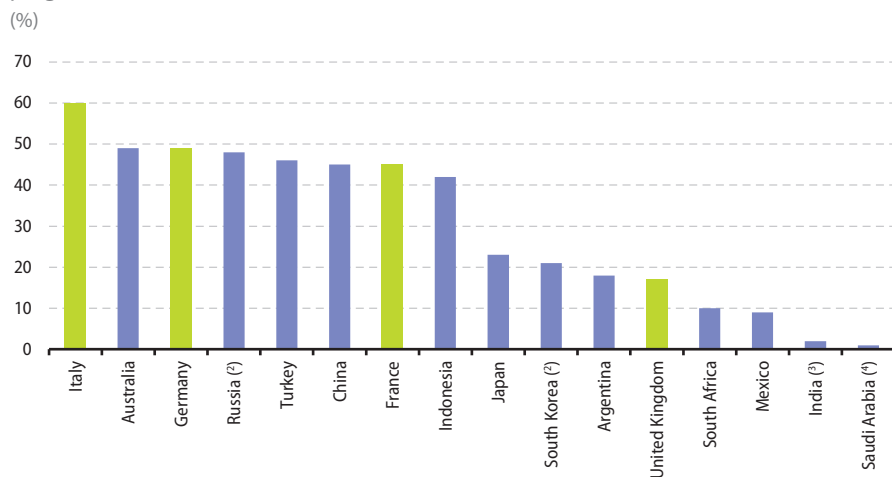
<sup>(7)</sup> 2008.

Source: the United Nations Statistics Division (Social Indicators, Education, Literacy)



Among upper secondary students, the extent of vocational studies varied widely among G20 members, as can be seen from Figure 4.5. At most one tenth of students in upper secondary education in 2011 were enrolled in vocational courses in South Africa, Mexico, India (2008 data) and Saudi Arabia (2008 data), while this proportion was close to 50 % in Russia (2009 data), Germany and Australia and reached 60 % in Italy.

**Figure 4.5:** Percentage of students in upper secondary education enrolled in vocational programmes, 2011 <sup>(1)</sup>



<sup>(1)</sup> Brazil, Canada and the United States: not available.

<sup>(2)</sup> Data for 2009 instead of 2011.

<sup>(3)</sup> Data for 2008 instead of 2011.

<sup>(4)</sup> Data for 2008 instead of 2011. Estimate.

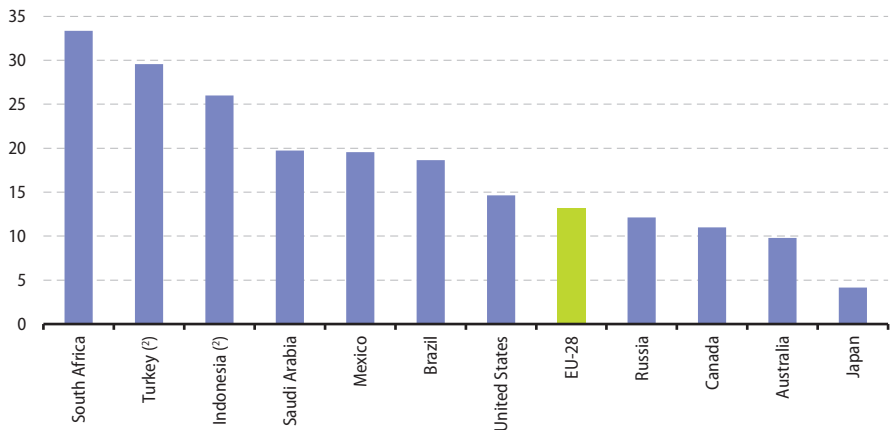
Source: the United Nations Educational, Scientific and Cultural Organisation (UIS: Education)



Traditional analyses of the labour market focus on employment and unemployment, but for younger people many are still in education. Labour market policies for young people often focus on those who are not in employment, education or training, abbreviated as NEETs. Factors that affect the proportion of young people not in employment, education or training include the length of compulsory schooling, types of available educational programmes, access to tertiary education, as well as labour market factors related to unemployment and economic inactivity (being neither employed nor unemployed). Figure 4.6 indicates the proportion of 15–24 years olds that were not enrolled in education (school or formal training) nor employed in 2012, which ranged among the G20 members from 10 % or less in Australia and Japan, through 13 % for the EU-28 to more than 25 % in Indonesia (2010 data), Turkey (2010 data) and South Africa.

A related indicator is the rate of early leavers from education and training which shows the percentage of the population aged 18–24 having attained at most lower secondary education and not being involved in further education or training: in the EU-28 a total of 12.7 % of this age group were classified as early leavers in 2012, of whom most (7.4 %) were not employed. These indicators for early leavers from education and training and for young people not in employment, education or training form part of a range of indicators that Eurostat publishes on [youth statistics](#).

**Figure 4.6:** Proportion of 15–24 year-olds not in employment, education or training, 2012 (%)



(†) Argentina, China, India and South Korea: not available.

(‡) 2010.

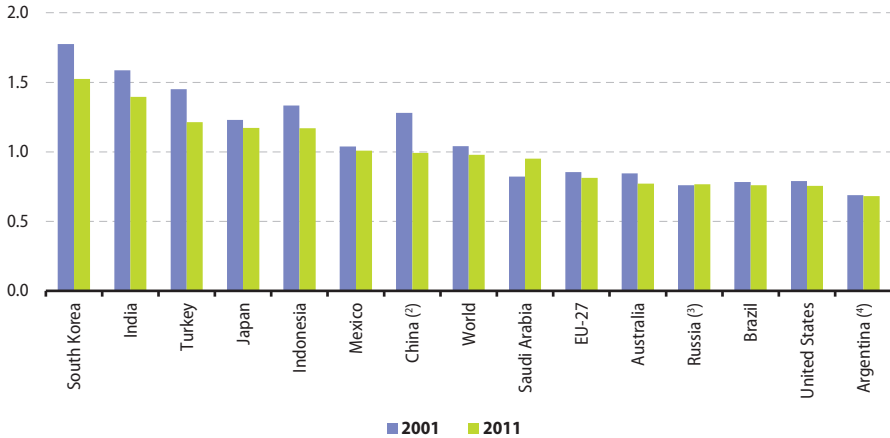
Source: Eurostat (online data code: [yth\\_empl\\_150](#)) and the International Labour Organisation (ILOSTAT)



Tertiary education is generally provided by universities and other higher education institutions. In 2011, there were 20 million tertiary education students in the EU-28; worldwide, tertiary education enrolment was 183 million.

Figure 4.7 provides an analysis of tertiary students by sex which can be compared with the similar analysis for enrolments in primary and secondary education presented in Table 4.2. Between 2001 and 2011 the gender ratio in tertiary education fell in most of the G20 members for which data are available, with the exceptions of Saudi Arabia and Russia (2003–09) where there were increases that represented a move towards parity: in the case of Russia this change was very slight, whereas for Saudi Arabia it was more substantial. For China, South Korea, Turkey, India, Indonesia, Japan and Mexico the fall in the gender ratio also represented a move towards parity, in other words the ratio moved downwards towards 1, although in the case of China it moved past an equal balance, such that there was a slight imbalance in favour of women. In the remaining G20 members, namely Australia, the EU-27, the United States, Brazil and Argentina, the fall in the gender ratio reinforced the position of more female than male students. In the EU-27 this ratio fell from 0.85 male students for each female student in 2001 to 0.81 by 2011.

**Figure 4.7:** Gender balance of enrolment in tertiary education, 2001 and 2011 <sup>(1)</sup>  
(gender ratio: male / female)



<sup>(1)</sup> Canada and South Africa: not available.

<sup>(2)</sup> Data for 2003 instead of 2001.

<sup>(3)</sup> Data for 2009 instead of 2011. Data for 2003 instead of 2001.

<sup>(4)</sup> Data for 2010 instead of 2011.

Source: Eurostat (online data code: [educ\\_enr11t1](#)) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Education)



## Labour market

Labour market statistics measure the involvement of individuals, households and businesses in the labour market, where the former generally offer their labour in return for remuneration, while the latter offer employment. Market outcomes — for example, employment, unemployment, wage levels and labour costs — of these relationships affect not only the economy, but directly the lives of practically every person.

The economically active population, also known as the labour force, is made up of employed persons and the unemployed. Employed persons include employees as well as employers, the self-employed and family workers (persons who help another member of the family to run a farm, shop or other form of business). Members of the population who are neither employed nor unemployed are considered to be economically inactive. Persons in employment are those who did any work for pay or profit or were not working but had a job from which they were temporarily absent. The amount of time spent working is not a criterion and so full-time and part-time workers are included as well as persons on temporary contracts (contracts of limited duration).

### Main findings

The **labour force** in the **EU-28** in 2012 was composed of around 243 million persons aged 15–64 of whom 217 million were in employment. The activity rate is the share of economically **active persons** in the total population and in 2012 this ratio stood at 71.7 % for the EU-28. The **employment rate** is calculated as the share of employed persons in the total population of working-age and was 64.1 % in 2012 in the EU-28 — see Table 5.1.

Particular care should be taken when comparing labour market data between different countries, given there are often differences in the age criteria used to calculate activity and employment rates. Furthermore, care should be taken if the most recent data are not for the same year, as is the case in most of the analyses presented in this chapter. The global financial and economic crisis impacted strongly on labour markets and this can be seen clearly in



employment and unemployment indicators. For example, the employment rate for the EU-28 peaked at 65.7 % in 2008, dropped to 64.5 % in 2009 and further still to 64.0 % in 2010, before recovering slightly to reach 64.1 % in 2011 and 2012.

Among the G20 members, the activity rate among persons aged 15 or more was just below 50 % in Turkey. At the other end of the scale, the Russian rate of 68.7 % was the second highest, below the 71.7 % activity rate recorded for the EU-28.

The activity rate of men was higher than the corresponding rate for women in all G20 members, in other words, a greater proportion of the male population was active in the labour force than the proportion of the female population. Only in Canada was the difference between male and female activity rates less than 10 percentage points. The gender difference was over 30 percentage points in Indonesia and Mexico, reached 41 percentage points in Turkey and peaked at 57 percentage points in Saudi Arabia.

The high gender difference in Indonesia was, in part, due to a particularly high activity rate for men (84.4 %). Mexico, the EU-28 and Saudi Arabia had the next highest male activity rates, all between 75 % and 80 %. Most of the other G20 members recorded male activity rates between 70 % and 75 %, with Argentina's male activity rate of 65.6 % and South Africa's rate of 61.7 % below this range.

By contrast, the high gender differences in Saudi Arabia and Turkey reflected exceptionally low female activity rates in these countries, 20.3 % in Saudi Arabia and 29.0 % in Turkey. For the remaining G20 members, female activity rates ranged from 42.7 % in Argentina to 58.8 % in Australia, with Canada (62.2 %), Russia (63.3 %) and the EU-28 (65.5 %) above this range.

**Table 5.1:** Activity and employment rates, persons aged 15 and over, 2012

(%)

	Activity rate			Employment rate		
	Total	Male	Female	Total	Male	Female
EU-28 (1)	71.7	77.9	65.5	64.1	69.6	58.5
Argentina (2)	53.7	65.6	42.7	49.8	61.8	38.6
Australia	65.2	71.8	58.8	61.8	68.1	55.7
Brazil (2)	59.9	70.5	50.1	56.2	67.2	45.9
Canada	66.7	71.3	62.2	61.8	65.8	57.9
China (3)	59.7	:	:	68.7	:	:
India	:	:	:	:	:	:
Indonesia (4)	67.9	84.4	51.4	62.9	78.6	47.2
Japan	59.1	70.8	48.2	56.5	67.5	46.2
Mexico	60.9	79.2	44.4	57.9	75.4	42.2
Russia (5)	68.7	74.7	63.3	64.9	70.4	60.1
Saudi Arabia	54.1	77.6	20.3	51.1	75.5	16.0
South Africa (1)	54.8	61.7	48.3	41.0	47.5	34.9
South Korea	61.3	73.3	49.9	59.4	70.8	48.4
Turkey	49.4	70.3	29.0	45.4	65.0	26.3
United States (6)	63.7	70.2	57.7	58.6	64.4	53.1

(1) Persons aged 15–64. (2) Persons aged 10 and over. (3) Persons aged 16 and over. Activity rate: 2008. (4) Employment rate: 2010. (5) Persons aged 15–72. (6) Persons aged 16 and over.

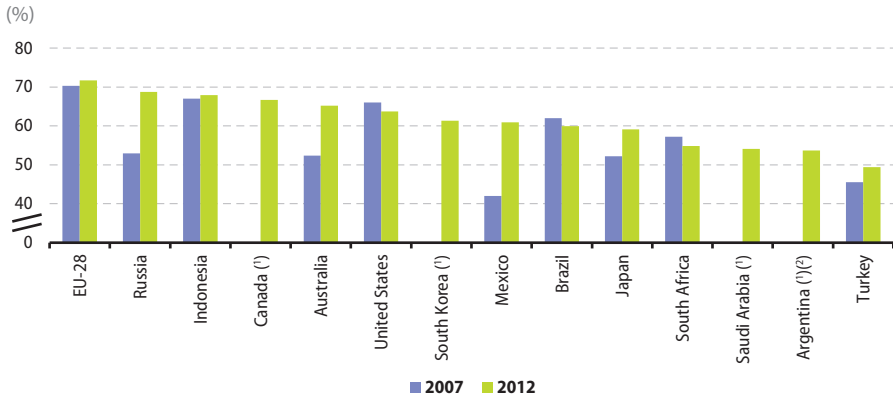
Source: Eurostat (online data codes: [lfsi\\_act\\_a](#) and [lfsi\\_emp\\_a](#)) and the International Labour Organisation (ILOSTAT)





The relative position of G20 members in terms of their employment rates was similar to that for activity rates: note that the different reference years for China resulted in a higher employment rate than activity rate. The largest disparity was recorded in South Africa, where the employment rate was just 41.0 %, some 13.8 percentage points below the activity rate; this was the lowest employment rate among the G20 members. South Korea, Japan, Mexico and Saudi Arabia recorded employment rates that were particularly close to their activity rates, indicating relatively low unemployment.

**Figure 5.1:** Activity rate, 2007 and 2012

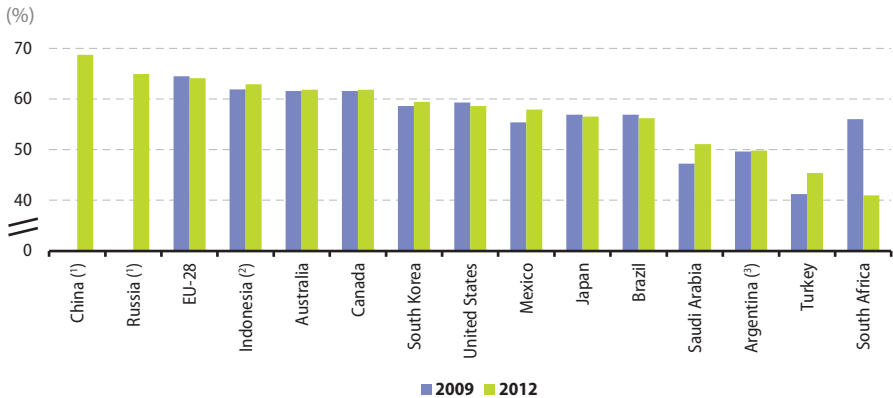


(1) 2007: not available.

(2) Urban areas only.

Source: Eurostat (online data code: [lfsi\\_emp\\_a](#)) and the International Labour Organisation (ILOSTAT)

**Figure 5.2:** Employment rate, 2009 and 2012



(1) 2009: not available.

(2) Data for 2010 instead of 2012.

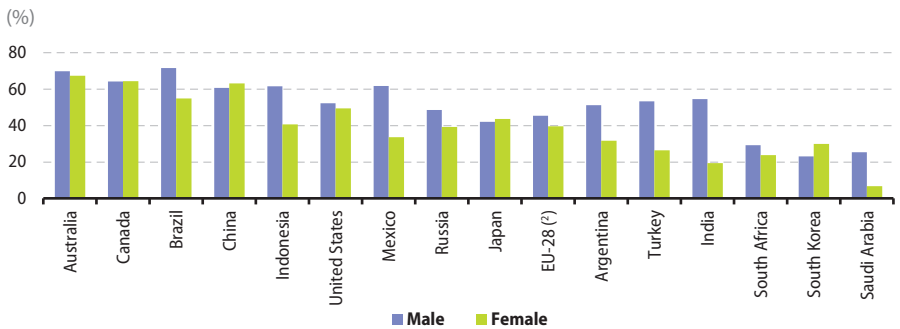
(3) Break in series. Urban areas only.

Source: Eurostat (online data code: [lfsi\\_emp\\_a](#)) and the International Labour Organisation (ILOSTAT)



Figure 5.3 focuses on a particular part of the working-age population, namely persons aged 15–24. Although this age group is considered to be part of the working-age population, many young people are not part of the labour force because they are involved in other activities, notably **secondary** or **tertiary** education or compulsory military or social service. In comparison with the activity rates presented in Table 5.1, gender differences in activity rates were lower for the younger population than for the whole population in each of the G20 members (for which data are available). In fact, for South Korea, China, Japan and Canada the female activity rate among young persons was higher than the male activity rate in 2010. The gender difference in the activity rate for younger persons was over 20 percentage points in India, Mexico, Turkey and Indonesia and between 10 and 20 percentage points in Argentina, Saudi Arabia and Brazil, while in the EU-28 there was a difference of 5.9 percentage points (2012 data).

**Figure 5.3:** Youth activity rate, persons aged 15–24, 2010 <sup>(1)</sup>

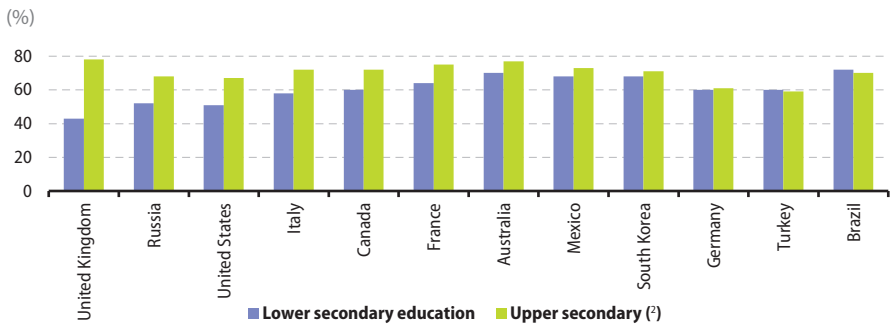


<sup>(1)</sup> Ranked on the youth activity rate for men and women combined.

<sup>(2)</sup> 2012.

Source: Eurostat (online data code: [lfsi\\_act\\_a](#)) and the International Labour Organisation (Key indicators of the labour market)

**Figure 5.4:** Employment rate of persons aged 25–64: comparison by education level, 2011 <sup>(1)</sup>



<sup>(1)</sup> Ranked on the percentage point difference between the rates for lower and upper secondary education. Argentina, China, India, Indonesia, Japan, Saudi Arabia and South Africa: not available.

<sup>(2)</sup> ISCED 3A.

Source: OECD (Education at a Glance, 2013)

Employment rates for the remainder of the working-age population, namely persons aged 25–64 years, are analysed in Figure 5.4. This compares the employment rates for two sub-groups of persons in this age range, namely those with at most a lower secondary education and those with at most an upper secondary (ISCED level 3A) education. Among the 12 G20 members in the figure, nearly all recorded a lower employment rate for the sub-group of persons with at most a lower secondary level of education, the exceptions being in Turkey and Brazil where the rates for the two sub-groups were close. In the remaining nine members, employment rates for persons with at most lower secondary education were lower, the difference exceeding 10 percentage points in France, Canada, Italy, the United States, Russia and the United Kingdom.

Among the 217 million persons aged 15–74 in employment in the EU-28 in 2012, around five in every six (83.4 %) were wage and salary earners, in other words paid **employees**; the remainder were mainly **self-employed persons** (including employers), while family workers (who are not paid employees) made up 1.5 % of total employment. An analysis by working status shows very different patterns across the G20 members, with only Canada and South Africa reporting a similar share of employees as that observed for the EU-28.

The United States, Saudi Arabia and Russia stand out with very high shares of paid employees, in excess of 90 %, with Australia just below this share; at the other end of the ranking, around two thirds of persons in employment were paid employees in Brazil and Mexico, this share falling closer to three fifths in Turkey and below one third in Indonesia. The self-employed accounted for more than two fifths of all persons in employment in Indonesia and more than one fifth in Mexico, Brazil, Turkey, South Korea and Argentina, but less than one tenth in Japan, the United States, Saudi Arabia and Russia. In many G20 members, a relatively small proportion of employment is made up of family workers, sometimes less than 1 % of the total workforce and generally not more than 3 %. Nevertheless, family workers contributed 5.3 % of total employment in South Korea, 6.2 % in Mexico, 13.2 % in Turkey and 17.3 % in Indonesia.

**Table 5.2:** Working status, persons aged 15 and over, 2012

	Number of persons in employment (1 000)	Share of employment by working status (%)		
		Employees	Self-employed	Family workers
EU-28 <sup>(1)</sup>	216 986	83.4	15.1	1.5
Argentina <sup>(2)</sup>	15 702	76.1	23.1	0.7
Australia	11 482	89.3	10.5	0.2
Brazil <sup>(3)(2)</sup>	94 713	68.6	24.4	3.0
Canada	17 508	84.8	15.1	0.1
China	:	:	:	:
India	:	:	:	:
Indonesia <sup>(3)(4)</sup>	108 208	30.1	42.5	17.3
Japan <sup>(5)</sup>	62 700	87.8	8.9	2.9
Mexico	49 003	66.3	27.5	6.2
Russia <sup>(6)</sup>	71 545	93.1	6.5	0.4
Saudi Arabia <sup>(6)</sup>	8 148	93.1	6.8	:
South Africa <sup>(7)</sup>	13 523	84.8	14.5	0.7
South Korea <sup>(4)</sup>	23 829	71.2	23.5	5.3
Turkey	24 819	62.9	23.9	13.2
United States <sup>(4)(8)</sup>	145 362	93.0	6.9	0.1

(1) Persons aged 15–74. (2) Persons aged 10 and over. (3) Analysis by working status does not sum to 100 % due to persons whose working status is not classified. (4) 2010. (5) Persons aged 15–72. (6) 2009. (7) Persons aged 15–64. (8) Persons aged 16 and over.

Source: Eurostat (online data code: [lfsa\\_egaps](#)) and the International Labour Organisation (ILOSTAT)



**Unemployed persons** are those without work, but actively searching work. The **unemployment rate** is calculated as the number of unemployed persons as a proportion of the labour force (comprising all employed and unemployed persons). In 2012, the number of unemployed persons in the EU-28 was 25.5 million, equivalent to an unemployment rate of 10.5 %. Among the G20 members, the unemployment rate ranged from 4.1 % in China to 10.5 % in the EU-28, with South Korea (3.2 %) below this range and South Africa (25.1 %) considerably above it.

In the EU-28, male and female unemployment rates were relatively similar, 10.4 % for men and 10.6 % for women in 2012; this pattern was also observed in Australia, Canada, Mexico and the United States. In G20 countries where there was a larger difference between unemployment rates for men and women it was generally the rate for women that was highest, notably in Saudi Arabia, but also in India, South Africa, Argentina, Brazil and, to a lesser extent, Turkey.

A comparison for 12 G20 members indicates that unemployment rates in 2011 were generally higher among persons who had at most completed lower secondary education than among those with at most an upper secondary (ISCED level 3A) education; the only exceptions to this were South Korea, Brazil and Mexico where the rates were very similar — see Figure 5.5. The United States, the United Kingdom, Russia, Germany, France and Canada all reported relatively high unemployment rates for persons with at most lower secondary education.

An analysis comparing youth and adult unemployment rates is presented in Figure 5.6. It should be remembered that a large share of persons between the ages of 15 and 24 years are outside the labour market, for example, young people are more likely to be studying full-time and therefore are not available for work, while some may undertake other activities outside of the labour market, such as travel. All G20 members shown in the figure recorded a higher youth unemployment rate than adult unemployment rate. The largest differences between

**Table 5.3:** Unemployment indicators, persons aged 15 and over, 2012

	Number of unemployed persons (1 000)	Unemployment rate (%)		
		Total	Male	Female
EU-28 (1)	25 520	10.5	10.4	10.6
Argentina (2)	1 241	7.3	5.8	9.5
Australia	636	5.2	5.2	5.3
Brazil (3)	6 266	6.2	4.6	8.2
Canada	1 368	7.2	7.7	7.7
China (4)	9 170	4.1	:	:
India (5)	39 112	9.3	7.8	14.5
Indonesia	7 245	6.1	5.8	6.8
Japan	2 850	4.3	4.6	4.0
Mexico	2 474	4.8	4.8	4.9
Russia (6)	4 131	5.5	5.8	5.1
Saudi Arabia	608	5.5	2.7	21.3
South Africa (7)	4 541	25.1	22.9	27.8
South Korea (8)	820	3.2	3.4	3.0
Turkey	2 202	8.1	7.6	9.4
United States (9)	12 506	8.1	8.2	7.9

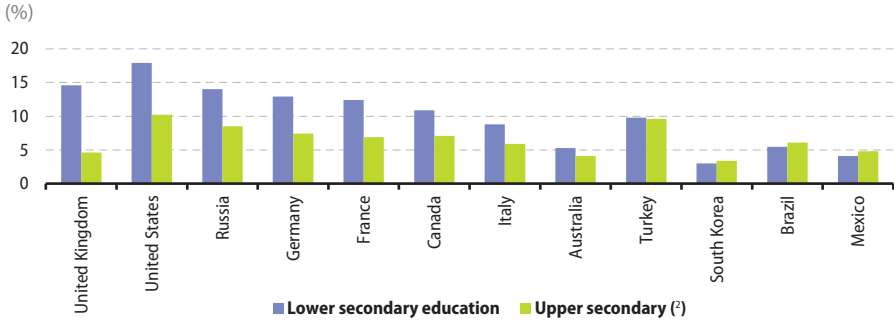
(1) Persons aged 15–74. (2) Persons aged 10 and over. Urban areas only. (3) Persons aged 10 and over. (4) Persons aged 16 and over. Urban areas only. (5) 2008. Number of persons: aged 14 and over. (6) Persons aged 15–72. (7) Civilian labour force only. Persons aged 15–64. (8) Civilian labour force only. (9) Civilian labour force only. Persons aged 16 and over.

Source: Eurostat (online data codes: [une\\_rt\\_a](#) and [une\\_nb\\_a](#)) and the International Labour Organisation (ILOSTAT)



youth and adult unemployment rates in 2010, both in excess of 20 percentage points, were recorded in Saudi Arabia and South Africa, while differences in excess of 10 percentage points were also recorded in Indonesia, Argentina, the EU-28, Brazil, Turkey, Russia and the United States.

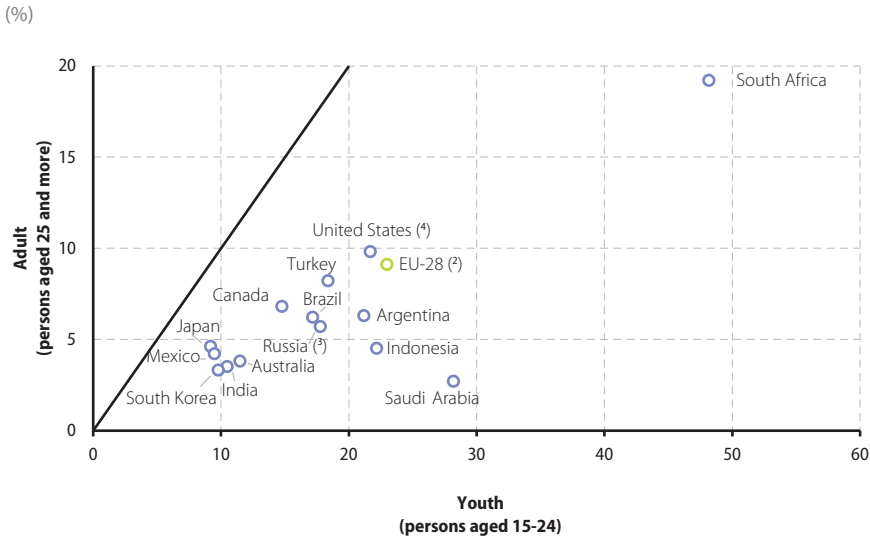
**Figure 5.5:** Unemployment rate of persons aged 25–64: comparison by education level, 2011 (1)



(1) Ranked on the percentage point difference between the rates for lower and upper secondary education. Argentina, China, India, Indonesia, Japan, Saudi Arabia and South Africa: not available. (2) ISCED 3A.

Source: OECD (Education at a Glance, 2013)

**Figure 5.6:** Youth and adult unemployment rates, 2010 (1)



(1) China: not available. Argentina, Brazil, Indonesia and South Africa: 2009. Saudi Arabia: 2008. India: 2005. (2) 2012: adult covers persons aged 25–74. (3) Adult covers persons aged 25–72. (4) Youth covers persons aged 16–24.

Source: Eurostat (online data code: [une\\_rt\\_a](#)) and the International Labour Organisation (Key indicators of the labour market)



Persons who have been unemployed for one year or more are considered as **long-term unemployed**. Prolonged periods of unemployment may be linked with reduced employability of the unemployed person, while lengthy periods of unemployment may have a sustained impact on an individual's income and social conditions. Among the G20 members (subject to data availability, see Table 5.4), Mexico and South Korea reported long-term unemployment rates close to zero, while this rate reached 4.7 % in the EU-28.

The level of unemployment and the unemployment rate reflect economic developments, with unemployment generally rising after a fall in output and then falling again after output starts to increase; this lag before any reduction in unemployment rates may be quite lengthy. The time series presented in Table 5.5 shows the impact of the global financial and economic crisis. The unemployment rate fell or was stable in all G20 members (based on available data) in 2006 and this downward or stable path was extended into 2007 and 2008 in most cases; nevertheless, the unemployment rate for the United States and Turkey rose in 2008 by approximately 1 percentage point. In 2009, all G20 members witnessed a rise in their respective unemployment rates except for Indonesia. For 2010, the development in unemployment rates was more varied: South Africa, the EU-28 and the United States recorded further increases in their unemployment rates, while the rate fell most strongly in Turkey and Argentina. By 2011, unemployment rates appeared to have stabilised or were falling again in all G20 members but in 2012 this pattern was reversed as unemployment rates increased again in the EU-28 and to a lesser extent in Argentina, Australia and South Africa.

The impact of the global financial and economic crisis on the **youth unemployment rate** has attracted particular attention. Table 5.6 presents a time series analysis of youth unemployment rates. More recent data are available for the EU-28 and these clearly show the sharp increase

**Table 5.4:** Youth and long-term unemployment, 2010

(%)

	Youth unemployment (persons aged 15–24)				Long-term unemployment (persons aged 15 and over)	
	Total	Rate		Share in all unemployment	Rate	Share in all unemployment
		Male	Female			
EU-28 (1)	23.0	23.6	22.2	22.0	4.7	44.6
Argentina (2)	21.2	18.8	24.7	38.6	:	:
Australia	11.5	11.9	11.1	40.2	1.0	18.5
Brazil (3)	17.8	13.9	23.1	45.3	:	:
Canada	14.8	17.1	12.4	28.7	0.9	12.0
China	:	:	:	:	:	:
India (4)	10.5	10.4	10.8	45.8	:	:
Indonesia (5)	22.2	21.6	23.0	53.8	:	:
Japan	9.2	10.4	8.0	15.4	1.8	37.6
Mexico	9.5	9.1	10.2	37.1	0.1	2.4
Russia (6)	17.2	16.9	17.5	27.5	2.2	35.2
Saudi Arabia (7)	:	:	:	50.9	:	:
South Africa (8)	48.2	44.6	52.5	32.3	:	:
South Korea	9.8	11.2	9.0	16.3	0.0	0.3
Turkey	21.7	21.0	23.1	31.6	3.4	28.6
United States (9)	18.4	20.8	15.8	26.0	2.8	29.0

(1) 2012. Long-term unemployment: persons aged 15–74. (2) 2009. (3) 2005. (4) Long-term unemployment: 2008. (5) 2008. (6) Youth unemployment: persons aged 16–24.

Source: Eurostat (online data codes: [une\\_rt\\_a](#), [une\\_ltu\\_a](#) and [une\\_nb\\_a](#)) and the International Labour Organisation (Key indicators of the labour market)



in this rate in 2009 and the continued increase through until the latest reference period of 2012. Apart from Indonesia, all G20 members (China, India and Saudi Arabia, not available) recorded an increase in youth unemployment rates in 2009, the largest (in percentage point terms) being observed for the United States and Turkey. By 2010, youth unemployment rates had started to fall in several G20 members and in 2011 this rate fell in all G20 members (for which data are available) other than the EU-28 and Mexico.

**Table 5.5:** Unemployment rate, persons aged 15 and over, 2002–12

(%)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>EU-28<sup>(1)</sup></b>	9.0	9.2	9.3	9.1	8.3	7.2	7.1	9.0	9.7	9.7	10.5
Argentina <sup>(2)</sup>	19.6	15.4	12.6	10.6	9.5	:	7.9	9.1	7.4	7.0	7.3
Australia <sup>(3)</sup>	6.4	5.9	5.5	5.0	4.8	4.4	4.2	5.7	5.2	5.1	5.2
Brazil <sup>(4)</sup>	9.2	9.7	8.9	9.3	8.4	8.2	:	8.3	:	6.7	6.2
Canada	7.7	7.6	7.2	6.8	6.3	6.0	6.1	8.3	8.0	7.4	7.2
China <sup>(5)</sup>	4.0	4.3	4.2	4.2	4.1	4.0	4.2	4.3	4.1	4.1	4.1
India	:	:	:	:	:	:	:	:	9.3	:	:
Indonesia	9.1	9.7	9.9	11.2	10.3	9.1	8.4	7.9	7.1	6.6	6.1
Japan	5.4	5.3	4.7	4.4	4.1	3.9	4.0	5.1	5.1	4.6	4.3
Mexico <sup>(6)</sup>	2.9	3.0	3.7	3.5	3.2	3.4	3.5	5.5	5.3	5.2	4.8
Russia <sup>(7)</sup>	7.9	8.0	7.8	7.2	7.2	6.1	6.3	8.4	7.5	6.5	5.5
Saudi Arabia	5.2	:	:	:	6.3	5.7	5.1	5.4	:	5.8	5.5
South Africa <sup>(8)</sup>	26.6	27.1	24.7	23.8	22.6	22.3	22.9	23.9	24.9	24.9	25.1
South Korea <sup>(9)</sup>	3.3	3.6	3.7	3.7	3.5	3.2	3.2	3.6	3.7	3.4	3.2
Turkey <sup>(10)</sup>	10.3	10.5	10.3	10.3	8.7	8.9	9.7	12.6	10.7	8.8	8.1
United States <sup>(11)</sup>	5.8	6.0	5.5	5.1	4.6	4.6	5.8	9.3	9.6	8.9	8.1

(1) Persons aged 15–74. (2) Persons aged 10 and over. 2010–12: urban areas only. (3) 2009–12: civilian labour force only. (4) Persons aged 10 and over. (5) Persons aged 16 and over. Urban areas only. (6) 2000–10: persons aged 14 and over. (7) Persons aged 15–72. (8) Civilian labour force only. Persons aged 15–64. (9) 2009–12: civilian labour force only. (10) 2006: break in series. (11) Civilian labour force only. Persons aged 16 and over.

Source: Eurostat (online data code: [une\\_rt\\_a](#)) and the International Labour Organisation (ILOSTAT)

**Table 5.6:** Youth unemployment rate, 2001–12

(%)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>EU-28</b>	17.4	17.9	18.7	19.1	18.9	17.6	15.7	15.8	20.1	21.1	21.5	23.0
Argentina <sup>(1)</sup>	31.8	0.0	35.3	27.6	24.2	23.4	20.3	18.8	21.2	:	:	:
Australia <sup>(2)</sup>	13.5	12.8	12.0	11.4	10.6	10.0	9.4	8.8	11.5	11.5	11.3	:
Brazil	17.9	18.0	19.0	18.1	19.3	17.7	16.8	15.5	17.8	:	:	:
Canada <sup>(3)</sup>	12.9	13.7	13.7	13.4	12.4	11.7	11.2	11.6	15.2	14.8	14.1	:
China	:	:	:	:	:	:	:	:	:	:	:	:
India	:	:	:	:	10.0	:	:	:	:	10.2	:	:
Indonesia <sup>(4)</sup>	24.1	27.9	27.9	29.6	32.4	30.4	25.1	23.3	22.2	:	:	:
Japan	9.7	10.1	10.1	9.5	8.7	8.0	7.7	7.2	9.1	9.2	8.0	:
Mexico	4.9	5.9	6.2	7.6	6.6	6.2	6.7	7.0	10.0	9.4	9.8	:
Russia	18.0	15.6	17.5	17.2	15.7	16.5	14.5	14.1	18.6	17.2	15.5	:
Saudi Arabia	:	:	:	:	:	:	:	28.2	:	:	:	:
South Africa <sup>(5)</sup>	49.6	52.4	54.8	51.0	48.3	46.7	46.5	45.5	48.1	50.5	49.8	:
South Korea	10.2	8.5	10.1	10.5	10.2	10.0	8.8	9.3	9.8	9.8	9.6	:
Turkey	16.2	19.2	20.5	20.6	19.9	19.1	20.0	20.5	25.3	21.7	18.4	:
United States <sup>(6)</sup>	10.6	12.0	12.4	11.8	11.3	10.5	10.5	12.8	17.6	18.4	17.3	:

(1) Breaks in series: 2006 and 2007. (2) Civilian only. (3) Breaks in series: 2005 and 2006. (4) Breaks in series: 2008 and 2009. (5) Civilian only. Persons aged 16–24.

Source: Eurostat (online data code: [une\\_rt\\_a](#)), the United Nations Statistics Division (Millennium Development Goals Database) and the International Labour Organisation (Key indicators of the labour market)







# 6

## Economy and finance

An analysis of the economic situation can be performed using a wide range of statistics, covering areas such as national accounts, government finance, exchange rates and interest rates, consumer prices, and the balance of payments. These indicators are also used in the design, implementation and monitoring of economic policies and have been particularly under the spotlight with respect to the financial and economic crisis.

**Gross domestic product (GDP)** is the most commonly used economic indicator; it provides a measure of the size of an economy, corresponding to the monetary value of all production activities. GDP includes goods and services, as well as products from general government and non-profit institutions within the country ('domestic' production). **Gross national income (GNI)** is the sum of gross primary incomes receivable by residents, in other words, GDP less income payable to non-residents plus income receivable from non-residents ('national' concept).

GDP per capita is often used as a broad measure of living standards, although there are a number of international statistical initiatives to provide alternative and more inclusive measures. GDP at constant prices is intended to allow comparisons of economic developments over time, as the impact of price developments (inflation) has been removed. Equally, comparisons between countries can be facilitated when indicators are converted from national currencies into a common currency using purchasing power parities (PPP) which reflect price level differences between countries.

### Main findings

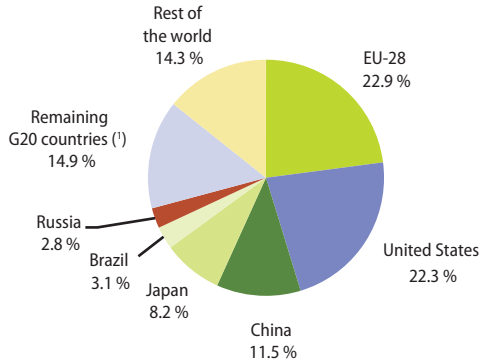
In 2012, the total economic output of the world, as measured by **GDP**, was valued at EUR 56 577 billion, of which the G20 members accounted for 85.7 %, 4.2 percentage points less than in 2002. The **EU-28** accounted for a 22.9 % share of the world's GDP in 2012, while the United States' share was 22.3 % — see Figure 6.1; note these relative shares are based on current price series in **euro** terms, reflecting bilateral exchange rates. The Chinese share of world GDP rose



from 4.3 % in 2002 to 11.5 % in 2012, moving ahead of Japan (8.2 % share). To put the rapid pace of recent Chinese growth into context, in current price terms China's GDP in 2012 was EUR 4 970 billion higher than it was in 2002, an increase equivalent to the combined GDP in 2012 of the seven smallest G20 economies (Mexico, South Korea, Indonesia, Turkey, Saudi Arabia, Argentina and South Africa).

**Figure 6.1:** Share of world GDP, 2012

(%)



(¹) India, Canada, Australia, Mexico, South Korea, Indonesia, Turkey, Saudi Arabia, Argentina and South Africa.

Source: Eurostat (online data code: [nama\\_gdp\\_c](#)) and the United Nations Statistics Division (National Accounts Main Aggregates Database)

Figure 6.2 shows an analysis of the world share of GDP accounted for by each of the G20 members for 2002 and 2012 — note that these figures are in **purchasing power parities** terms (in other words, they are adjusted for price level differences). On this basis, the relative importance of China within the global economy was considerably higher, accounting for 14.2 % of the world's output in 2012, which was more than two thirds of the share attributed to the EU-28 (19.9 %).

**Figure 6.2:** Share of world GDP, 2002 and 2012

(%, based on current international PPP)



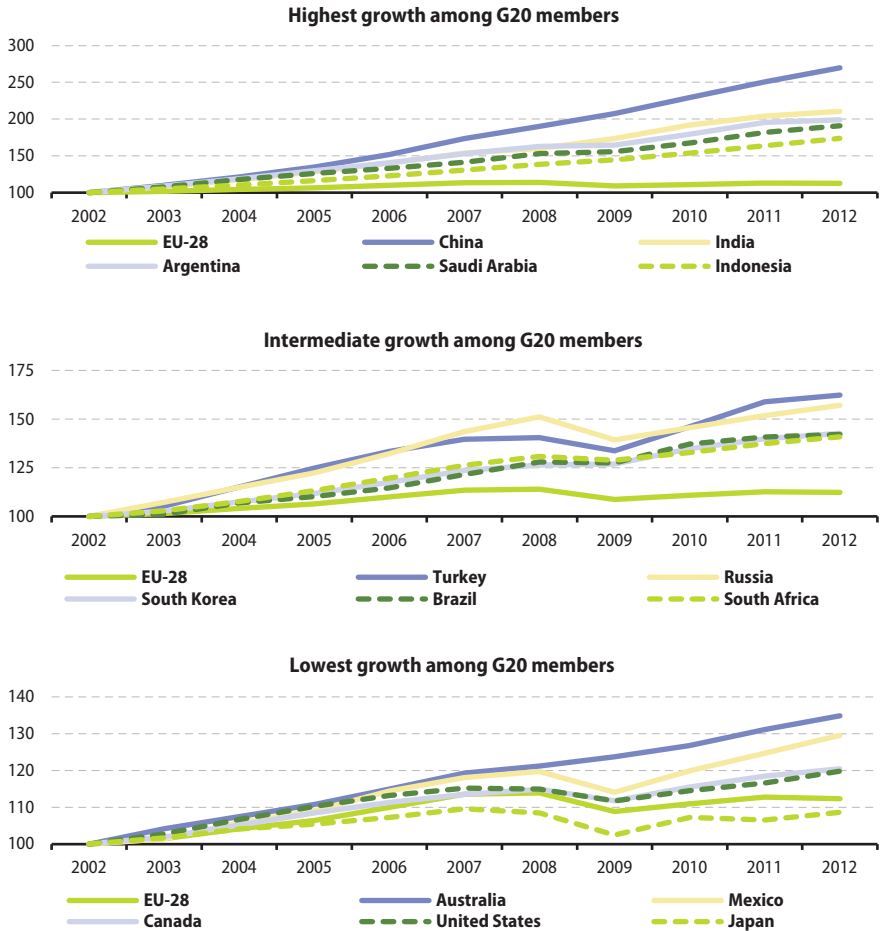
(¹) 2012: value is zero.

Source: the World Bank (World Development Indicators)



Figure 6.3 shows the real growth rate (based on constant price data) of GDP in the EU-28 compared with the other G20 members — note the different scales used for the different parts of the figure. The lowest rates of change were generally recorded by the developed economies such as Japan, the EU-28, the United States and Canada, while the highest rates were recorded in the two Asian economies of China and India.

**Figure 6.3:** GDP at constant (2005) prices, 2002–12 (¹)  
(2002 = 100)



(¹) Note the differences in the range of the y-axes between the different parts of the figure. The EU-28 series is shown in all three figures for the purpose of comparison.

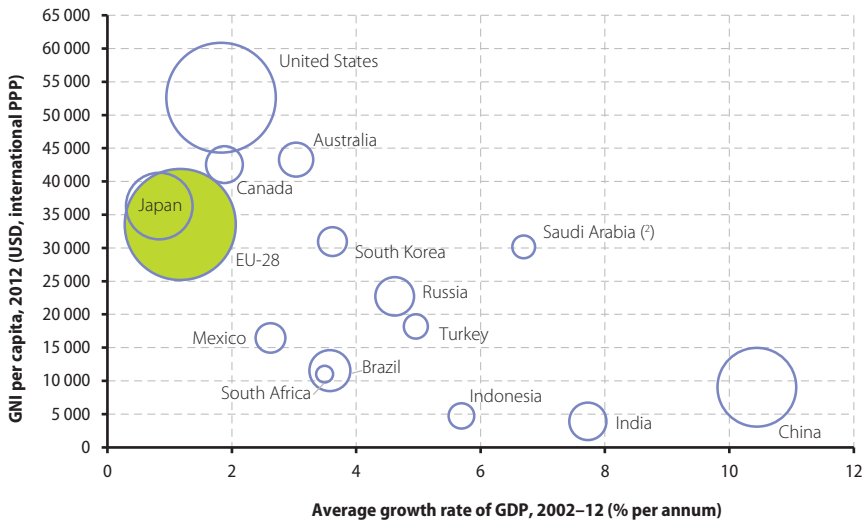
Source: Eurostat (online data code: [nama\\_gdp\\_k](#)) and the United Nations Statistics Division (National Accounts Main Aggregates Database)



Among the G20 members, the highest gross national income (GNI) per capita in 2010 was recorded in the United States; note that the conversion to United States dollars used for this indicator in Figure 6.4 is based on purchasing power parities rather than market exchange rates and so reflects differences in price levels between countries. In comparison with average GNI for the world (USD 12 186 per capita), the average level of income in the United States was 4.3 times as high. Australia, Canada and Japan recorded average GNI per capita that was more than three times the world average, followed by the EU-28, South Korea and Saudi Arabia where it was more than twice as high. By contrast, five G20 members recorded GNI per capita levels around or below the world average, namely Brazil and South Africa, China, Indonesia and India.

In broad terms, countries with relatively low GNI per capita recorded relatively high economic growth over the 10 years from 2002–12; this was most notably the case in China and India. By contrast, countries with relatively high GNI per capita recorded fairly low economic growth over the same period; this was most notably the case in Japan. Nevertheless, Saudi Arabia reported an atypical pattern of development, combining a relatively high level of GNI per capita (that was more than double the world average) with growth in GDP that averaged 6.7 % per annum (the third highest growth rate during the period 2002–12 among the G20 members).

**Figure 6.4:** Growth rate of constant price GDP and GNI per capita, 2002–12 and 2012 <sup>(1)</sup>



<sup>(1)</sup> Argentina: not available. GNI per capita is presented in United States dollars using purchasing power parity (PPP) rates for 2012. The relative size of each bubble reflects the value of GDP in current prices for 2012.

<sup>(2)</sup> GNI per capita: 2011.

Source: Eurostat (online data codes: [nama\\_gdp\\_k](#) and [nama\\_gdp\\_c](#)), the United Nations Statistics Division (National Accounts Main Aggregates Database) and the World Bank (World Development Indicators)



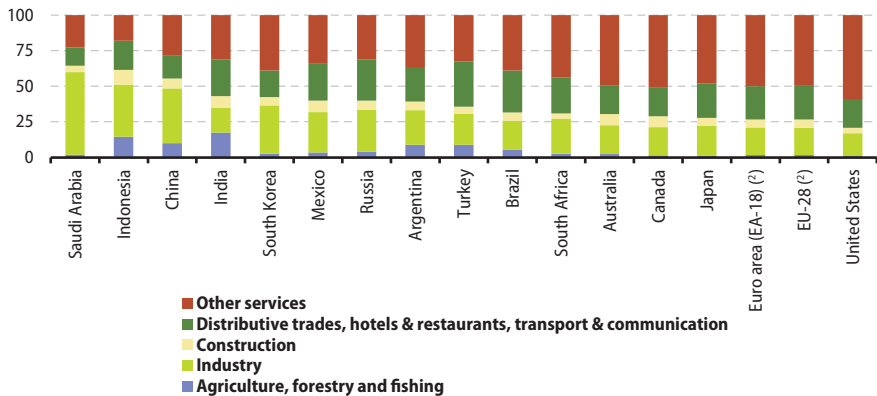
The economic structure of the G20 members varies most greatly in relation to the relative importance of agriculture, forestry and fishing and, to a lesser extent, the relative share of industry — see Figure 6.5; note that the data for the EU-28 and the euro area (EA-18) are based on the **NACE Rev. 2** activity classification (compatible with **ISIC Rev.4**), whereas the data for the other G20 members are based on ISIC Rev.3.

In 2012, agriculture, forestry and fishing contributed 10 % or more of GDP in India, Indonesia and China, whereas its contribution was 2 % or less in the United States, Japan, Canada, the EU-28 and Australia. Industry (including mining and quarrying; manufacturing; electricity, gas and water supply) contributed more than half of Saudi Arabia's GDP (58 %) and more than one third of total GDP in China, Indonesia and South Korea, while in Canada, the EU-28, India and the United States its contribution was less than one fifth of the total. The contribution of construction to GDP was less than 10 % in all of the G20 members shown in Figure 6.5, other than in Indonesia where its share just reached double figures.

The contribution of distributive trades, hotels and restaurants, transport, information and communication services to the overall economy varied least across the G20 members, ranging from 31.8 % in Turkey to 16.3 % in China, with Saudi Arabia outside this range (12.9 %). In the United States, Canada and the euro area (EA-18), other services (which includes financial and business services, as well as a range of services often associated with public sector provision, for example, education or health) contributed more than half of total GDP, while the EU-28 and Australia recorded contributions from other services just below this level. By contrast, other services contributed a share between one quarter and a little over one third of GDP in Mexico, Turkey, India, Russia and China and even less in Saudi Arabia (22.7 %) and Indonesia (18.0 %).

**Figure 6.5:** Analysis of GDP, 2012 <sup>(1)</sup>

(% of total)



<sup>(1)</sup> Ranked on the combined share of distributive trades, hotels and restaurants, transport and communication and other services.

<sup>(2)</sup> Based on NACE Rev. 2.

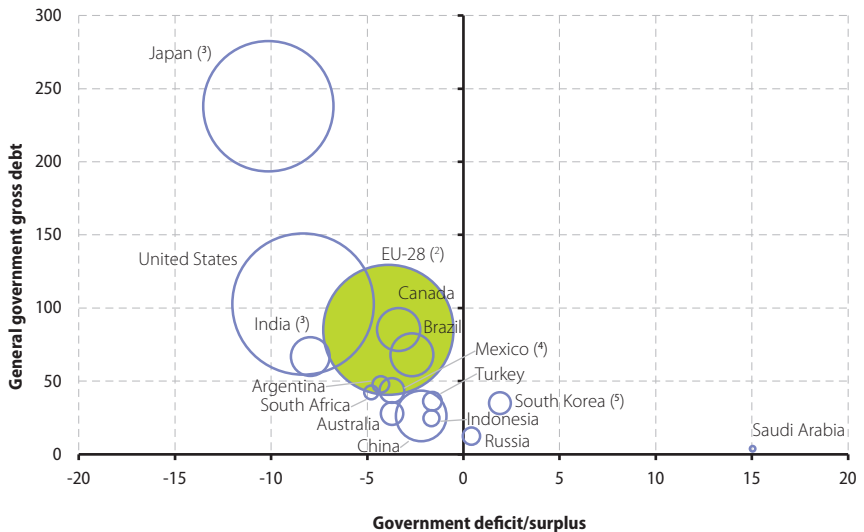
Source: Eurostat (online data code: [nama\\_nace10\\_c](#)) and the United Nations Statistics Division (National Accounts Main Aggregates Database)



The financial and economic crisis of 2008–09 resulted in considerable media exposure for government finance indicators. The government **surplus/deficit (public balance)** measures government borrowing/lending for a particular year; in other words, borrowing to finance a deficit or lending made possible by a surplus. **General government debt** refers to the consolidated stock of debt at the end of the year. Typically, both of these indicators are expressed in relation to GDP; in Figure 6.6 the size of each bubble reflects the absolute size of general government debt, which ranged in 2012 from EUR 20.5 billion in Saudi Arabia to EUR 12 989 billion in the United States.

Most G20 members had a government deficit in 2012; only three— Russia, South Korea and Saudi Arabia — recorded a surplus. Generally G20 members with the highest government deficits had the highest levels of government debt and this was notably the case for Japan and to a lesser extent the United States. Equally, the two members with the lowest levels of government debt, namely Saudi Arabia and Russia, were among the few countries with a government surplus in 2012.

**Figure 6.6:** Government deficit/surplus and general government debt, 2012 <sup>(1)</sup>  
(% of GDP)



<sup>(1)</sup> The size of each bubble reflects the overall debt of each country.

<sup>(2)</sup> Excessive deficit procedure data.

<sup>(3)</sup> Estimates.

<sup>(4)</sup> Central government instead of general government.

<sup>(5)</sup> Deficit/surplus: central government instead of general government.

Source: Eurostat (online data codes: [gov\\_a\\_main](#) and [gov\\_dd\\_edpt1](#)) and the International Monetary Fund (World Economic Outlook, 2013)

The importance of the general government sector in the economy may be measured in terms of the average of general **government revenue and expenditure** in relation to GDP. The highest such ratios for G20 members in 2012 were 47.4 % in the EU-28, followed by 44.3 % in Saudi Arabia and 42.3 % in Argentina. The lowest ratio was in Indonesia (18.9 %); note the data for Mexico and South Korea relate only to the expenditure and revenue of central government as opposed to general government which covers all levels of public administration.

Subtracting expenditure from revenue results in the government surplus/deficit. Comparing data for 2002 with 2012 (see Table 6.1), Saudi Arabia's government moved from a deficit to a surplus, Russia and South Korea's surpluses contracted, while Canada and Australia moved from a balanced budget and a government surplus respectively to a government deficit. At the same time, Turkey, Argentina, India, Brazil and China's government deficits contracted and the government deficits of Mexico, Indonesia, Japan, South Africa and the United States expanded, as did the deficit for the EU Member States (comparing EU-28 data for 2012 with EU-27 data for 2002).

**Table 6.1:** General government finances, 2002 and 2012

(% of GDP)

	Expenditure		Revenue		Deficit/ surplus		Gross debt	
	2002	2012	2002	2012	2002	2012	2002	2012
EU-28 <sup>(1)</sup>	46.6	49.3	43.9	45.4	-2.6	-3.9	60.3	85.1
Euro area (EA-18) <sup>(2)</sup>	47.5	49.9	44.8	46.3	-2.7	-3.7	68.0	90.5
Argentina	38.9	44.5	23.0	40.2	-15.9	-4.3	165.0	47.7
Australia	35.1	37.1	35.3	33.3	0.2	-3.7	15.1	27.9
Brazil	39.6	40.4	35.1	37.7	-4.4	-2.7	79.4	68.0
Canada	40.6	41.1	40.6	37.8	0.0	-3.4	80.6	85.3
China	18.9	24.9	15.9	22.7	-3.0	-2.2	18.9	26.1
India	27.5	27.3	17.8	19.4	-9.8	-8.0	83.0	66.7
Indonesia	18.7	19.7	17.9	18.0	-0.9	-1.7	67.8	24.5
Japan	36.6	41.3	28.9	31.1	-7.7	-10.1	164.0	238.0
Mexico <sup>(3)</sup>	21.9	27.3	18.5	23.6	-3.3	-3.7	43.0	43.5
Russia	36.3	37.0	37.0	37.4	0.7	0.4	40.3	12.5
Saudi Arabia	37.6	36.8	35.9	51.8	-1.7	15.0	93.7	3.7
South Africa	25.8	32.7	24.7	27.9	-1.1	-4.8	36.9	42.3
South Korea <sup>(4)</sup>	17.9	21.4	21.6	23.3	3.6	1.9	18.6	35.0
Turkey	43.2	36.4	28.8	34.8	-14.4	-1.6	74.0	36.2
United States	34.6	38.8	30.9	30.4	-3.8	-8.3	55.4	102.7

(1) 2002: EU-27.

(2) Expenditure and revenue: EA-17.

(3) Central government instead of general government.

(4) Expenditure, revenue and deficit/surplus: central government instead of general government.

Source: Eurostat (online data codes: [gov\\_a\\_main](#) and [gov\\_dd\\_edpt1](#)) and the International Monetary Fund (World Economic Outlook, 2013)



Table 6.2 provides more detailed information concerning the development of the government surplus/deficit between 2002 and 2012. In 2007, just before the onset of the financial and economic crisis, seven G20 members recorded a government surplus, generally less than 2.5 % of GDP with Russia (6.8 %) and Saudi Arabia (15.0 %) above this level. The deficits in the remaining G20 members were less than 2.5 % of GDP except in Brazil and the United States (both 2.7 % of GDP) and India (4.4 %). Already in 2008 the number of G20 members reporting a surplus stood at just three: namely, Saudi Arabia, Russia and South Korea, while the deficits reported for India and the United States had increased substantially. In 2009, none of the G20 members reported a government surplus, although South Korea maintained a balanced budget; South Korea was the only G20 member not to report a budget deficit during the financial and economic crisis. In India the deficit in 2009 contracted slightly, whereas in all other G20 members the deficit grew wider or a surplus turned into a deficit. The pace of change was particularly rapid in Russia and Saudi Arabia, where government surpluses recorded in 2008 turned into deficits of -6.3 % and -4.1 % of GDP respectively in 2009. In 2010, there were signs that the pace of government borrowing was generally no longer expanding, as only Australia and Canada reported their budget deficits (relative to GDP) increasing compared with the previous year, while in Saudi Arabia, South Korea and Russia, a government surplus was reported.

**Table 6.2:** General government deficit/surplus, 2002–12

(% of GDP)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>EU-28<sup>(1)</sup></b>	-2.6	-3.2	-2.9	-2.5	-1.5	-0.9	-2.4	-6.9	-6.5	-4.4	-3.9
<b>Euro area (EA-18)</b>	-2.7	-3.1	-2.9	-2.5	-1.3	-0.7	-2.1	-6.4	-6.2	-4.2	-3.7
Argentina	-15.9	-4.4	-2.9	-1.8	-1.1	-2.1	-0.9	-3.6	-1.4	-3.5	-4.3
Australia	0.2	1.0	1.3	1.8	1.8	1.5	-1.1	-4.6	-5.1	-4.5	-3.7
Brazil	-4.4	-5.2	-2.7	-3.5	-3.5	-2.7	-1.4	-3.1	-2.7	-2.5	-2.7
Canada	0.0	0.1	1.0	1.7	1.8	1.5	-0.3	-4.5	-4.9	-3.7	-3.4
China	-3.0	-2.4	-1.5	-1.4	-0.7	0.9	-0.7	-3.1	-1.5	-1.3	-2.2
India	-9.8	-10.3	-8.3	-7.2	-6.2	-4.4	-10.0	-9.8	-8.4	-8.5	-8.0
Indonesia	-0.9	-1.4	-0.6	0.6	0.2	-1.0	0.0	-1.8	-1.2	-0.6	-1.7
Japan	-7.7	-7.8	-5.9	-4.8	-3.7	-2.1	-4.1	-10.4	-9.3	-9.9	-10.1
Mexico <sup>(2)</sup>	-3.3	-2.3	-1.2	-1.2	-1.0	-1.2	-1.0	-5.1	-4.3	-3.4	-3.7
Russia	0.7	1.4	4.9	8.2	8.3	6.8	4.9	-6.3	-3.4	1.5	0.4
Saudi Arabia	-1.7	5.3	12.1	21.3	24.4	15.0	31.6	-4.1	2.1	12.0	15.0
South Africa	-1.1	-1.9	-1.2	0.0	1.2	1.4	-0.4	-5.5	-5.1	-4.0	-4.8
South Korea <sup>(2)</sup>	3.6	1.7	0.1	0.9	1.1	2.3	1.6	0.0	1.7	1.8	1.9
Turkey	-14.4	-10.4	-4.4	-0.8	-0.7	-2.0	-2.7	-6.0	-3.0	-0.7	-1.6
United States	-3.8	-4.7	-4.2	-3.1	-2.0	-2.7	-6.5	-12.9	-10.8	-9.7	-8.3

(1) 2002–08: EU-27.

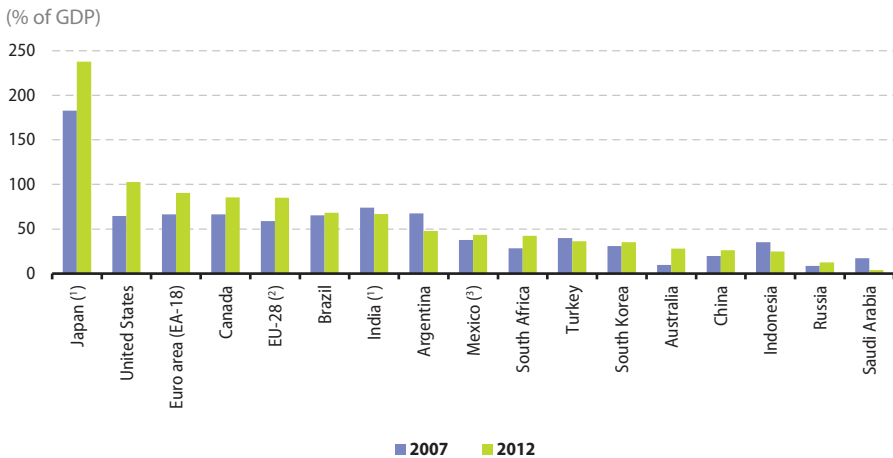
(2) Central government instead of general government.

Source: Eurostat (online data codes: [gov\\_a\\_main](#) and [gov\\_dd\\_edpt1](#)) and the International Monetary Fund (World Economic Outlook, 2013)



Two of the three G20 members recording government surpluses in 2012 saw their levels of debt fall between 2002 and 2012, namely Saudi Arabia and Russia. Other G20 countries with a lower ratio of general government gross debt to GDP in 2012 than in 2002 included Brazil, India, Turkey, Indonesia and Argentina. All the remaining G20 members shown in Table 6.1 recorded higher general government gross debt relative to GDP in 2012 than in 2002, most notably in Japan and the United States whose ratios of gross debt to GDP passed 200 % and 100 % of GDP respectively. Figure 6.7 provides an analysis of the change in government gross debt levels between 2007 — just before the onset of the financial and economic crisis — and 2012. During this period, government debt relative to GDP fell in Turkey, India, Indonesia, Saudi Arabia and Argentina, while it increased in all other G20 members, most notably in the United States and Japan.

**Figure 6.7:** General government debt, 2007 and 2012



(†) 2012: estimates.

(‡) 2007: EU-27.

(§) Central government instead of general government.

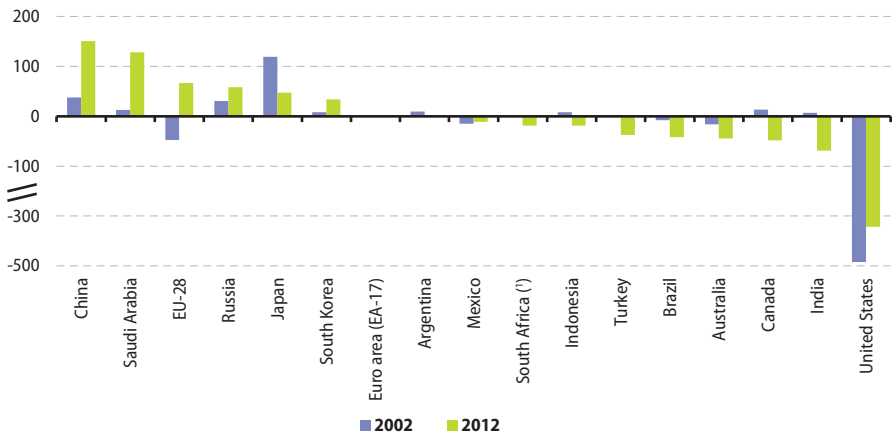
Source: Eurostat (online data codes: [gov\\_a\\_main](#) and [gov\\_dd\\_edpt1](#)) and the International Monetary Fund (World Economic Outlook, 2013)



The current account of the **balance of payments** provides information on international trade in goods and services (see Chapter 7 for more details), as well as income from employment and investment and current transfers with the rest of the world. Among the G20 members, the largest current account surplus in 2012 in absolute terms was EUR 150.3 billion for China, while in relative terms the current account surplus peaked in Saudi Arabia at 23.2 % of GDP. The largest current account deficit in 2012 was EUR 342.8 billion for the United States, while South Africa's deficit represented 6.3 % of GDP. Argentina, Canada, India, Indonesia and South Africa's current account balance moved from a surplus to a deficit between 2002 and 2012, while the EU-28 moved from a deficit to a surplus.

**Figure 6.8:** Current account balance, 2002 and 2012

(EUR billion)



(1) 2012: estimates.

Source: Eurostat (online data codes: [bop\\_q\\_eu](#), [bop\\_q\\_euro](#) and [nama\\_gdp\\_c](#)) and the International Monetary Fund (World Economic Outlook, 2013)

**Foreign direct investment (FDI)** is characterised by investment in new foreign plant/offices, or by the purchase of existing assets that belong to a foreign enterprise. FDI differs from portfolio investment as it is made with the purpose of having control or an effective voice in the management of the direct investment enterprise.

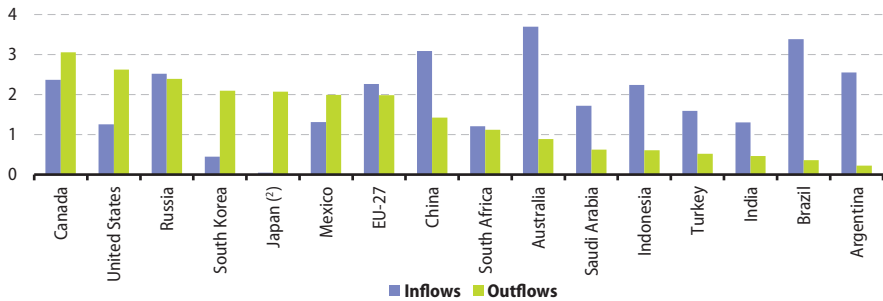
The global financial and economic crisis had a major impact on the EU-27's FDI flows: as a percentage of GDP inflows and outflows dropped from a peak of 8 % in 2007 to below 6 % in 2008, 2009, 2010 and 2012. The impact of the crisis on FDI flows was in no way restricted to the EU, with several other G20 members reporting a fall in flows (relative to GDP), notably Canada where the ratio fell for three successive years from a high of 13 % in 2007 to 4 % by 2010. At the height of the crisis, in 2009, FDI flows relative to GDP fell in nearly all G20 members, the rare exceptions being Mexico, South Africa and Saudi Arabia. In 2010, several G20 members recorded increased FDI flows relative to GDP, although both South Africa and Saudi Arabia recorded falls of more than 2 percentage points and smaller falls were recorded for five other G20 members outside of the EU. Saudi Arabia's falling FDI flows continued

into 2011 (-3.3 percentage points), whereas in most other G20 members the level of flows remained relatively stable, the largest increase being a rise of 1.1 percentage points in Canada, recovering some of the reductions seen over the previous three years. The latest data, namely for 2012, continued this pattern with the level of flows remaining relatively stable: the biggest falls in FDI flows relative to GDP were reductions of 1.2 percentage points in Australia and 1.5 percentage points in Russia, while the highest increase was in South Africa (up 1.3 percentage points). FDI flows relative to GDP were contained within a fairly narrow range in 2012 across all of the G20 members for which data are shown in Figure 6.10, ranging from a low of 3.9 % in the United States to a high of 5.4 % in Canada.

Among the G20 members, FDI outflows exceeded inflows in 2012 in Japan, South Korea, the United States, Canada and Mexico. Relative to GDP, the highest inflows of FDI were recorded in Australia, Brazil and China, a mixture of emerging markets and resource rich countries.

**Figure 6.9:** Flows of foreign direct investment, 2012 <sup>(1)</sup>

(% of GDP)



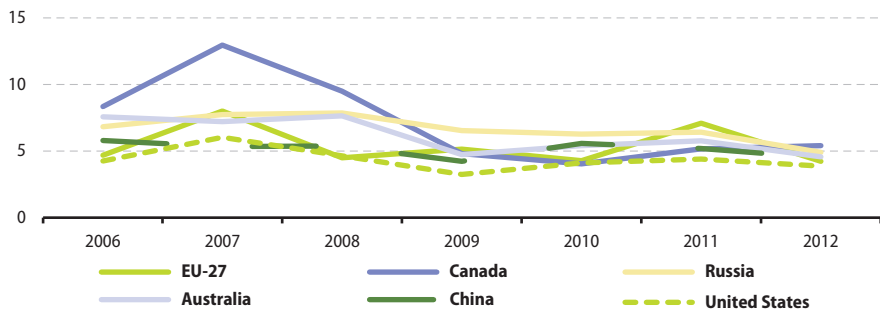
<sup>(1)</sup> Ranked on outflows.

<sup>(2)</sup> Inflows: value is close to zero.

Source: Eurostat (online data codes: [bop\\_fdi\\_main](#) and [nama\\_gdp\\_c](#)) and the World Bank (World Development Indicators)

**Figure 6.10:** Sum of FDI inflows and outflows, 2006–12

(% of GDP)

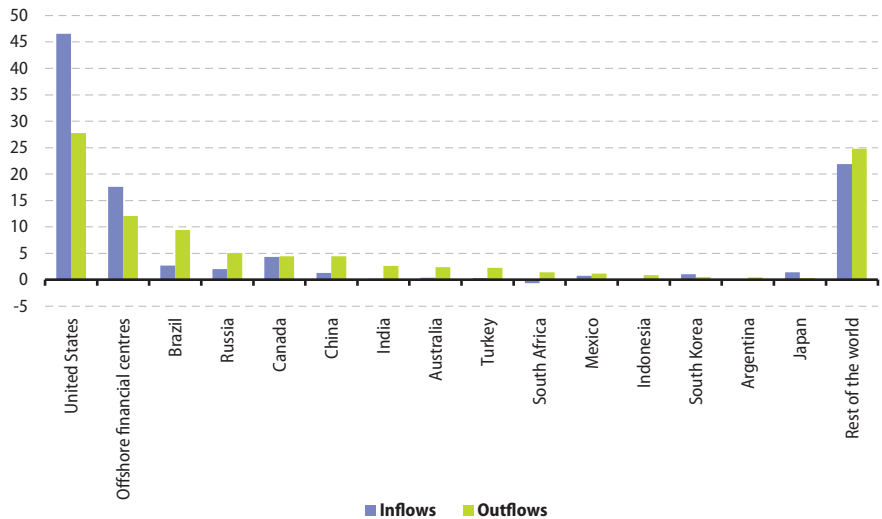


Source: Eurostat (online data codes: [bop\\_fdi\\_main](#) and [nama\\_gdp\\_c](#)) and the World Bank (World Development Indicators)



EU-27 FDI flows are dominated by the United States which accounted for close to half (46.6 %) of the EU-27's inward FDI in the period 2010–12 and more than one quarter (27.8 %) of its FDI outflows. As a whole, G20 countries (excluding Saudi Arabia) accounted for 63.1 % of FDI outflows from the EU-27 between 2010 and 2012 and 60.6 % of its inflows. A large part of the remainder was FDI flows with offshore financial centres (an aggregate composed of 38 financial centres across the world), as well as with developed countries outside of the G20, notably Switzerland. An analysis of end of year FDI stocks — see Figure 6.12 — presents a broadly similar picture to that in terms of flows, with the United States the main partner for the EU along with offshore financial centres. Among the G20 members, Brazil, Russia, Canada and Australia appeared alongside the United States at the top of a ranking for origins and destinations of EU-27 FDI stocks; they were joined by China as a destination for EU-27 FDI and Japan as an origin for FDI in the EU-27.

**Figure 6.11:** Average flows of foreign direct investment by partner, EU-27, 2010–12 (¹)  
(% of total)



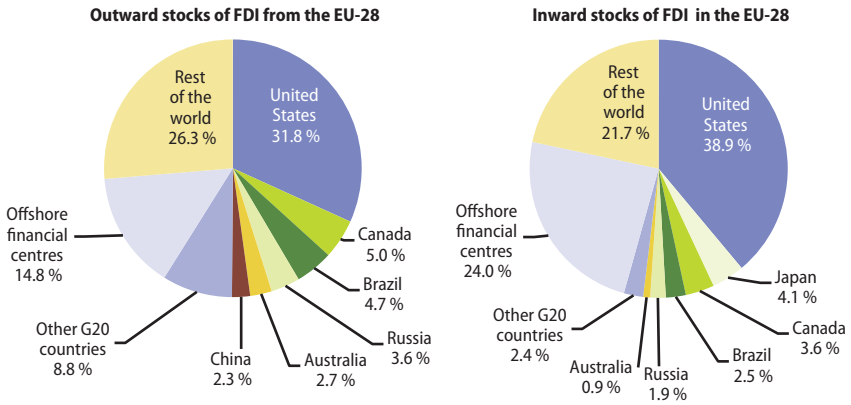
(¹) Saudi Arabia: not available. Ranked on outflows.

Source: Eurostat (online data code: [bop\\_fdi\\_main](#))

Figure 6.13 shows the annual rate of change in **consumer price indices (CPIs)** between 2002 and 2012 for a selection of G20 members and the world. For most of this period Japan recorded negative annual **inflation rates**, indicating falling consumer prices (deflation), a situation that was mirrored in China and the United States in 2009 during the financial and economic crisis. Table 6.3 provides a complete set of annual rates of change for consumer prices across the G20 members over the period 2002–12. During this period, particularly high price increases were recorded in Turkey and Russia, although both countries recorded much lower inflation in the most recent years. In a majority of these years Argentina experienced inflation rates close to or above 10 %. In 2012, inflation rates among the G20 members ranged from no change (0.0 %) in Japan to 10.0 % in Argentina and 10.4 % in India, with the 2.6 % inflation rate for the EU towards the lower end of this scale.



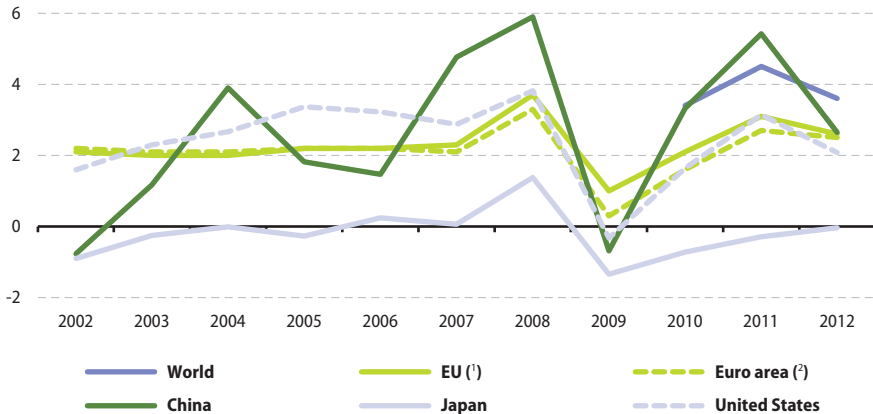
**Figure 6.12:** End of year stocks of foreign direct investment by partner, EU-28, 2012 <sup>(1)</sup>  
(% of total)



<sup>(1)</sup> Saudi Arabia: not available.

Source: Eurostat (online data code: [bop\\_fdi\\_main](#))

**Figure 6.13:** Consumer price indices, 2002–12  
(annual change, %)



<sup>(1)</sup> The data refer to the official EU aggregate, its country coverage changes in line with the addition of new EU Member States and integrates them using a chain-linked index formula.

<sup>(2)</sup> The data refer to the official euro area aggregate, its country coverage changes in line with the addition of new EA Member States and integrates them using a chain-linked index formula.

Source: Eurostat (online data code: [prc\\_hicp\\_aind](#)) and the International Monetary Fund (World Economic Outlook, 2013 and International Financial Statistics)



**Table 6.3:** Consumer price indices, 2002–12  
(annual change, %)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>EU (¹)</b>	2.1	2.0	2.0	2.2	2.2	2.3	3.7	1.0	2.1	3.1	2.6
<b>Euro area (²)</b>	2.2	2.1	2.1	2.2	2.2	2.1	3.3	0.3	1.6	2.7	2.5
Argentina	25.9	13.4	4.4	9.6	10.9	8.8	8.6	6.3	10.5	9.8	10.0
Australia	3.0	2.7	2.3	2.7	3.6	2.3	4.4	1.8	2.9	3.3	1.8
Brazil	8.5	14.7	6.6	6.9	4.2	3.6	5.7	4.9	5.0	6.6	5.4
Canada	2.3	2.7	1.8	2.2	2.0	2.1	2.4	0.3	1.8	2.9	1.5
China	-0.8	1.2	3.9	1.8	1.5	4.8	5.9	-0.7	3.3	5.4	2.7
India	4.0	3.9	3.8	4.4	6.7	6.2	9.1	12.4	10.4	8.4	10.4
Indonesia	11.8	6.8	6.1	10.5	13.1	6.7	9.8	4.8	5.1	5.4	4.3
Japan	-0.9	-0.3	0.0	-0.3	0.2	0.1	1.4	-1.3	-0.7	-0.3	0.0
Mexico	5.0	4.6	4.7	4.0	3.6	4.0	5.1	5.3	4.2	3.4	4.1
Russia	15.8	13.7	10.9	12.7	9.7	9.0	14.1	11.7	6.9	8.4	5.1
Saudi Arabia	0.1	0.5	0.3	0.5	1.9	5.0	6.1	4.1	3.8	3.7	2.9
South Africa	9.2	5.8	1.4	3.4	4.7	7.1	11.5	7.1	4.3	5.0	5.7
South Korea	2.8	3.5	3.6	2.8	2.2	2.5	4.7	2.8	2.9	4.0	2.2
Turkey	45.1	25.3	8.6	8.2	9.6	8.8	10.4	6.3	8.6	6.5	8.9
United States	1.6	2.3	2.7	3.4	3.2	2.9	3.8	-0.3	1.6	3.1	2.1
<b>World</b>	:	:	:	:	:	:	:	:	3.4	4.5	3.6

(¹) The data refer to the official EU aggregate, its country coverage changes in line with the addition of new EU Member States and integrates them using a chain-linked index formula.

(²) The data refer to the official euro area aggregate, its country coverage changes in line with the addition of new EA Member States and integrates them using a chain-linked index formula.

Source: Eurostat (online data code: [prc\\_hicp\\_aind](#)) and the International Monetary Fund (World Economic Outlook, 2013 and International Financial Statistics)

Overnight interbank interest rates varied greatly between the G20 members in 2012, but to a somewhat lesser extent than they had done 10 years earlier. Rates were close to zero in the euro area, Japan, the United States and the United Kingdom in 2012, but reached a high of 9.0 % in India. In nearly all G20 members interest rates were lower in 2012 than they had been in 2002, with the exceptions of Japan where the interest rate rose marginally (but remained close to zero), China where the interest rate rose 0.6 percentage points to 3.3 % and India where the interest rate rose from 6.3 % to 9.0 % (all of the increase in India occurred in 2012).

Among the countries shown in Table 6.5, the pesos in Argentina and Mexico devalued the most between 2002 and 2012 relative to the euro. By contrast, the Australian and Canadian dollars, Japanese yen and Brazilian real appreciated relative to the euro during this 10-year period.

**Table 6.4:** Overnight interbank interest rate, 2002–12

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>Euro area (EA-17)</b>	3.1	2.1	2.1	2.3	3.5	3.9	2.5	0.4	0.5	0.6	0.1
United Kingdom	4.4	3.8	4.8	4.6	5.1	5.6	1.7	0.5	0.5	0.5	0.4
Argentina	:	:	:	:	:	:	:	:	:	:	:
Australia	4.8	5.2	5.3	5.5	6.3	6.8	4.4	3.7	4.8	4.3	3.0
Brazil	25.0	16.5	17.8	18.0	13.3	11.3	13.8	8.8	10.8	11.0	7.3
Canada	2.7	2.8	2.5	3.2	4.3	4.3	1.5	0.3	1.0	1.0	1.0
China	2.7	2.7	3.3	3.3	3.3	3.3	2.8	2.8	3.3	3.3	3.3
India	6.3	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	9.0
Indonesia	12.9	8.3	7.4	12.8	9.8	8.0	9.3	6.5	6.5	6.0	5.8
Japan	0.0	0.0	0.0	0.0	0.3	0.5	0.2	0.1	0.1	0.1	0.1
Mexico	5.1	3.9	5.8	5.9	4.8	5.1	6.0	3.4	3.3	3.3	3.3
Russia	21.0	16.0	13.0	12.0	11.0	10.0	13.0	8.8	7.8	5.3	5.5
Saudi Arabia	:	:	:	:	:	:	:	:	:	:	:
South Africa	13.5	8.0	7.5	7.0	9.0	11.0	11.5	7.0	5.5	5.5	5.0
South Korea	4.3	3.8	3.3	3.7	4.5	5.0	3.3	2.0	2.5	3.3	2.8
Turkey	44.0	26.0	18.7	13.6	17.5	16.0	15.6	6.5	1.6	5.0	5.0
United States	1.2	1.0	2.2	4.2	5.2	4.2	0.2	0.1	0.2	0.1	0.2

Source: OECD (Key Short-Term Economic Indicators)

**Table 6.5:** Exchange rates, 2002, 2007 and 2012

	Exchange rates (1 EUR = ... national currency)			Exchange rates (1 USD = ...)		
	2002	2007	2012	2002	2007	2012
<b>Euro area (EA-17)</b>	-	-	-	1.0626	0.7306	0.7783
United Kingdom	0.6288	0.6843	0.8109	0.6672	0.4998	0.6330
Argentina	3.1556	4.2715	5.8382	3.0633	3.0956	4.5369
Australia	1.7376	1.6348	1.2407	1.8406	1.1951	0.9658
Brazil	2.7896	2.6633	2.5084	2.9204	1.9471	1.9531
Canada	1.4838	1.4678	1.2842	1.5693	1.0741	0.9992
China	7.8265	10.4178	8.1052	8.2770	7.6075	6.3123
India	45.925	56.419	68.597	48.610	41.349	53.437
Indonesia	8 785.12	12 528.33	12 045.73	9 311.2	9 141.0	9 386.6
Japan	118.06	161.25	102.49	125.39	117.75	79.79
Mexico	9.1628	14.9743	16.9029	9.6560	10.9282	13.1695
Russia	29.703	35.018	39.926	31.348	25.581	30.840
Saudi Arabia	:	:	:	3.7500	3.7475	3.7500
South Africa	9.9072	9.6596	10.5511	10.5407	7.0454	8.2100
South Korea	1 175.50	1 272.99	1 447.69	1 251.09	929.26	1 126.47
Turkey	1.4397	1.7865	2.3135	1.5072	1.3029	1.7960
United States	0.9456	1.3705	1.2848	-	-	-

Source: Eurostat (online data code: [ert\\_bil\\_eur\\_a](#)) and the World Bank (World Development Indicators)



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# 7

## International trade

Globalisation acquires a higher profile when it is measured by actual trade flows. There are two main sources of trade statistics: the first is international trade in goods which provides highly detailed information on the value and quantity of international trade; the second is balance of payments statistics which register all the transactions of an economy with the rest of the world. The current account of the balance of payments provides information on international trade in goods and services, as well as income (from employment and investment) and **current transfers**. For all these transactions, the balance of payments registers the value of exports (credits) and imports (debits).

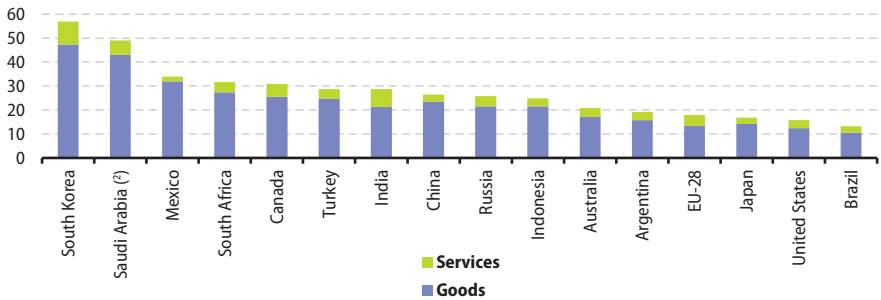
### Main findings

The level of international trade relative to overall economic activity (the ratio of traded **goods** and services to **GDP**) may be expected to be considerably higher for relatively small countries that are more integrated in the global economy as a result of not producing a full range of goods and services, as can be seen, for example, with Saudi Arabia and South Korea in Figure 7.1. By contrast, the United States reported the second lowest ratio of international trade (average of exports and imports) of goods and services to GDP (15.7 %) in 2012 among the G20 members, higher only than that in Brazil (13.2 %). While trade in goods dominates international trade, trade in services has grown strongly: trade in services was equivalent to 7.5 % of GDP in India and reached 9.7 % of GDP in South Korea.

Relative to GDP, Saudi Arabia recorded by far the largest international **trade surplus** (goods and services combined) in 2012 among the G20 members, its large surplus in goods outweighing its deficit in services by an amount equivalent to 24.0 % of GDP; Russia (7.3 % of GDP) and South Korea (2.7 % of GDP) recorded the next largest trade surpluses. At the other end of the scale, South Africa's large goods deficit and smaller services deficit combined for a total deficit equivalent to 10.3 % of GDP, larger in relative terms than that for India (-9.7 %) and Turkey (-7.9 %). The **EU-28** recorded a trade deficit for goods that was 0.4 % of its GDP, around one third of the size of its 1.2 % of GDP trade surplus recorded for services.

**Figure 7.1: Trade integration, 2012 <sup>(1)</sup>**

(% of GDP)



<sup>(1)</sup> Average value of imports and exports relative to GDP. EU-28: extra-EU flows. Other countries: flows with the rest of the world.

<sup>(2)</sup> Goods: 2011.

Source: Eurostat (online data codes: [bop\\_q\\_eu](#) and [nama\\_gdp\\_c](#)), the World Bank (World Development Indicators, based on International Monetary Fund (Balance of Payments Statistics Yearbook and data files), World Bank and OECD (GDP estimates))

**Table 7.1: Trade in goods and services, 2012 <sup>(1)</sup>**

(% of GDP)

	Goods			Services		
	Credits	Debits	Balance	Credits	Debits	Balance
EU-28	13.1	13.6	-0.4	5.1	3.9	1.2
Argentina	17.0	14.4	2.6	3.2	3.9	-0.7
Australia	16.4	16.7	-0.3	3.4	4.1	-0.7
Brazil	10.8	10.3	0.4	1.8	3.6	-1.8
Canada	25.0	26.1	-1.1	4.3	5.8	-1.5
China	24.5	21.7	2.8	2.3	3.4	-1.1
India	15.7	26.1	-10.4	7.5	6.8	0.7
Indonesia	21.4	21.7	-0.2	2.6	3.9	-1.2
Japan	13.4	14.9	-1.5	2.4	3.0	-0.5
Mexico	31.3	32.1	-0.8	1.4	2.5	-1.1
Russia	26.3	16.7	9.6	2.9	5.3	-2.3
Saudi Arabia	54.6	21.9	32.7	1.6	10.3	-8.8
South Africa	22.7	32.3	-9.6	3.9	4.6	-0.7
South Korea	48.5	46.0	2.5	9.8	9.6	0.2
Turkey	19.4	30.1	-10.7	5.4	2.6	2.8
United States	9.5	14.4	-4.9	3.9	2.7	1.2

<sup>(1)</sup> EU-28: extra-EU flows. Other countries: flows with the rest of the world.

Source: Eurostat (online data codes: [bop\\_q\\_eu](#) and [nama\\_gdp\\_c](#)), the World Bank (World Development Indicators, based on International Monetary Fund (Balance of Payments Statistics Yearbook and data files), World Bank and OECD (GDP estimates))

In 2007, China overtook the United States to become the second largest **exporter** of goods among the G20 members, behind the EU-28. Despite the strong growth in Chinese exports, the EU-28's exports of goods in 2012 remained higher — see Figure 7.2. By contrast, Chinese imports of goods were notably lower than **imports** into either the EU-28 or the United States. Together, the EU-27, China and the United States accounted for 39.3 % of global exports of goods in 2011 and 43.8 % of global imports.

**Figure 7.2:** Trade in goods, 2012 (1)

(EUR billion)



(1) EU-28: extra-EU flows. Other countries: flows with the rest of the world.

Source: Eurostat (Comext) and the United Nations (Comtrade)

The EU-28 ran a **trade deficit** for goods equal to EUR 115.0 billion in 2012; this was the third largest deficit among the G20 members, behind that recorded for the United States (EUR 613.5 billion) and India (EUR 155.2 billion). Table 7.2 shows the flows and balance of trade in goods for the EU-27 with the other G20 members. In 2012, the EU-27 had relatively large trade deficits with China and Russia, while its largest surplus was with the United States. Between 2002 and 2012 the EU-27's **trade balance** for goods with Brazil and South Africa developed from a deficit into a surplus, whereas this situation was reversed with Saudi Arabia. During the same period, the EU-27's trade deficit for goods with Russia and China increased substantially, more than doubling, while the deficits with South Korea, Japan, Argentina and Indonesia contracted. The EU-27's trade surplus for goods with Turkey, Australia, India and the United States increased between 2002 and 2012, while those with Mexico and Canada contracted.

**Table 7.2:** EU-27 trade in goods by partner, 2002 and 2012

(EUR million)

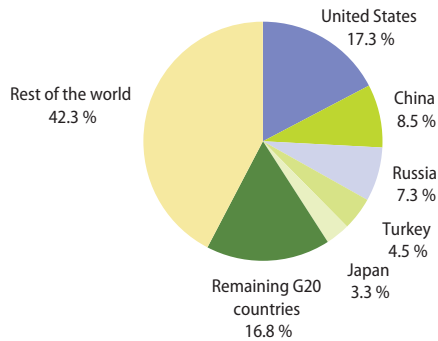
	2002			2012		
	EU-27 exports to partner	EU-27 imports from partner	Balance	EU-27 exports to partner	EU-27 imports from partner	Balance
Argentina	2 173	6 374	-4 201	8 558	9 929	-1 371
Australia	16 874	9 088	7 786	33 849	14 480	19 368
Brazil	15 737	18 359	-2 623	39 608	37 152	2 456
Canada	22 906	16 702	6 205	31 293	30 221	1 072
China	35 099	90 148	-55 049	143 865	289 996	-146 131
India	14 330	13 682	648	38 470	37 319	1 151
Indonesia	4 628	11 094	-6 465	9 650	15 402	-5 752
Japan	43 455	73 651	-30 195	55 490	63 861	-8 372
Mexico	15 344	6 565	8 779	27 923	19 394	8 529
Russia	34 420	64 492	-30 072	123 164	213 185	-90 020
Saudi Arabia	14 359	12 357	2 002	30 030	34 601	-4 571
South Africa	12 622	15 916	-3 294	25 669	20 525	5 144
South Korea	17 651	24 563	-6 912	37 758	37 859	-102
Turkey	26 624	24 591	2 034	75 201	47 836	27 365
United States	247 934	182 618	65 316	291 832	205 294	86 538
<b>World (extra-EU-27)</b>	<b>891 899</b>	<b>936 967</b>	<b>-45 068</b>	<b>1 686 295</b>	<b>1 791 618</b>	<b>-105 323</b>

Source: Eurostat (online data code: [ext\\_lt\\_maineu](#))



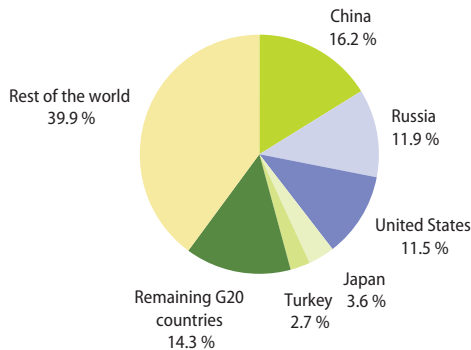
Figures 7.3 and 7.4 analyse the importance of the other G20 members for the EU-27's trade in goods. Close to three fifths (57.7 %) of all EU-27 exports of goods in 2012 were destined for G20 members, most notably the United States (17.3 % share), China (8.5 %) and Russia (7.3 %). The EU-27's main export market outside of the G20 was Switzerland which was the destination for 7.9 % of the EU-27's exports. Collectively, the G20 members provided just over three fifths (60.1 %) of the EU-27's imports of goods, with China (16.2 %), Russia (11.9 %) and the United States (11.5 %) the main countries of origin; Switzerland (6.2 %) and Norway (6.0 %) provided similar shares of the EU-27's imports.

**Figure 7.3:** Main G20 trading partners for EU-27 exports of goods, 2012  
(% share of extra-EU-27 exports)



Source: Eurostat (online data code: [ext\\_lt\\_maineu](#))

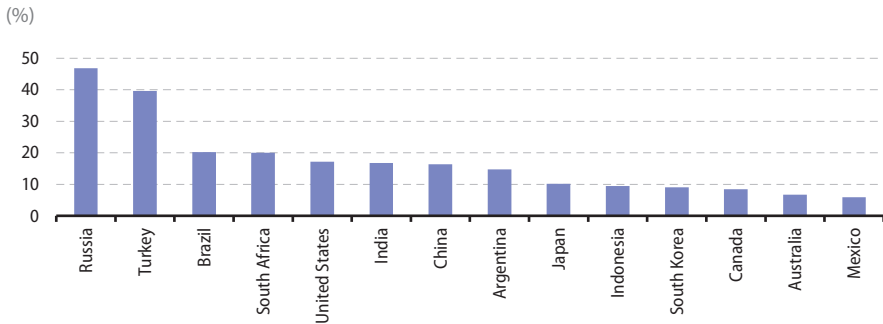
**Figure 7.4:** Main G20 trading partners for EU-27 imports of goods, 2012  
(% share of extra-EU-27 imports)



Source: Eurostat (online data code: [ext\\_lt\\_maineu](#))

Figures 7.5 and 7.6 show the reverse situation, namely the importance of the EU-28 as a trading partner for the other G20 members in terms of international trade in goods. Nearly half of all goods exported from Russia were destined for the EU-28 in 2012, whereas this was the case for less than one tenth of goods exported from Indonesia, South Korea, Canada, Australia or Mexico. The EU-28 was the source of more than one fifth of all goods imported into Brazil, Saudi Arabia, South Africa and Turkey and more than two fifths of goods imported into Russia; the EU-28 supplied less than one tenth of all goods imported into South Korea, Japan and Indonesia.

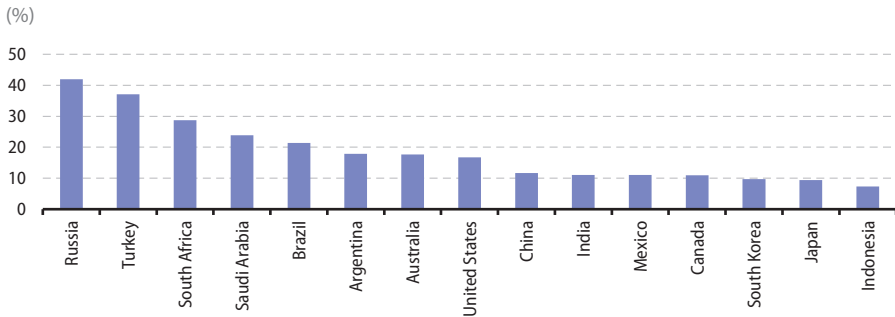
**Figure 7.5:** Share of EU-28 as destination for all goods exported, 2012 (%)



(<sup>1</sup>) Saudi Arabia: not available.

Source: the United Nations (Comtrade)

**Figure 7.6:** Share of EU-28 as origin of all goods imported, 2012



Source: the United Nations (Comtrade)



The EU-27 is the world's largest exporter and importer of services, with a trade surplus of EUR 146.7 billion in 2012. The United States recorded the next highest levels of exports and imports of services (2011 data), as well as the second highest trade surplus for services, valued at EUR 128.3 billion. Among the other G20 countries, only Turkey (2011 data) and South Korea reported trade surpluses for services, while the largest deficits were registered for China, Saudi Arabia (2011 data), Russia and Brazil. Comparing trade flows for 2012 with those for 2002, China, Brazil, Russia, Argentina, South Africa and South Korea all reported that exports and imports of services had more than doubled (in current price terms).

**Table 7.3:** Trade in services, 2002, 2007 and 2012

(EUR billion)

	Exports			Imports		
	2002	2007	2012	2002	2007	2012
<b>EU-27 (¹)</b>	346.3	502.2	657.4	313.9	423.4	510.6
Argentina	3.7	7.6	11.8	5.2	7.9	14.6
Australia	20.7	29.5	:	19.5	28.7	:
Brazil	10.1	17.5	31.0	15.3	27.1	63.0
Canada (²)	43.1	51.6	60.1	46.0	60.0	76.8
China	42.0	89.2	149.0	49.2	94.9	218.9
India	17.7	63.4	:	15.9	34.9	:
Indonesia	6.9	9.1	18.0	17.3	17.8	23.9
Japan (²)	69.7	94.3	104.6	112.8	109.8	120.5
Mexico	13.3	12.6	12.6	18.6	18.0	23.7
Russia	14.4	28.6	48.5	24.8	42.4	84.7
Saudi Arabia (²)	5.5	12.0	8.3	21.1	45.7	56.1
South Africa	5.3	10.1	11.8	5.8	12.9	15.3
South Korea	32.3	53.3	86.3	39.1	62.0	84.2
Turkey (²)	14.8	21.2	28.0	6.5	11.5	15.1
<b>United States (²)</b>	302.1	359.4	436.6	241.8	270.3	308.3

(¹) Extra-EU flows.

(²) Data for 2011 instead of 2012.

Source: Eurostat (online data code: [bop\\_its\\_ybk](#)) and the United Nations (Service Trade)

**Table 7.4:** EU-27 trade in services with selected G20 partner countries, 2011 and 2012

(EUR billion)

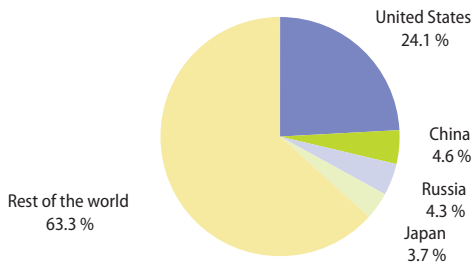
	2011			2012		
	EU-27 exports to partner	EU-27 imports from partner	Balance	EU-27 exports to partner	EU-27 imports from partner	Balance
Brazil	11.7	7.1	4.6	12.7	7.0	5.7
Canada	16.1	9.9	6.2	16.9	10.3	6.6
China	26.6	18.3	8.3	30.0	20.1	9.9
India	11.6	11.1	0.5	11.7	11.1	0.6
Japan	22.5	15.9	6.6	24.2	15.6	8.6
Russia	23.8	14.2	9.6	28.3	15.3	13.1
United States	146.6	139.9	6.7	158.7	147.7	11.0
<b>World (extra-EU-27)</b>	607.4	481.2	126.1	657.4	510.6	146.7

Source: Eurostat (online data code: [bop\\_its\\_ybk](#))

The EU-27 had trade surpluses in services in 2011 and 2012 with all the G20 members listed in Table 7.4; note that data is not available for those G20 members that are not shown. A relatively high share of the EU-27's trade in services was with the United States— although exports and imports were broadly in line with each other — resulting in a relatively small surplus in both years. Between 2011 and 2012 the EU's surpluses with all G20 members expanded.

The analysis of the EU-27's trading partners shown in Figures 7.7 and 7.8 for services can be compared with the similar analysis for goods (see Figures 7.3 and 7.4). The importance of the United States as a trading partner for the EU-27 for services is notably higher than it was for goods, whereas the reverse was true for China and Russia. Among countries outside of the G20, Switzerland was an important partner for trade in services — it was the destination for 12.7 % of the EU-27's exports of services and the origin of 11.9 % of the EU-27's imports of services, in both cases a larger share than that recorded for Russia, China and Japan combined.

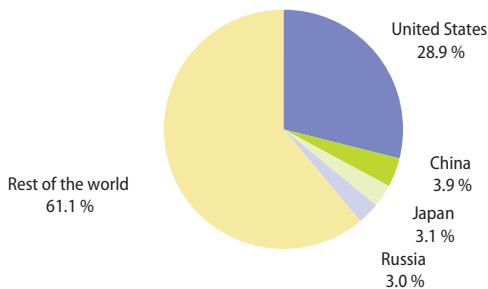
**Figure 7.7:** Selected G20 trading partners for EU-27 exports of services, 2012 <sup>(1)</sup>  
(% share of extra-EU-27 exports)



<sup>(1)</sup> Provisional.

Source: Eurostat (online data code: [bop\\_its\\_ybk](#))

**Figure 7.8:** Selected G20 trading partners for EU-27 imports of services, 2012 <sup>(1)</sup>  
(% share of extra-EU-27 imports)



<sup>(1)</sup> Provisional.

Source: Eurostat (online data code: [bop\\_its\\_ybk](#))





# 8

## Industry, trade and services

Industrial activities such as manufacturing are integrated with many service activities such as transport and communications, distribution and business services, which in turn depend on industry to produce the equipment and hardware they use. Creating a positive climate in which entrepreneurs and businesses can flourish is considered by many as the key to generating growth and jobs; this is all the more important in a globalised economy, where some businesses have considerable leeway to select where they wish to operate.

### Main findings

The line graphs presented in Figures 8.1 and 8.2 illustrate developments using key short-term business statistics. The statistics presented here are annual indices but the underlying series are normally monthly or quarterly data which facilitate a rapid assessment of the economic climate.

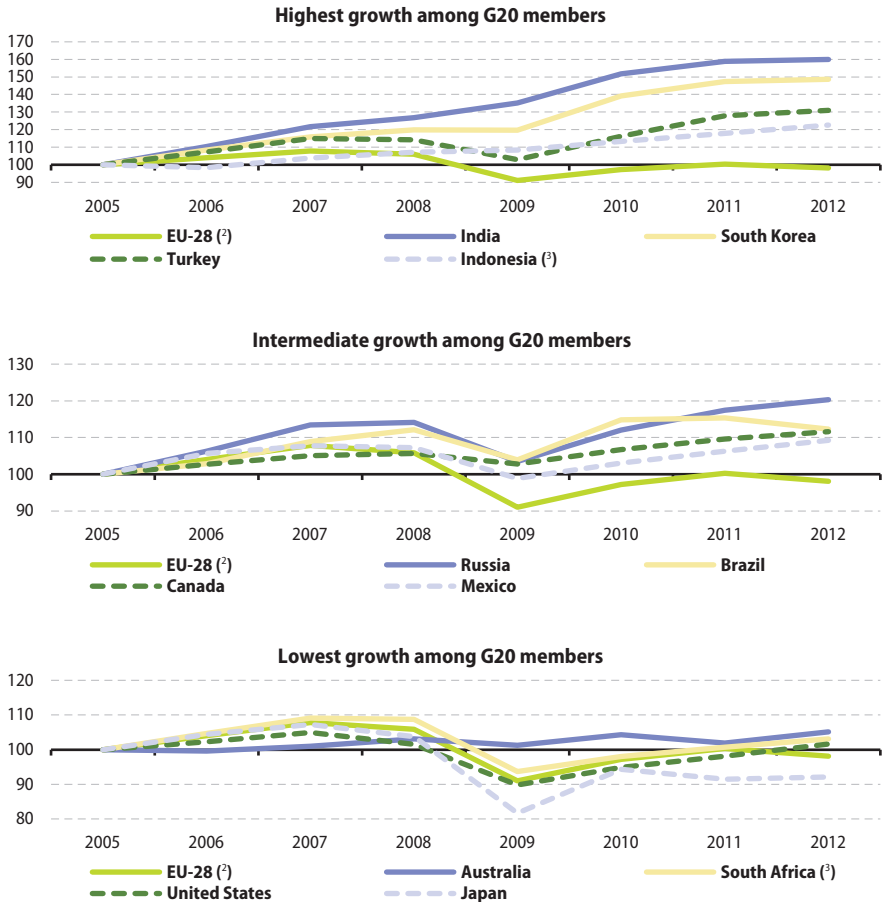
The impact of the global financial and economic crisis on industrial activities and the subsequent recovery can be clearly seen. In the years leading up to the crisis there was growth in industrial output in all G20 members — note that the **industrial production index** is a volume index and so has been adjusted to remove price changes. From the second half of 2007, many economies started to experience a contraction in output alongside an acceleration of price growth. Annual rates of change for the industrial production index turned negative for some G20 members in 2008, notably Japan, the United States and the EU-28. In 2009, most of the other G20 members (note that no data are available for Argentina, China or Saudi Arabia) also reported negative rates of change for industrial production, the exceptions being India (6.6 % growth) and Indonesia (1.2 %), while industrial output remained relatively unchanged in South Korea. By 2010, annual rates of change had turned positive for all G20 members, although they were reversed again in Japan and Australia in 2011 (for the former this was in part as a consequence of the tsunami in March 2011). In 2012, Brazil and the EU-28 were the only G20 members to record falling industrial output.



The crisis was remarkable not just for its global scale, but also for the depth of the downturn, particularly in industrial activities. In 2009, industrial output fell by more than 10 % in the United States, South Africa and the EU-28 and by as much as 21.3 % in Japan. Figure 8.1 shows the contrasting developments of industrial activity across the G20 members and includes the time series for the EU-28 in all three parts of the figure; note that different scales are used on the

**Figure 8.1:** Industrial production index, 2005–11<sup>(1)</sup>

(2005 = 100)



(1) Note the differences in the range of the y-axes between the different parts of the figure. The EU-28 series is shown in all three figures for the purpose of comparison. Argentina, China and Saudi Arabia: not available.

(2) Estimates.

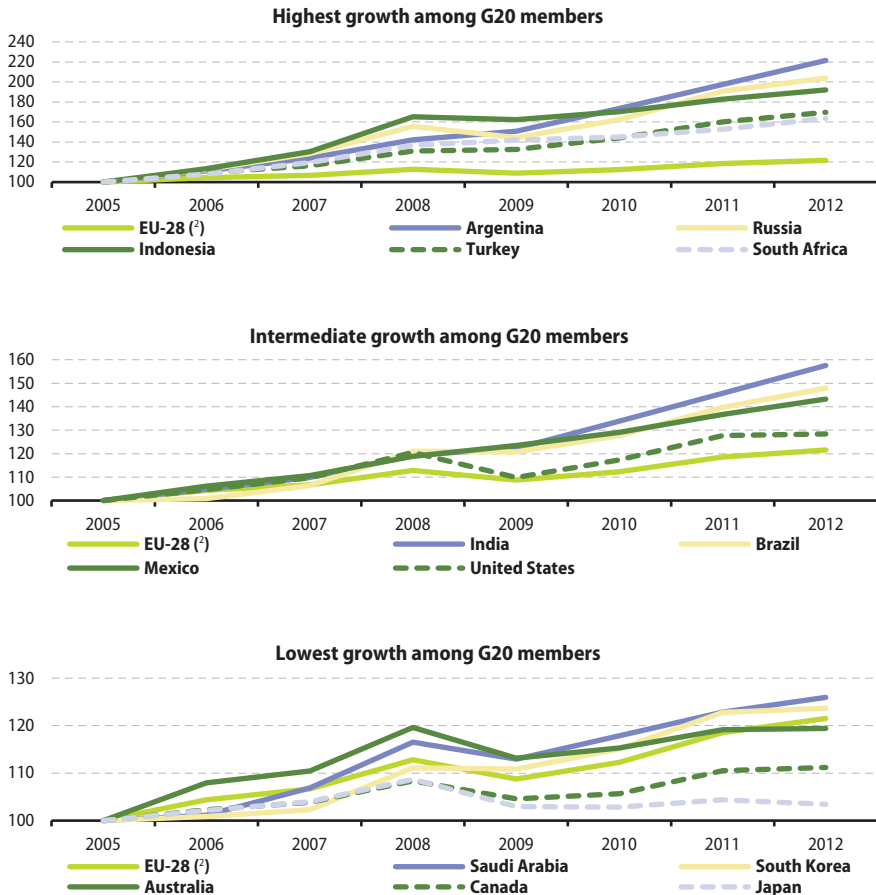
(3) Data for manufacturing instead of industry.

Source: Eurostat (online data code: [sts\\_inpr\\_a](#)), the International Monetary Fund (International Financial Statistics) and OECD (Main Economic Indicators)

y-axis for each part of the figure. Rapid industrial growth was apparent in India and South Korea and to a somewhat lesser extent in Turkey, Indonesia and Russia. By contrast, industrial output in 2012 in South Africa, the United States and the EU-28 was approximately at the same level that it had been in 2005. In Japan, industrial output in 2012 remained 14.2 % below its 2007 peak level.

**Figure 8.2:** Industrial producer price index, 2005–12<sup>(1)</sup>

(2005 = 100)



(1) Note the differences in the range of the y-axes between the different parts of the figure. The EU-28 series is shown in all three figures for the purpose of comparison. China: not available.

(2) Estimates.

Source: Eurostat (online data code: [sts\\_inpp\\_a](#)), the International Monetary Fund (International Financial Statistics) and OECD (Main Economic Indicators)



Industrial output price increases accelerated in the period leading up to the financial and economic crisis, as prices rose in 2008 by more than 10 % in Turkey, Brazil, South Africa and Argentina and by more than 20 % in Russia and Indonesia. Often this rapid increase in prices reflected the rising cost of energy, food and other natural resources, as increased demand, particularly from developing countries, outstripped supply. In 2009, many G20 members recorded a fall in output prices, although prices continued to rise in Argentina, Mexico, South Africa, India and Turkey albeit at a pace that was more modest than that experienced in 2008. The largest falls in output prices in 2009 were recorded in Japan, Australia, Russia and the United States, where industrial output prices fell by more than 5 %. Nearly all G20 members recorded rising industrial output prices in 2010, a pattern which continued into 2011 and 2012; the only exception was Japan where prices fell marginally in 2010, rose in 2011 and dropped again in 2012.

Over the period from 2005–12, industrial output prices more than doubled in Argentina and Russia, equivalent to annual growth rates of 12.0 % and 10.7 % respectively. Indonesia (9.8 % per year) also recorded relatively high industrial output price increases during the period shown in Figure 8.2. Despite falling prices in 2009, EU-28 industrial output prices increased, on average, by 2.8 % per year between 2005 and 2012, while industrial output prices in Japan rose by an average of just 0.5 % per year.

Structural business statistics provide a snapshot of the business economy for a particular year, mainly focused on the level of inputs (such as labour and goods and services) and the level of output, in particular value added. Data are often available at a very detailed level, for several hundred industrial, construction and services activities. The analysis presented in Table 8.1 focuses on manufacturing divisions: for the EU-28 the dataset used was composed of the 24 manufacturing divisions of the [NACE Rev. 2 classification](#) (for the purpose of analysis in Table 8.1 the divisions for food and beverages have been aggregated), while for the other G20 members the [ISIC Rev.3 classification](#) was used which has 23 manufacturing divisions.

With the exception of India and South Korea, food and beverages manufacturing was one of the three largest manufacturing divisions (in value added terms) in all G20 members (China and Saudi Arabia not available; see Table 8.1) and in several G20 members it was the largest of all manufacturing activities. The manufacture of chemicals, motor vehicles, basic metals and electrical equipment were also activities that frequently figured among the top three manufacturing divisions. Somewhat less common were machinery manufacturing, fuel processing and metal products manufacturing which each figured twice among the three largest manufacturing activities for G20 members. Activities that ranked in the top three in only one G20 member included tobacco manufacturing in Indonesia, textiles manufacturing in Turkey and the manufacture of office equipment and optical products in the United States. The cumulative share of manufacturing valued added generated by the three largest manufacturing divisions ranged from 32.3 % in Turkey to 62.5 % in Argentina and 62.7 % in Mexico; for the EU-28 the share was 38.2 %.

**Table 8.1:** Largest manufacturing activities, based on value added, 2010 <sup>(1)</sup>

(% share of manufacturing)

	<b>Largest activity</b>		<b>Second largest</b>		<b>Third largest</b>	
<b>EU-28</b>	Food & beverages	13.6	Chemicals	13.1	Machinery	11.5
<b>Argentina</b>	Food & beverages	33.5	Chemicals	18.6	Basic metals	10.4
<b>Australia</b>	Food & beverages	21.3	Basic metals	15.4	Metal products	8.7
<b>Brazil</b>	Food & beverages	19.0	Fuel processing	11.6	Chemicals	11.5
<b>Canada</b>	Food & beverages	16.2	Motor vehicles	11.4	Chemicals	9.8
<b>India</b>	Electrical equipment	17.4	Basic metals	13.5	Chemicals	12.2
<b>Indonesia</b>	Food & beverages	15.4	Electrical equipment	14.5	Tobacco	14.3
<b>Japan</b>	Electrical equipment	15.8	Motor vehicles	14.0	Food & beverages	11.6
<b>Mexico</b>	Food & beverages	27.7	Motor vehicles	18.5	Chemicals	16.5
<b>Russia</b>	Fuel processing	24.5	Basic metals	17.2	Food & beverages	17.1
<b>South Africa</b>	Food & beverages	18.9	Motor vehicles	9.0	Metal products	8.5
<b>South Korea</b>	Electrical equipment	33.4	Motor vehicles	9.5	Machinery	9.5
<b>Turkey</b>	Food & beverages	13.4	Motor vehicles	9.8	Textiles	9.1
<b>United States</b>	Chemicals	15.1	Food & beverages	13.7	Office equip.; optical equip.	10.8

(1) EU-28 data based on divisions of the NACE Rev. 2 classification. Data for other countries based on divisions of the ISIC Rev.3 classification. A lack of direct correspondence between these two classifications resulted in some activities being aggregated and in printing and publishing being removed from the analysis. China and Saudi Arabia: not available.

Source: Eurostat (online data code: [sbs\\_na\\_ind\\_r2](#)) and the United Nations (UNIDO)



# 9

## Research and communication

Practical applications of science are integrated in almost every moment of our lives, for example, in **household** appliances, transport and communications equipment, medicine and health equipment. Research and development (R & D) and **innovation** underlie such applications and are often considered as some of the primary driving forces behind competitiveness, economic growth and job creation.

The EU is a major tourist destination, with five of its Member States among the world's top 10 destinations for holidaymakers, according to data from the United Nations World Tourism Organisation. Tourism has the potential to contribute towards employment and economic growth, especially in rural, peripheral or less-developed areas.

### Main findings

R & D includes creative work carried out on a systematic basis in order to increase the stock of knowledge of man, culture and society and the use of this knowledge to devise new applications. **Gross domestic expenditure on research and development (GERD)** is a key measure of the level of R & D activity and encompasses expenditures in the following sectors: **business, higher education institutions, government** and **non-profit organisations**; it includes R & D that is funded from **abroad**, but excludes payments made abroad.

GERD in the **EU-28** was estimated at around **EUR 259.5 billion** in 2012. The relation between the level of GERD and **gross domestic product (GDP)** is known as R & D intensity and in 2011 this ratio stood at 2.04 % in the EU-28. According to the **United Nations Educational, Scientific and Cultural Organisation (UNESCO)**, by far the highest R & D intensity among the G20 members was in South Korea, where GERD was equivalent to 3.74 % of GDP in 2010.

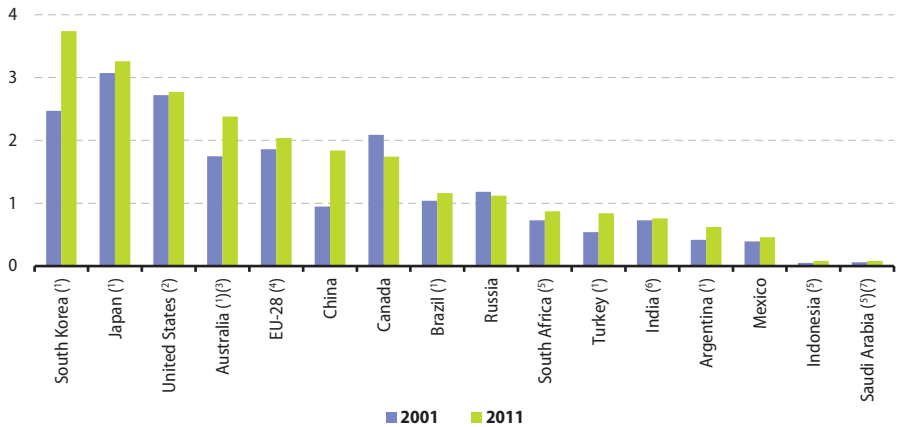


The latest data (2010 or 2011) for Japan, the United States and Australia shows that they also recorded relatively high R & D intensities. Saudi Arabia and Indonesia recorded by far the lowest R & D intensities among the G20 members, with GERD of less than 0.1 % of GDP.

R & D intensity was higher in 2011 than in 2001 in nearly all G20 members (see Figure 9.1) — with declines only in Canada and Russia. The largest increase (in percentage point terms) in R & D intensity between 2001 and 2011 was in South Korea, with relatively large increases also recorded in China and Australia.

**Figure 9.1:** Gross domestic expenditure on research and development, 2001 and 2011

(% of GDP)



(1) Data for 2010 instead of 2011.

(2) Excluding most or all capital expenditure.

(3) Data for 2002 instead of 2001.

(4) Estimates.

(5) Data for 2009 instead of 2011.

(6) Data for 2007 instead of 2011.

(7) Data for 2003 instead of 2001.

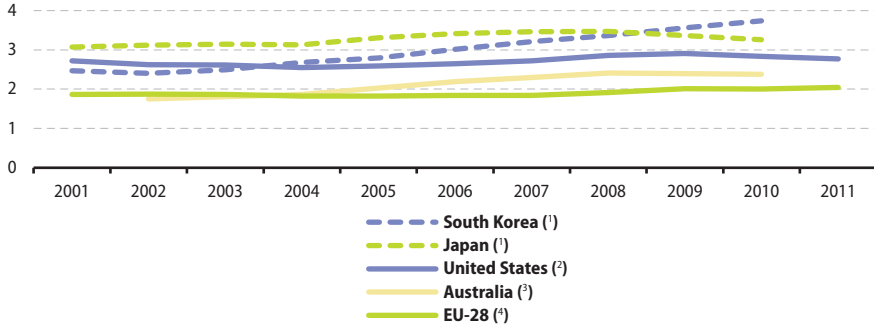
Source: Eurostat (online data code: [rd\\_e\\_gerdtot](#)) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Science & Technology)

The increase in R & D intensity in the EU-28 came mainly in recent years, as this indicator remained relatively unchanged between 2001 and 2007. Alongside the economic downturn during the financial and economic crisis there was an increase in the EU-28's R & D intensity in 2008 and 2009: in 2008 this was due to a 4.4 % increase in GERD outstripping GDP growth (0.6 % in current prices), while the fall in GERD (-1.0 %) in 2009 was less than the sizeable contraction of GDP (-5.8 %) in that year. Figure 9.2 shows the upward development of R & D intensity over the last 10 years in the five G20 members with the highest R & D intensities.



**Figure 9.2:** Gross domestic expenditure on research and development relative to GDP, 2001–11

(% of GDP)



(1) 2011: not available.

(2) Excluding most or all capital expenditure.

(3) Data available for even years only; values shown for odd years are based on linear interpolation between even reference periods.

(4) Estimates.

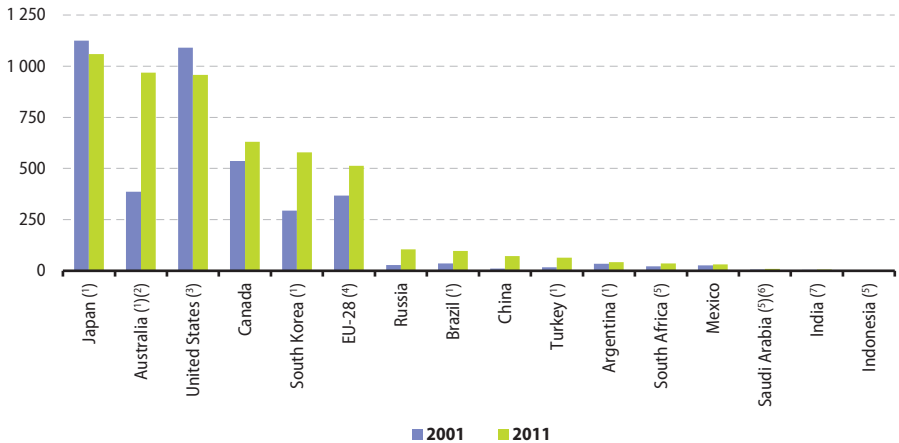
Source: Eurostat (online data code: [rd\\_e\\_gerdtot](#)) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Science & Technology)

An alternative analysis of R & D expenditure can be seen in Figure 9.3, namely the level of GERD relative to population size. This indicator provides a very clear distinction between G20 members. Japan, Australia and the United States stand out with GERD per inhabitant close to EUR 1 000 in 2010 or 2011. Canada, South Korea and the EU-28 completed the group of G20 members with relatively high GERD per inhabitant. Among the other G20 members, only Russia (EUR 104 per inhabitant) recorded GERD in excess of EUR 100 per inhabitant, while this indicator dropped below EUR 10 per inhabitant in Saudi Arabia, India and Indonesia.

More than three fifths (63.1 %) of all R & D in the EU-28 was performed in the business enterprise sector; more than half of total R & D was performed in the business enterprise sector in most G20 members (see Table 9.1) although the share was lower in Turkey, Mexico, India, Indonesia and Argentina. The government sector was the dominant performing sector in Indonesia (69.8 % of total R & D), India (61.7 %) and Argentina (44.3 %); elsewhere this sector performed less than one third of R & D. The higher education sector was the largest R & D performing sector in Turkey (46.0 % of the total) and exceeded one third of the total in Canada. Private non-profit organisations performed the smallest share of R & D in all G20 members (with data available), reaching their highest share (4.3 %) in the United States.

**Figure 9.3:** Gross domestic expenditure on research and development per inhabitant, 2001 and 2011

(EUR per inhabitant)



(1) Data for 2010 instead of 2011. (2) Data for 2002 instead of 2001. (3) Excluding most or all capital expenditure. (4) Estimates. (5) Data for 2009 instead of 2011. (6) Data for 2003 instead of 2001. (7) Data for 2007 instead of 2011.

Source: Eurostat (online data code: [rd\\_e\\_gerdtot](#)) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Science & Technology)

**Table 9.1:** Gross domestic expenditure on research and development (GERD), analysis by sector of performance, 2011

	Total GERD (% of GDP)	Analysis by sector of performance (% of GERD)			
		Business enterprise	Government	Higher education	Private non-profit
EU-28	2.04	63.1	12.5	23.5	0.9
Argentina (1)	0.62	23.2	44.3	30.9	1.6
Australia (1)	2.38	58.0	12.4	26.6	3.0
Brazil	1.16	:	:	:	:
Canada	1.74	51.3	10.1	38.1	0.5
China	1.76	75.7	16.3	7.9	:
India (2)	0.76	33.9	61.7	4.4	:
Indonesia (2)	0.08	26.3	69.8	3.9	:
Japan (1)	3.26	76.5	9.0	12.9	1.6
Mexico	0.46	42.1	28.8	26.8	2.3
Russia	1.12	61.0	29.8	9.0	0.2
Saudi Arabia	0.08	:	:	:	:
South Africa (4)	0.87	53.2	21.6	24.3	0.9
South Korea (1)	3.74	74.8	12.7	10.8	1.7
Turkey (1)	0.84	42.5	11.4	46.0	:
United States (5)	2.77	68.3	12.1	15.2	4.3

(1) 2010.

(2) 2007. Data for the business enterprise sector includes the data for the private non-profit sector.

(3) 2000.

(4) 2009.

(5) Excluding most or all capital expenditure. Government includes central or federal government only.

Source: Eurostat (online data code: [rd\\_e\\_gerdtot](#)) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Science & Technology)



The relative shares of R & D performance were quite different from the mix in terms of the **sources of funds** (see Table 9.2). The major difference concerned the relatively small share of funds provided by higher education institutions and the high share provided by the government sector; in other words, the R & D performed in higher education institutions was often financed by funds from other sectors, while the government sector financed far more R & D than it performed. For the business enterprise sector, the shares of R & D performance and funding were relatively close in most G20 members, with the main exceptions being Russia, Mexico and South Africa. Foreign financing for R & D was relatively important in South Africa where it exceeded one tenth of all financing and to a lesser extent in the EU-28 (including intra-EU cross-border funds) and Canada. Between 2001 and 2011, the share of R & D funding provided by the business enterprise sector generally increased. Exceptions where the reverse development was observed include South Africa, the United States, Russia, Canada and South Korea, while in the EU-28 the government and business enterprise sectors recorded small falls in their shares of R & D funding balanced by increases for the higher education sector as well as funding from abroad.

**Table 9.2:** Analysis of gross domestic expenditure on research and development by source of funds, 2001 and 2011

(%)

	Business enterprise		Government		Higher education		Private non-profit		Abroad	
	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
<b>EU-28 (1)</b>	55.8	54.9	34.0	33.4	0.6	0.9	1.6	1.6	8.0	9.2
Argentina (2)	20.8	22.3	74.3	72.7	2.4	3.4	1.3	1.0	1.2	0.6
Australia (3)(4)	51.9	61.9	41.2	34.6	0.2	0.1	3.1	1.8	3.6	1.6
Brazil (2)	43.8	45.4	54.8	52.7	1.3	1.9	:	:	:	:
Canada (5)	50.3	46.5	29.2	36.1	5.6	8.2	2.3	3.6	12.6	6.4
China (6)	57.6	73.9	33.4	21.7	:	:	:	:	2.7	1.3
India (7)	19.3	33.9	80.7	66.1	:	:	:	:	:	:
Indonesia	14.7	:	84.5	:	0.2	:	:	:	:	:
Japan (2)	73.1	75.9	19.0	17.2	6.8	5.7	0.7	0.8	0.4	0.4
Mexico	29.8	56.3	59.1	37.5	9.1	4.6	0.8	0.1	1.3	1.4
Russia	33.6	27.7	57.2	67.1	0.3	0.8	0.2	0.2	8.6	4.3
Saudi Arabia	:	:	:	:	:	:	:	:	:	:
South Africa (8)(9)	55.8	42.5	36.4	44.4	0.1	0.1	1.7	0.9	6.1	12.1
South Korea (2)	72.5	71.8	25.0	26.7	1.7	0.9	0.4	0.4	0.5	0.2
Turkey (2)	44.9	45.1	48.0	30.8	:	19.6	6.3	3.7	0.8	0.8
United States (10)	67.7	60.0	27.2	33.4	2.5	3.0	2.6	3.6	:	:

(1) Abroad includes cross-border funding between Member States within the EU-28.

(2) Data for 2010 instead of 2011.

(3) Data for 2002 instead of 2011.

(4) Data for 2008 instead of 2011.

(5) Government and higher education: 2010 instead of 2011.

(6) Data for 2000 instead of 2011.

(7) Data for 2007 instead of 2011. Data for the business enterprise sector includes the data for the private non-profit sector.

(8) Data for 2009 instead of 2011.

(9) Higher education: 2003 instead of 2011.

(10) Excluding most or all capital expenditure. Government includes central or federal government only. Abroad is included in other headings.

Source: Eurostat (online data code: [rd\\_e\\_fundgerd](#)) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Science & Technology)



R & D personnel include all individuals employed directly in the field of R & D, covering not only **researchers**, but also **technicians** and equivalent staff as well as supporting staff. The number of people working in R & D in 2011 in the EU-28 was around 4 million; when converted into **full-time equivalents (FTEs)** the number of R & D personnel was 2.6 million. Among the other G20 members with data available (see Table 9.3), China also had an R & D workforce of around 4 million, followed by Japan and Russia — note that the Russian head count data is an underestimate and the data in full-time equivalents shows that the R & D personnel input in Russia was close to that in Japan.

**Table 9.3:** Research and development personnel, 2011

	Total (number)		Sectoral share in total based on full-time equivalents (%)			
	Head count	Full-time equivalents	Business enterprise	Government	Higher education	Private non-profit
<b>EU-28</b>	3 982 444	2 615 169	52.3	13.8	32.8	1.1
Argentina (1)	92 201	65 761	12.8	47.6	37.4	2.1
Australia (2)	:	137 489	39.2	12.4	44.9	3.5
Brazil (1)	469 257	266 709	20.8	5.3	73.3	0.6
Canada (1)	:	221 360	61.5	9.0	28.9	0.6
China	4 017 578	2 882 903	75.2	14.4	10.4	:
India (2)	:	391 149	22.3	72.0	5.7	:
Indonesia (4)	55 118	56 356	9.6	39.0	51.4	:
Japan (1)	1 159 546	877 928	70.0	7.0	21.5	1.5
Mexico	79 256	79 256	48.9	20.3	28.3	2.5
Russia (1)(5)	736 540	839 183	68.7	8.0	21.9	1.4
Saudi Arabia (6)	2 655	:	52.4	32.9	14.4	0.2
South Africa (6)	59 494	30 891	:	:	:	:
South Korea (1)	500 124	335 228	38.9	21.6	38.4	1.0
Turkey (1)(7)	147 417	81 792	45.9	13.9	40.2	:
United States	:	:	:	:	:	:

(1) 2010. (2) 2008. (3) 2005. (4) Head count: 2005. Full-time equivalents: 2000. (5) Head count: underestimated. (6) 2009. (7) Data in full-time equivalents: underestimated.

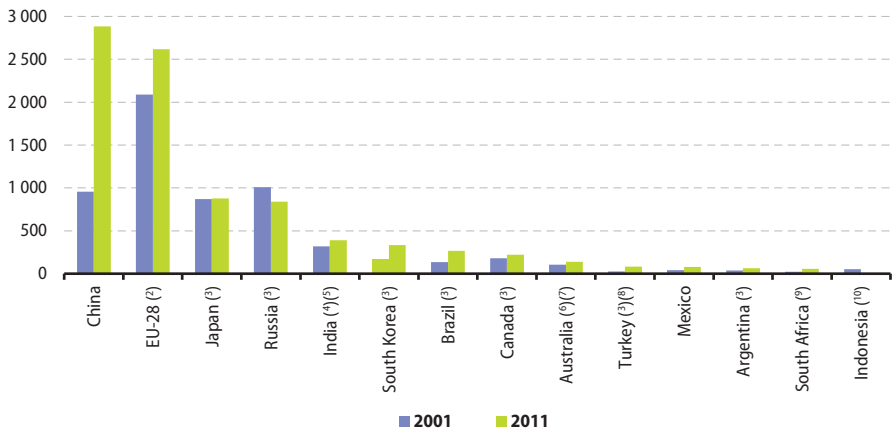
Source: Eurostat (online data code: [rd\\_p\\_persocc](#)) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Science & Technology)

The sectoral division of R & D personnel was broadly similar to that for the analysis of the sectoral performance of R & D expenditure; the main difference was that the share of personnel in higher education institutions was generally larger than the equivalent share of R & D expenditure with the reverse situation in the business enterprise sector. Canada was a notable exception to this rule, with more than three fifths of its R & D personnel in the business enterprise sector that was responsible for just over half of its R & D performance. Indonesia and Russia also stand out because of the relatively small share of R & D personnel in these countries working in the government sector relative to the expenditure of this sector.

From Figure 9.4 it can be seen that the number of R & D personnel in China and Turkey more or less trebled between 2001 and 2011, while in South Africa and South Korea the number more than doubled; in the EU-28 the number increased by one quarter (25.3 %). Russia was the only G20 member to record a fall in its number of R & D personnel during this period.

**Figure 9.4:** Research and development personnel, 2001 and 2011 <sup>(1)</sup>

(1 000 full-time equivalents)



<sup>(1)</sup> Saudi Arabia and the United States: not available. <sup>(2)</sup> Estimates. <sup>(3)</sup> Data for 2010 instead of 2011. <sup>(4)</sup> Data for 2000 instead of 2001. <sup>(5)</sup> Data for 2005 instead of 2011. <sup>(6)</sup> Data for 2002 instead of 2001. <sup>(7)</sup> Data for 2008 instead of 2011. <sup>(8)</sup> Underestimated. <sup>(9)</sup> Data for 2009 instead of 2011. <sup>(10)</sup> 2011: not available.

Source: Eurostat (online data code: [rd\\_p\\_persocc](#)) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Science & Technology)

**Table 9.4:** Researchers, 2011

	Total (number)		Sectoral share in total based on full-time equivalents (%)			
	Head count	Full-time equivalents	Business enterprise	Government	Higher education	Private non-profit
<b>EU-28</b>	2 545 346	1 628 127	45.6	12.5	40.7	1.2
Argentina <sup>(1)</sup>	74 020	47 580	8.9	45.1	44.5	1.4
Australia <sup>(2)</sup>	:	92 649	29.9	8.9	57.8	3.3
Brazil <sup>(3)</sup>	234 797	138 653	25.9	5.5	67.8	0.7
Canada <sup>(4)</sup>	:	149 060	59.9	6.4	33.4	0.3
China	1 905 899	1 318 086	62.1	19.0	18.9	:
India <sup>(5)</sup>	:	154 827	37.0	48.7	14.3	:
Indonesia <sup>(6)</sup>	96 697	44 984	3.5	35.7	60.8	:
Japan <sup>(7)</sup>	894 138	656 032	74.8	4.9	19.1	1.2
Mexico	46 125	46 125	41.1	19.8	36.2	2.9
Russia <sup>(8)</sup>	368 915	442 071	47.8	32.8	19.1	0.3
Saudi Arabia <sup>(9)</sup>	1 271	:	:	:	:	:
South Africa <sup>(10)</sup>	40 797	19 793	30.6	14.8	53.6	0.9
South Korea <sup>(11)</sup>	345 912	264 118	76.5	7.5	14.9	1.1
Turkey <sup>(12)</sup>	124 796	64 341	39.4	9.5	51.2	:
<b>United States <sup>(13)</sup></b>	:	1 412 639	80.0	:	:	:

<sup>(1)</sup> 2010. <sup>(2)</sup> 2008. <sup>(3)</sup> 2005. <sup>(4)</sup> 2000. <sup>(5)</sup> Head count: underestimated. <sup>(6)</sup> 2009. <sup>(7)</sup> Government only. <sup>(8)</sup> Data for higher education shows the number of graduates. <sup>(9)</sup> 2007.

Source: Eurostat (online data code: [rd\\_p\\_persocc](#)) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Science & Technology)

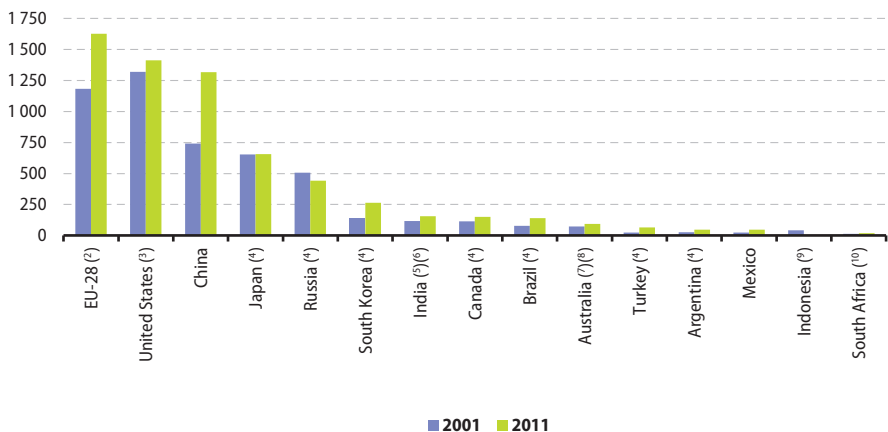
Table 9.4 provides a similar analysis to that in Table 9.3, but focuses on the core occupation of researchers, in other words professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems; persons involved in project management are also included. The number of researchers in 2011 in the EU-28 was around 2.5 million or 1.6 million in terms of full-time equivalents. The number of researchers in the United States (also in full-time equivalents) was about 13 % below that in the EU-28, while in China the number was around 19 % lower.

Combining the information in Tables 9.3 and 9.4 it can be seen that about two fifths of the R & D personnel in India (39.6 %) were researchers, a share that exceeded three fifths (62.3 %) in the EU-28 and reached close to four fifths in Turkey, South Korea and Indonesia. Generally, the share of researchers that were in higher education institutions was higher than the equivalent share for all R & D personnel — notable examples include Australia and Turkey — while South Korea, Brazil, Russia and Japan were the only exceptions.

The number of researchers more than doubled in Turkey between 2001 and 2010 (see Figure 9.5), while large increases (close to 100 %) were also recorded for Mexico (between 2001 and 2011) and South Korea (between 2001 and 2010). In the EU-28, the number of researchers increased by 37.6 % between 2001 and 2011. The United States (with a 7.0 % increase) and Japan (0.5 %) recorded relatively small increases in their respective number of researchers, while Russia was again the only G20 member to record an actual fall (-12.6 %).

**Figure 9.5:** Researchers, 2001 and 2011 <sup>(1)</sup>

(1 000 full-time equivalents)

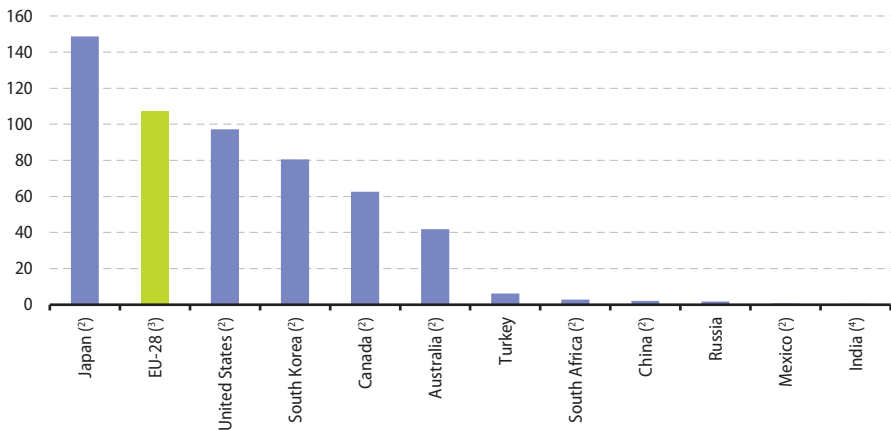


<sup>(1)</sup> Saudi Arabia: not available. <sup>(2)</sup> Estimates. <sup>(3)</sup> Data for 2007 instead of 2011. <sup>(4)</sup> Data for 2010 instead of 2011. <sup>(5)</sup> Data for 2000 instead of 2001. <sup>(6)</sup> Data for 2005 instead of 2011. <sup>(7)</sup> Data for 2002 instead of 2001. <sup>(8)</sup> Data for 2008 instead of 2011. <sup>(9)</sup> 2011: not available. <sup>(10)</sup> Data for 2009 instead of 2011.

Source: Eurostat (online data code: [rd\\_p\\_persocc](#)) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Science & Technology)

As well as offering protection, **patents** result in inventions becoming public and can be seen as an important source for providing technical information. Statistics for **patent applications** to the **European Patent Office (EPO)** (see Figure 9.6) refer to applications filed in a particular year, regardless of whether the patent was granted or not. Patent applications are assigned to a country based on the inventor's place of residence. There is a high propensity to make use of patents in Japan, the United States and South Korea within their national economies and further afield. Indeed, there were more patent applications per inhabitant to the EPO made from Japan than there were from within the EU-28.

**Figure 9.6:** Patent applications to the European patent office, 2011 <sup>(1)</sup>  
(number per million inhabitants)



<sup>(1)</sup> Argentina, Brazil, Indonesia and Saudi Arabia: not available.

<sup>(2)</sup> 2008.

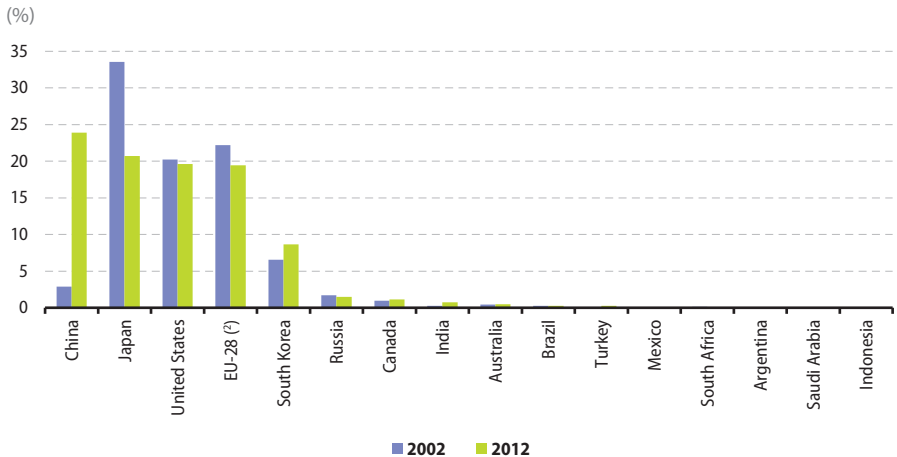
<sup>(3)</sup> Estimate.

<sup>(4)</sup> 2007.

Source: Eurostat (online data code: [pat\\_ep\\_ntot](#))

The UN's **World Intellectual Property Organisation** provides statistics on global patent applications and estimates that around 2.3 million patent applications were made in 2012. Japan's share of global patent applications fell between 2002 and 2012 by 12.8 percentage points while China's share increased by 21.0 percentage points to move from fifth highest among the G20 members to the top of the ranking, displacing Japan in 2012. South Korea's share also increased substantially (up 2.1 percentage points) between 2002 and 2012. The United States (19.6 % of the total) and the EU-28 (19.4 %) had similar shares of patent applications made across the world in 2012, both lower than 10 years earlier.

Developments in patent applications for the period 2002–12 are shown in Table 9.5, in this case standardised by showing the number of applications relative to population size. Over this period, South Korea and Japan had by far the highest number of patent applications relative to population size. The data for 2012 indicates that these two countries were followed at some distance by the United States and then China and the EU-28.

**Figure 9.7:** Share of world patent applications, 2002 and 2012 <sup>(1)</sup>

<sup>(1)</sup> Estimates. Country of origin based on the residence of the applicant.

<sup>(2)</sup> Sum of data for the 28 EU Member States.

Source: the World Intellectual Property Organisation

**Table 9.5:** World patent applications, 2002–12 <sup>(1)</sup>

(per million inhabitants)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>EU-28 <sup>(2)</sup></b>	307	312	316	314	314	346	353	342	351	341	340
Argentina	19	21	21	27	26	24	20	:	:	:	18
Australia	120	122	127	125	137	129	132	115	109	107	116
Brazil	19	21	22	22	21	22	22	22	22	24	24
Canada	126	124	163	160	170	152	152	150	133	138	135
China	31	44	51	72	93	116	147	172	219	309	396
India	3	3	4	4	5	5	5	6	7	7	8
Indonesia	1	1	1	1	1	:	:	2	2	2	:
Japan	2 866	2 804	2 884	2 880	2 717	2 610	2 585	2 315	2 276	2 250	2 250
Mexico	5	4	5	5	5	6	6	7	8	9	11
Russia	163	173	161	166	197	195	197	182	204	188	203
Saudi Arabia	3	2	3	5	5	5	:	:	11	12	:
South Africa	22	20	20	21	18	19	18	17	16	13	12
South Korea	1 608	1 887	2 191	2 538	2 594	2 648	2 597	2 589	2 668	2 773	2 962
Turkey	7	8	11	15	18	28	34	39	48	58	65
United States	641	651	647	703	743	801	762	733	782	795	856

<sup>(1)</sup> Country of origin based on the residence of the applicant.

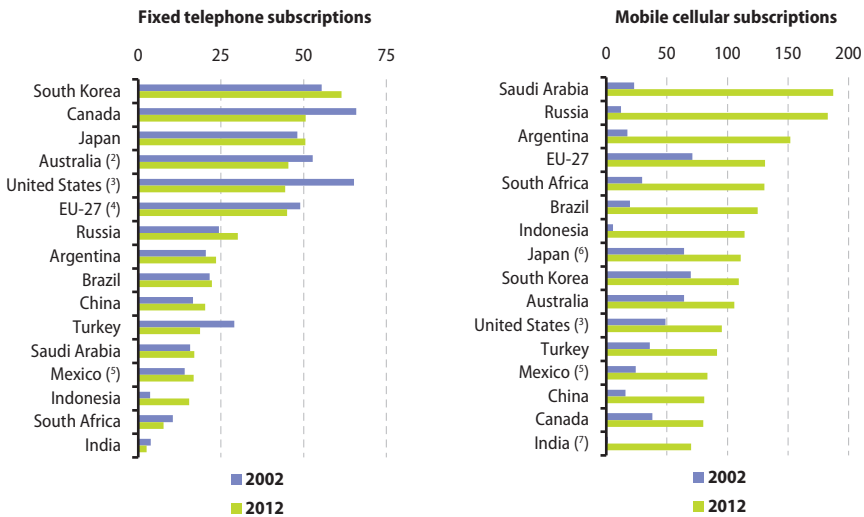
<sup>(2)</sup> Sum of data for the 28 EU Member States.

Source: the World Intellectual Property Organisation



Telecommunication networks and services are the backbone of the information society. Individuals, enterprises and public organisations alike depend increasingly on convenient, reliable and high-speed telecommunication networks and services. During recent years a shift in the importance of various services can be noted, from wired networks to mobile networks and from voice services to data services. The number of fixed telephone subscriptions relative to the size of the population increased between 2002 and 2012 in more than half of the G20 members shown in Figure 9.8, most notably Indonesia, although relatively large decreases were recorded for the United States, Canada and Turkey. In all G20 members, the number of mobile subscriptions relative to population size increased, with Canada and South Korea experiencing the strongest absolute growth to top the rankings with more than 180 subscriptions per 100 inhabitants by 2012. Despite massive growth in percentage terms, India had the lowest number of mobile subscriptions relative to its population size in 2012, as it had had in 2002. By 2012, more than half of the G20 members registered more mobile subscriptions than inhabitants (indicating that some users had more than one subscription).

**Figure 9.8:** Telephone subscriptions, 2002 and 2012 <sup>(1)</sup>  
(number per 100 inhabitants)



<sup>(1)</sup> Note the range for the x-axis is different for the two individual figures.

<sup>(2)</sup> 2002: excludes ISDN. 2012: includes payphones, excludes VOIP.

<sup>(3)</sup> 2002: local loops. 2012: as of June 30, 2012.

<sup>(4)</sup> Data for 2011 instead of 2012.

<sup>(5)</sup> 2012: preliminary.

<sup>(6)</sup> Including Personal Handyphone System (PHS).

<sup>(7)</sup> Break in series in 2012 (large-scale disconnections by some service providers during the year).

Source: Eurostat (online data codes: [isoc\\_tc\\_ac2](#), [isoc\\_tc\\_mcsupe](#) and [demo\\_gind](#)) and the International Telecommunication Union



Table 9.6 shows that there was also widespread growth between 2002 and 2012 in the use of the internet, even among G20 members with already high usage in 2002. By 2012, Canada, South Korea, Australia and the United States topped the ranking of internet use, with more than four in every five inhabitants online, with Japan and the EU-28 just below this level. Indonesia and India had the lowest internet use among G20 members.

The number of fixed broadband subscriptions relative to population size was more diverse, with South Korea and Canada exceeding 30 subscriptions per 100 inhabitants, whereas in Indonesia and India this ratio was below 2 subscriptions per 100 inhabitants.

**Table 9.6:** ICT access and usage, 2002, 2007 and 2012

	Individuals using the internet (% of total)			Fixed broadband subscriptions (per 100 inhabitants)		
	2002	2007	2012	2002	2007	2012
<b>EU-28 (1)(2)</b>	:	60.0	75.0	1.3	20.1	28.9
Argentina	10.9	25.9	55.8	0.4	6.6	10.9
Australia (3)	:	69.5	82.3	1.3	:	24.3
Brazil (4)	9.1	30.9	49.8	0.4	4.0	9.2
Canada (5)	61.6	73.2	86.8	11.2	27.5	32.5
China	4.6	16.0	42.3	0.3	5.0	12.7
India	1.5	4.0	12.6	0.0	0.3	1.2
Indonesia	2.1	5.8	15.4	0.0	0.3	1.2
Japan (6)	46.6	74.3	79.1	7.4	22.2	27.7
Mexico (7)	11.9	20.8	38.4	0.2	3.9	10.5
Russia	4.1	24.7	53.3	0.0	3.4	14.5
Saudi Arabia	6.4	30.0	54.0	0.2	2.4	6.9
South Africa	6.7	8.1	41.0	0.0	0.8	2.1
South Korea (8)	59.4	78.8	84.1	22.4	30.9	37.2
Turkey (1)	11.4	28.6	45.1	0.0	6.8	10.6
<b>United States</b>	58.8	75.0	81.0	6.8	23.1	28.3

(1) Use of the internet: persons aged 16 to 74.

(2) Broadband subscriptions: EU-27.

(3) Use of the internet, 2007: persons aged 15 or more.

(4) Use of the internet, 2007: persons aged 10 or more.

(5) Use of the internet, 2007: persons aged 16 or more.

(6) Use of the internet, 2002: PC based only. Use of the internet, 2007 and 2012: persons aged 6 or more.

(7) Use of the internet, 2002: persons aged 6 or more.

(8) Use of the internet: persons aged 3 or more.

Source: Eurostat (online data codes: [isoc\\_ci\\_eu\\_i](#) and [isoc\\_tc\\_fbsupe](#)) and the International Telecommunication Union

Table 9.7 provides a selection of key indicators concerning ICT usage in enterprises — it should be noted that the usage of ICT depends to some extent on enterprise size and the sector of operation and so differences in coverage can affect the comparability of results.

**Table 9.7:** ICT access and usage, enterprises, 2007 and 2012

(% of enterprises)

	Proportion of enterprises					
	using the internet		with a web presence		receiving orders over the internet	
	2007	2012	2007	2012	2007	2012
<b>EU-28<sup>(1)</sup></b>	93.0	95.0	65.0	71.0	15.0	15.0
Argentina	:	:	:	:	:	:
Australia <sup>(2)</sup>	87.0	91.2	36.0	43.1	24.0	28.0
Brazil <sup>(3)(4)</sup>	91.2	94.6	43.7	59.2	41.6	33.8
Canada <sup>(5)</sup>	94.9	:	69.7	:	13.1	:
China	:	:	:	:	:	:
India	:	:	:	:	:	:
Indonesia	:	:	:	:	:	:
Japan <sup>(6)</sup>	98.7	98.9	83.6	87.6	20.3	21.7
Mexico <sup>(7)</sup>	92.0	:	49.8	:	8.7	:
Russia	71.0	:	21.9	:	13.8	:
Saudi Arabia	:	:	:	:	:	:
South Africa	:	:	:	:	:	:
South Korea <sup>(8)</sup>	48.7	:	12.3	:	2.0	:
Turkey <sup>(9)</sup>	:	88.8	:	52.2	:	9.1
United States	:	:	:	:	:	:

(1) Enterprises receiving orders via computer networks (not only over the internet). Enterprises with 10 or more persons employed which have their main activity in NACE Rev. 2 Sections C to J and L to N and Group 95.1.

(2) Data for 2010 instead of 2012.

(3) Enterprises with 10 or more employees.

(4) Data for 2011 instead of 2012.

(5) Data for 2008 instead of 2007.

(6) Data for 2009 instead of 2012.

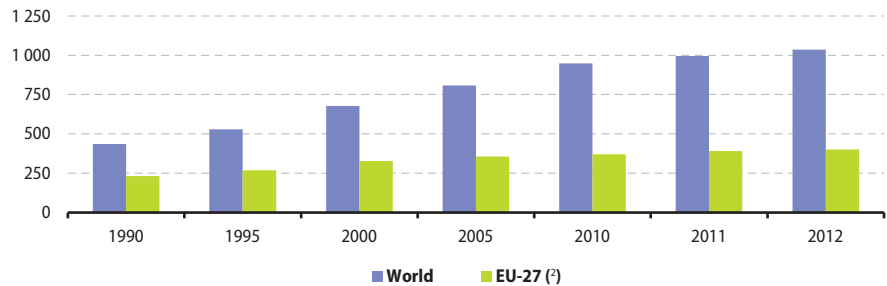
Source: Eurostat (online data codes: [isoc\\_ci\\_eu\\_e](#) and [isoc\\_ci\\_eu\\_en2](#)) and the United Nations Conference on Trade and Development (UNCTADSTAT, Core indicators on ICT use by business)



There were around 1 035 million international tourist arrivals worldwide in 2012, among which 400 million were in the EU-27. The number of international tourist arrivals in the EU-27 increased by 169 million between 1990 and 2012, but the EU-27's share of worldwide tourist arrivals dropped from 53.1 % to 38.7 % over the same period. It should be noted that the EU total includes arrivals in EU Member States of international tourists from other EU Member States. Some 87 % of arrivals in hotels and similar accommodation in EU-28 Member States in 2011 came from other EU Member States (excluding Croatia) — an extended analysis of the origin of tourists from non-member countries is provided in Figure 9.10.

**Figure 9.9:** International tourist arrivals, 1990–2012 <sup>(1)</sup>

(million)



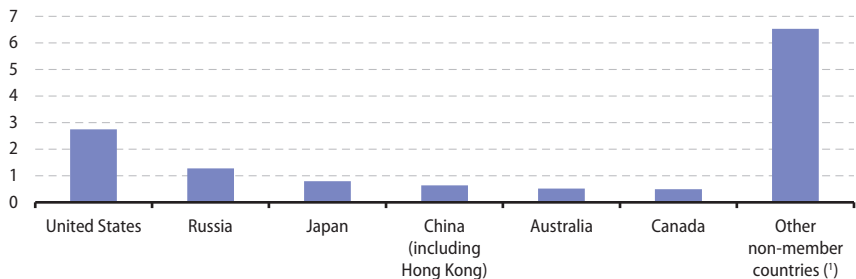
<sup>(1)</sup> Note the different length of intervals between the time periods shown on the x-axis.

<sup>(2)</sup> Includes intra-EU arrivals.

Source: the United Nations World Tourism Organisation (UNWTO Tourism Highlights — 2013 edition)

**Figure 9.10:** Non-resident arrivals in hotels and similar accommodation within the EU-28, for selected countries, 2011

(% of total arrivals)



<sup>(1)</sup> Including Croatia.

Source: Eurostat (online data code: [tour\\_occ\\_arraw](#))

The growth of the tourism sector has been crucial for many countries, offering employment opportunities and a considerable revenue stream; this is particularly true for a number of developing and emerging economies which have been transformed by a vibrant tourism industry. Note that tourism statistics cover business travellers and those who travel for leisure. Equally, it is important to bear in mind that international tourists are classified according to their country of residence, not according to their citizenship. As such, citizens residing abroad who return to their country of citizenship on a temporary visit are included as international tourists.

From Table 9.8 it can be seen that international tourists from the United States spent considerably less abroad (EUR 65.0 billion) in 2012 than international tourists spent in the United States (EUR 98.2 billion). A similar surplus of receipts over expenditure was recorded in Turkey, France, Italy, South Africa, India, Australia and Indonesia. By contrast, tourists from Russia, Brazil, Saudi Arabia, Germany, China and Canada spent more than twice as much abroad as international tourists spent in their domestic economies.

The short time series presented in Table 9.8 shows that expenditure by international tourists from China more than trebled between 2008 and 2012 and more than doubled for tourists from Brazil and Russia. There were also large increases recorded in the expenditure made by tourists from Australia, India and Canada. For the first time in 2012, tourists from China spent more abroad than international tourists from any other G20 member (no data available for Mexico), overtaking both Germany and the United States. India, South Korea and Australia recorded relatively large increases in international tourism receipts between 2008 and 2012.

**Table 9.8:** International tourism expenditure and receipts, 2008–12  
(EUR billion)

	Expenditure					Receipts				
	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012
Germany	61.9	58.2	58.9	61.7	64.9	27.1	24.8	26.2	27.9	29.7
France	27.9	27.5	29.2	32.3	30.4	38.5	35.5	35.4	39.3	41.7
Italy	20.9	20.0	20.4	20.6	20.5	31.1	28.9	29.3	30.9	32.1
United Kingdom	46.6	36.0	37.7	36.6	40.1	24.5	21.6	24.4	25.2	28.3
Argentina	:	:	3.7	4.0	4.6	:	2.8	3.7	3.8	3.8
Australia	12.5	12.6	17.0	19.6	21.4	16.8	18.2	21.4	22.5	24.8
Brazil	7.5	7.8	12.4	15.3	17.3	:	3.8	4.3	4.7	5.2
Canada	18.5	17.3	22.4	23.9	27.3	10.7	9.8	12.0	12.1	13.5
China	24.6	31.3	41.4	52.1	79.4	30.0	30.6	34.6	34.8	38.9
India	6.5	6.7	7.9	9.8	9.6	8.0	8.0	10.9	12.7	14.0
Indonesia	:	:	4.8	4.5	5.3	:	4.0	5.2	5.7	6.5
Japan	19.0	18.0	21.0	19.5	21.7	:	7.4	10.0	7.9	11.3
Mexico	:	:	:	:	:	9.0	8.1	9.0	8.5	9.9
Russia	16.2	15.0	20.1	23.6	33.3	8.1	6.7	6.7	8.1	8.4
Saudi Arabia	10.3	14.6	15.9	12.4	13.2	:	4.3	5.1	6.1	5.8
South Africa	:	:	4.2	3.8	3.2	:	5.4	6.8	6.9	7.8
South Korea	13.0	10.8	14.2	14.3	15.6	6.6	7.0	7.8	9.0	11.1
Turkey	:	:	3.9	3.5	3.2	14.9	15.2	17.0	18.0	19.7
United States	54.7	53.1	57.0	56.2	65.0	75.1	67.5	78.0	83.0	98.2
<b>World</b>	:	:	702.0	749.0	840.0	:	:	702.0	749.0	840.0

Source: the United Nations World Tourism Organisation (World Tourism Barometer and Tourism Highlights — 2013 edition) and the World Bank (World Development Indicators)





An efficient and well-functioning passenger and freight transport system is often viewed as being vital for business and individuals. Some of the key issues related to transport are its environmental impact, efficiency and safety. This chapter presents transport statistics on the weight of freight and number of passengers that are moved, as well as providing some information on the stock of passenger cars. The level of transport, in particular international transport, can be related to a wide variety of issues, including trade liberalisation, globalisation, higher motorisation rates and [tourism](#).

## Main findings

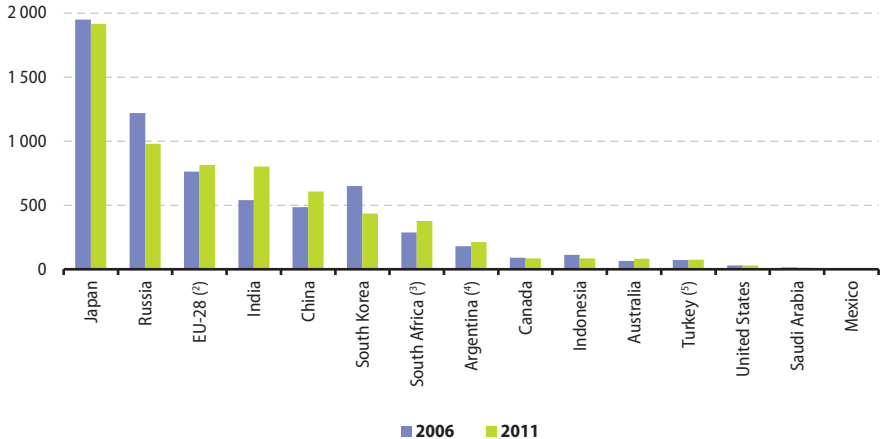
Concerning the use of rail [transport](#) (see Figure 10.1 and Table 10.1), the G20 members can be split into several groups depending on the extent to which this mode is used for passenger and/or freight transport. Saudi Arabia, Indonesia and to a lesser extent Turkey and Argentina had a relatively low use of rail transport in general. In the United States, Mexico, Canada and Australia, rail transport was focused mainly on freight transport, while passenger transport was dominant in Japan, South Korea and India. A relatively high use of rail transport for both freight and passengers was observed in China, Russia, South Africa and the [EU-28](#).

The use made of rail transport is linked to some extent to network access. Figure 10.2 provides information for the overall length of rail networks in G20 members as well as the density of each network. South Africa, South Korea, the EU-28 and Japan recorded the densest networks, with more than 30 km of line per 1 000 km<sup>2</sup>. Australia and Saudi Arabia had low rail network densities, reflecting to some extent their low population density. However, Indonesia also had one of the lowest rail network densities among the G20 members despite a high population density.



Comparing 2006 with 2011, a particularly large percentage increase in passenger rail services was recorded in Mexico, with smaller but nevertheless large increases also recorded in India, Australia, South Africa, China and Argentina. Rail freight transport in 2011 was higher than it had been in 2006 in most G20 members, notably in Indonesia, Saudi Arabia and India where it increased by at least 40 %. Estimates for the EU-28 show a 9 % increase in rail passenger transport and a 4 % fall in rail freight transport between 2006 and 2011.

**Figure 10.1:** Rail passenger transport, 2006 and 2011 (1)  
(passenger-km per inhabitant)



(1) Data for some countries may be limited to International Union of Railways (UIC) members. Brazil: not available.

(2) 2011: estimate including data for 2010 for Germany, Greece and Italy, 2012 for France, excluding the Netherlands.

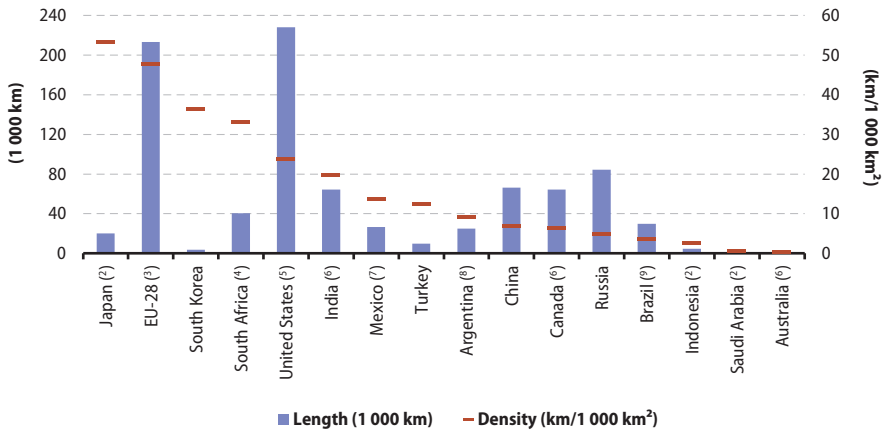
(3) Data for 2007 instead of 2006 and for 2010 instead of 2011.

(4) Data for 2005 instead of 2006.

(5) Data for 2010 instead of 2011.

Source: Eurostat (online data codes: [rail\\_pa\\_total](#) and [demo\\_gind](#)) and the World Bank (World Development Indicators and Health Nutrition and Population Statistics)



Figure 10.2: Length of rail lines, 2012 <sup>(1)</sup>

(<sup>1</sup>) Provisional. Data for some countries may be limited to International Union of Railways (UIC) members. (<sup>2</sup>) 2010. (<sup>3</sup>) Includes 2011 data for France, the Netherlands as well as parts of the networks in Spain, Austria and the United Kingdom; includes 2010 data for Belgium; includes 2009 data for Denmark as well as parts of the network in Spain, Italy and the United Kingdom. (<sup>4</sup>) 2008 and 2011 for different parts of the network. (<sup>5</sup>) 2009 and 2011 for different parts of the network. (<sup>6</sup>) 2011. (<sup>7</sup>) 2009. (<sup>8</sup>) 2007. (<sup>9</sup>) 2008.

Source: the International Union of Railways (Synopsis 2012)

Table 10.1: Rail transport indicators, 2006 and 2011 <sup>(1)</sup>

	Rail passenger transport (passenger-km)			Rail freight transport (tonne-km) <sup>(2)</sup>		
	million		per inhabitant	million		per inhabitant
	2006 <sup>(3)</sup>	2011 <sup>(4)</sup>	2011 <sup>(4)</sup>	2006	2011	2011
<b>EU-28</b>	357 527	388 037	814	438 851	419 980	828
Argentina	6 979	8 588	211	12 628	12 111	297
Australia	1 309	1 829	82	46 486	59 649	2 672
Brazil	:	:	:	232 300	267 700	1 359
Canada	2 885	2 886	84	352 069	254 069	7 368
China	635 327	815 699	607	2 055 716	2 562 635	1 907
India	615 634	978 508	801	439 596	625 723	512
Indonesia	25 535	20 283	83	4 698	7 166	29
Japan	249 029	244 591	1 914	23 014	20 255	158
Mexico	76	449	4	54 387	69 185	580
Russia	173 699	139 842	978	1 950 000	2 127 212	14 880
Saudi Arabia	369	297	11	1 270	1 852	67
South Africa	13 865	18 865	377	108 513	113 342	2 241
South Korea	31 416	21 603	434	10 554	9 996	201
Turkey	5 277	5 491	75	9 544	11 030	151
United States	8 660	9 518	31	2 839 124	2 524 585	8 102

(<sup>1</sup>) Data for some non-EU G20 countries may be limited to International Union of Railways (UIC) members.

(<sup>2</sup>) EU-28: data for 2006 include 2007 data for Belgium. Turkey: data for 2010 instead of 2011.

(<sup>3</sup>) Argentina: 2005. South Africa: 2007.

(<sup>4</sup>) EU-28: estimate including data for 2010 for Germany, Greece and Italy, 2012 for France, excluding the Netherlands. South Africa and Turkey: 2010.

Source: Eurostat (online data codes: [rail\\_pa\\_total](#), [rail\\_go\\_typeall](#) and [demo\\_gind](#)) and the World Bank (World Development Indicators and Health Nutrition and Population Statistics)



The world's maritime fleet (see Table 10.2) increased from 842 million deadweight tonnes (DWT) in 2003 to 1 629 million DWT in 2013, equivalent to average growth of 6.8 % per year. During this period, the maritime fleets of Brazil, Saudi Arabia, Russia and Australia contracted while the other G20 members recorded an expansion, notably in Indonesia, China, Canada, South Korea, India, the EU-28 and Mexico. The EU-28's maritime fleet grew by 4.3 % per year during this 10-year period and remained the largest among the G20 members in 2013 with 18.8 % of the world total. It should be noted that there are several smaller countries outside of the G20 that accounted for a large share of the world maritime fleet in 2013, notably Panama (21.5 %), Liberia (12.2 %) and the Marshall Islands (8.6 %) — all associated with flags of convenience. The EU plays a leading role in international maritime freight transport.

**Table 10.2:** Maritime fleet and ports, 2003, 2011 and 2013

	Maritime fleet size (deadweight tonnage, 1 000 DWT) (1)		Largest port, 2011	
	2003	2013	Name of port and quantity of goods handled (1 000 tonnes)	
<b>EU-28 (2)</b>	201 459	306 682	Rotterdam	434 551
Argentina	481	533	San Lorenzo-Puerto San Martín	41 541
Australia	2 263	1 947	Port Hedland	246 672
Brazil	5 497	3 232	Tubarão	136 572
Canada	1 507	3 371	Vancouver	122 499
China	25 529	68 642	Shanghai	590 439
India	10 286	15 876	Jawaharlal Nehru (Nhava Sheva)	65 746
Indonesia (3)	4 665	14 267	Tanjung Priok	39 997
Japan (4)	17 379	20 409	Nagoya	186 305
Mexico	1 207	1 835	Lázaro Cárdenas	29 653
Russia	9 904	6 784	Novorossiysk	81 050
Saudi Arabia	2 343	1 421	Jeddah	52 026
South Africa	59	63	Richards Bay	86 374
South Korea (5)	10 610	17 720	Busan	281 513
Turkey	8 674	10 215	İzmit (Kocaeli)	54 997
<b>United States</b>	11 293	12 353	South Louisiana	223 633
<b>World</b>	841 735	1 628 783	Shanghai	590 439

(1) Deadweight tonnage is the weight measure of a vessel's carrying capacity. It includes cargo, fuel and stores. Canada and the United States: break in series.

(2) 2013 maritime fleet size: includes data for 2010 for Austria.

(3) Largest port: 2010.

(4) Largest port: freight tonnes.

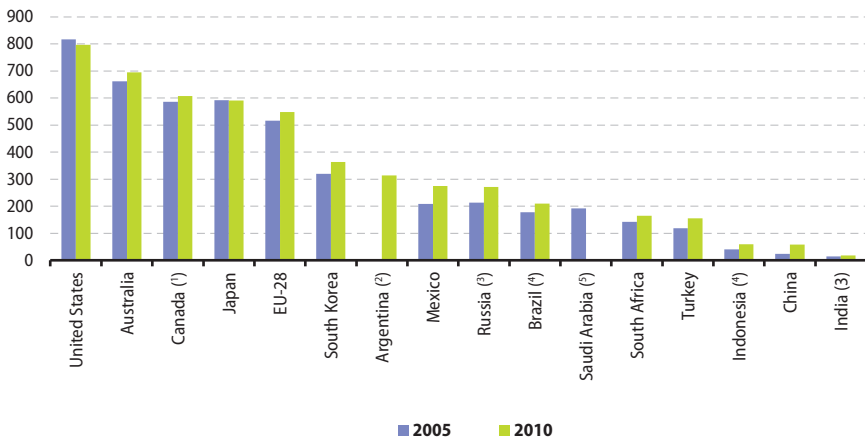
(5) Largest port: revenue tonnes.

Source: Eurostat (online data code: [mar\\_mg\\_aa\\_pwhd](#)), the United Nations Conference on Trade and Development (Maritime transport indicators), the American association of port authorities (World port rankings) and port authority data.



Among the G20 members, reliance on cars for passenger transport was highest in 2010 in the EU-28, Japan, Canada, Australia and the United States — all of which had more than 500 cars for every 1 000 inhabitants; the lowest ratios were recorded in Indonesia, China and India, all below 100 cars for every 1 000 inhabitants. A general upward trend was observed in all G20 members between 2005 and 2010, except for the United States where the ratio fell by 19 passenger cars per 1 000 persons (-2.3 %) over the five-year period under consideration and Japan where the number was stable. In percentage terms, the fastest growth in the ratio of passenger cars to population was recorded in China, as the ratio more than doubled. The number of passenger cars per 1 000 inhabitants also increased strongly in Indonesia, Mexico, Turkey, India and Russia — see Figure 10.3.

**Figure 10.3:** Number of passenger cars relative to population, 2005 and 2010 (number per 1 000 inhabitants)



(1) 2006 instead of 2005, 2009 instead of 2010.

(2) 2005: not available, 2007 instead of 2010.

(3) 2009 instead of 2010.

(4) 2008 instead of 2010.

(5) 2010: not available.

Source: Eurostat (online data code: [tsdpc340](#)) and the World Bank (World Development Indicators and Health Nutrition and Population Statistics)



The quantity (tonne-kilometres) of road freight transport was particularly high in Australia relative to the size of its population. It should be noted that the road freight transport indicators presented here are based on the combination of the weight (in tonnes) and the distance (in kilometres) that is transported: the very high figure in Australia therefore reflects not only an extensive use of road freight transport as a mode of freight transport, but also the large distances involved in transporting goods around a large and sparsely populated land area. Road freight transport was notably less common in South Korea than in the other G20 members for which data are available. Comparing 2005 with 2010, the most notable development was the increase in the amount of Chinese road freight: this figure quintupled (see Table 10.3), increasing at an annual average rate of 37.9 %.

**Table 10.3:** Road transport indicators, 2005 and 2010

	Passenger cars (number per 1 000 inhabitants)		Road freight transport (tonne-km)		
	2005 <sup>(1)</sup>	2010 <sup>(2)</sup>	million		per inhabitant
			2005 <sup>(3)</sup>	2010 <sup>(4)</sup>	2010 <sup>(4)</sup>
<b>EU-28</b>	516	547	1 801 209	1 755 061	3 474
Argentina	:	314	:	:	:
Australia	662	695	168 630	195 000	8 837
Brazil	178	209	:	:	:
Canada	586	607	130 600	138 721	4 065
China	24	58	869 320	4 338 967	3 244
India	14	18	:	:	:
Indonesia	40	60	:	:	:
Japan	592	591	335 000	334 667	2 626
Mexico	208	275	204 217	220 285	1 869
Russia	213	271	194 000	199 000	1 398
Saudi Arabia	192	:	:	:	:
South Africa	142	165	:	:	:
South Korea	320	363	12 545	12 546	255
Turkey	118	155	166 831	190 365	2 603
<b>United States</b>	816	797	2 078 158	2 126 581	6 932

<sup>(1)</sup> Canada: 2006.

<sup>(2)</sup> Canada, India and Russia: 2009. Brazil and Indonesia: 2008. Argentina: 2007.

<sup>(3)</sup> EU-28: estimate including 2006 data for Bulgaria and Romania and 2008 data for Croatia, excluding Malta. Canada: 2007. Japan: 2006.

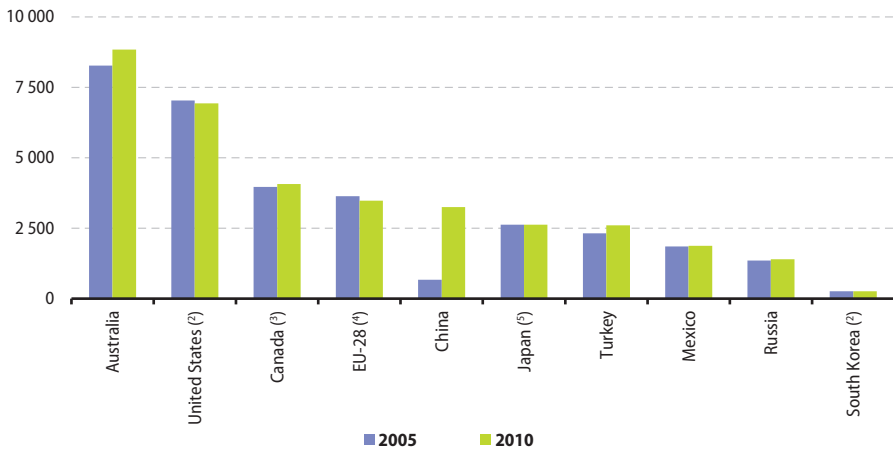
<sup>(4)</sup> EU-28: excluding Malta. South Korea and the United States: 2009.

Source: Eurostat (online data codes: [tsdpc340](#), [road\\_go\\_ta\\_tott](#) and [demo\\_gind](#)) and the World Bank (World Development Indicators and Health Nutrition and Population Statistics)



The data available in Tables 10.1 and 10.3 allow a comparison of the relative importance of road and rail freight transport among several G20 members; note that the rail transport data are generally one year fresher than the road transport data. The quantity of freight transported by road in Japan and Turkey was approximately 17 times as high as that transported by rail; in the EU-28 the level of road freight transport was 4.2 times as high as rail freight transport, while in Russia, Canada and the United States the amount of rail freight transport exceeded that for road freight.

**Figure 10.4:** Road freight transport, 2005 and 2010 (¹)  
(tonne-km per inhabitant)



(¹) Argentina, Brazil, India, Indonesia, Saudi Arabia and South Africa: not available.

(²) 2009 instead of 2010.

(³) 2007 instead of 2005.

(⁴) Excluding Malta. 2005: estimate including 2006 data for Bulgaria and Romania and 2008 data for Croatia.

(⁶) 2006 instead of 2005.

Source: Eurostat (online data codes: [road\\_go\\_ta\\_tot](#) and [demo\\_gind](#)) and the World Bank (World Development Indicators and Global Development Finance)



Worldwide, the number of air passengers carried in 2012 was around 2.9 billion, an increase of 3.2 % compared with 2011. In the EU-28, air passenger numbers in 2012 reached 831.9 million, an increase of 0.7 % compared with 2011, and equivalent to 29.0 % of the world total. The United States had 736.6 million passengers (25.7 % of the world total) and China had 318.5 million (11.1 %). Several G20 members recorded a fall in their respective number of air passengers in 2008 and/or 2009, at the peak of the financial and economic crisis. By 2011, air passenger numbers had returned above their pre-crisis 2007 peaks in all G20 members except for the United States; in 2012 passenger numbers in the United States remained 1.0 % below their 2007 level. The situation in Japan was more complicated as the rebound in passenger numbers in 2010 was short-lived as numbers fell again in 2011 in the wake of the earthquake and Tsunami off the coast of Tōhoku. Looking over the period 2007–12, the strongest growth in the number of air passengers was recorded for Turkey, followed by Indonesia and Brazil, all of which saw passenger numbers more than double.

Relative to the size of the population, the number of air passengers in 2012 was highest among the G20 members in Australia, ahead of the United States and Canada, followed by the EU-28, all with more passengers carried than the overall size of their populations (see Figure 10.5). By contrast, India recorded by far the lowest number of air passengers relative to its overall population size.

In terms of passenger numbers, the busiest airport in the world in 2012 was Hartsfield-Jackson Atlanta in the United States, with 95.5 million passengers, followed by Beijing Capital airport in China with 81.2 million and London Heathrow in the United Kingdom with 70.0 million, making Heathrow the busiest passenger airport in the EU-28.

**Table 10.4:** Number of air passengers carried, 2007–12

(million)

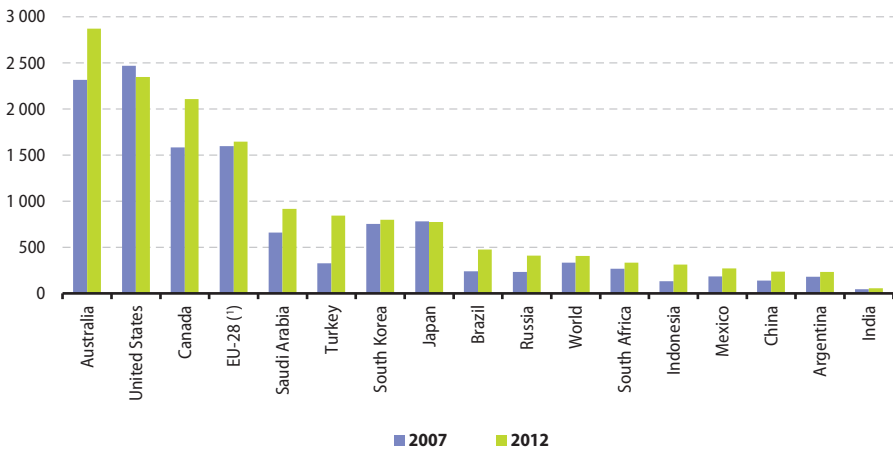
	2007	2008	2009	2010	2011	2012
<b>EU-28 (*)</b>	792.7	802.8	755.4	781.5	826.3	831.9
Argentina	7.0	6.1	5.7	9.0	8.6	9.6
Australia	48.7	51.5	50.0	60.6	62.5	65.2
Brazil	45.3	58.8	67.9	74.6	87.9	94.6
Canada	52.1	53.7	52.6	67.3	70.3	73.6
China	183.6	191.0	229.1	266.3	292.2	318.5
India	51.9	49.9	54.4	64.7	74.4	70.5
Indonesia	30.4	29.8	27.4	56.8	67.8	77.2
Japan	99.8	97.0	86.9	109.6	89.7	98.9
Mexico	21.0	18.8	15.7	31.3	29.5	32.9
Russia	33.2	37.9	34.4	43.9	50.6	58.7
Saudi Arabia	17.1	16.7	17.5	20.3	22.9	26.0
South Africa	12.9	13.1	12.5	15.8	16.4	17.1
South Korea	36.7	36.1	34.2	37.0	39.9	40.0
Turkey	22.9	25.5	31.3	45.7	53.5	63.4
United States	744.3	701.8	679.4	720.5	730.8	736.6
<b>World</b>	2 209.1	2 208.2	2 249.5	2 618.5	2 776.6	2 866.8

(\*) 2007: excluding Croatia.

Source: Eurostat (online data code: [avia\\_paoc](#)) and the World Bank (World Development Indicators)



**Figure 10.5:** Number of air passengers carried, 2007 and 2012  
(per 1 000 inhabitants)



(1) 2007: excluding Croatia.

Source: Eurostat (online data code: [avia\\_paoc](#)) and the World Bank (World Development Indicators and Global Development Finance)

**Table 10.5:** Largest airports for passengers, 2012

	Name	Passenger numbers (millions)
<b>EU-28</b>	London Heathrow	70.0
Argentina	Ministro Pistarini (Buenos Aires)	8.9
Australia	Sydney	39.6
Brazil	São Paulo-Guarulhos	32.8
Canada	Toronto Pearson	34.9
China	Beijing Capital	81.2
India	Indira Gandhi (Delhi)	34.2
Indonesia	Soekarno-Hatta (Jakarta)	53.7
Japan	Haneda (Tokyo)	67.8
Mexico	Benito Juárez (Mexico City)	29.5
Russia	Moscow Domodedovo	28.2
Saudi Arabia (1)	King Abdulaziz (Jeddah)	22.9
South Africa	OR Tambo (Johannesburg)	18.7
South Korea	Incheon (Seoul)	39.0
Turkey	Atatürk (Istanbul)	45.0
United States	Hartsfield-Jackson (Atlanta)	95.5

(1) 2011.

Source: Eurostat (online data code: [avia\\_paoa](#)), national civil aviation authorities and information from websites of individual airports







## Agriculture, forestry and fisheries

Issues related to agriculture, forestry and fishing go far beyond their simple economic function, reflecting the role of these sectors within society and the contribution and impact of their resources on the environment. In this respect, some of the most frequently discussed concerns include the protection of the environment, sustainable practices for farming, forestry and fishing, food safety and security, animal welfare and broader perspectives relating to rural development.

### Main findings

Forests occur under a huge variety of climatic, geographic, ecological and socio-economic conditions and are an essential part of the natural environment. They have an impact on water resources, act as a stabiliser for the Earth's climate, provide shelter to animal and plant life, provide food, medicinal and cosmetic resources, genetic breeding stock, seeds for cultivation, wood and similar materials to be used for manufacturing, construction and as a fuel. Forestry also provides employment in many rural areas and diverse opportunities for outdoor recreation attracting tourists.

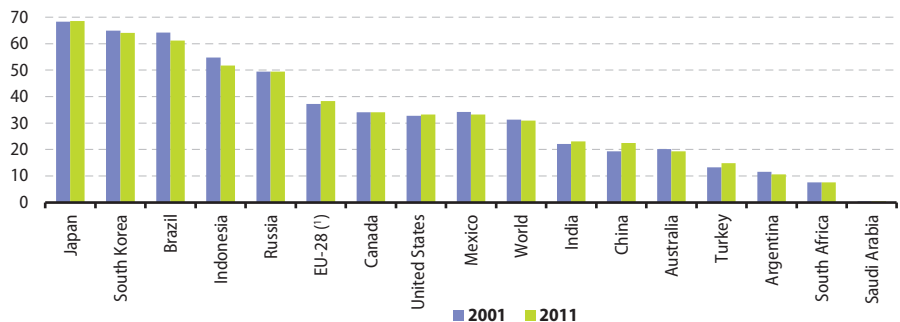
**Roundwood production** in the EU-28 reached 429.0 million m<sup>3</sup> in 2012, making the EU-28 the largest producer within the G20 — see Table 11.1. Forest cover within the EU-28 extended to 159.1 million hectares in 2010, around 38.3 % of its total land area. More than half of the land area in Indonesia, Brazil, South Korea and Japan was forested, while the share in Russia was just below half. Between 2001 and 2011, the share of land covered by forests increased by 3.2 percentage points in China, 1.5 percentage points in Turkey and 1.1 percentage points in the EU-28 (between 2000 and 2010), with smaller increases recorded for India, the United States and Japan.

**Table 11.1:** Production of roundwood and sawnwood, 2002–12(1 000 m<sup>3</sup>)

	Roundwood			Sawnwood		
	2002	2007	2012	2002	2007	2012
EU-28 <sup>(1)</sup>	392 491	462 514	429 031	99 664	116 215	99 555
Argentina	11 545	13 658	14 615	1 639	1 516	2 151
Australia	29 712	32 264	28 504	4 215	5 064	4 556
Brazil	230 911	261 351	291 820	22 488	24 414	25 310
Canada	198 077	164 599	152 594	58 481	52 284	40 715
China	312 014	320 665	326 135	8 626	28 333	55 738
India	319 389	330 210	331 436	10 990	6 889	6 889
Indonesia	134 904	115 276	117 522	6 230	4 330	4 169
Japan	15 216	17 751	18 559	14 402	11 632	9 434
Mexico	43 967	44 906	43 787	2 691	2 687	2 349
Russia	165 000	207 000	150 975	19 240	29 420	32 230
Saudi Arabia	192	226	261	:	:	:
South Africa	30 567	31 512	27 906	1 498	1 995	1 567
South Korea	4 063	5 152	6 154	4 410	3 798	3 756
Turkey	16 122	18 319	21 959	5 579	6 599	6 682
United States	448 000	425 129	361 166	88 643	85 377	66 435
World	3 409 079	3 601 798	3 526 247	392 400	434 732	412 734

<sup>(1)</sup> Excluding French overseas departments and territories.Source: Eurostat (online data codes: [tag00072](#) and [tag00073](#)) and the Food and Agriculture Organisation of the United Nations (FAOSTAT: Forestry)**Figure 11.1:** Forest as a share of land area, 2001 and 2011

(%)

<sup>(1)</sup> Data for 2000 instead of 2001. Data for 2010 instead of 2011. Excluding French overseas departments and collectivities.Source: Eurostat (online data code: [for\\_area](#)) and the Food and Agriculture Organisation of the United Nations (FAOSTAT: Resources)

Aside from fish farming, fish are not owned until they have been caught and so fish stocks continue to be regarded as a common resource, requiring collective management. This has led to a range of policies and international agreements that regulate the amount of fishing, as well as the types of fishing techniques and gear used to catch fish. The total fish catch by the EU-28 fishing fleet was 3.9 million tonnes in 2011, less than half the catch 10 years earlier — see Table 11.2. The largest fish catch among G20 members in 2011 was reported for China,



around four times the level for the EU-28. Aquaculture production in the EU-28 was estimated at 1.3 million tonnes in 2011, similar in size to the production in South Korea, but far behind that of India, Indonesia and China. Relative to population size, the EU-28's combined fish catch and aquaculture production was estimated at 10.2 kg per inhabitant in 2011, a relatively low level compared with most other G20 members. Between 2001 and 2011, fish production per inhabitant fell in a small majority of G20 members, most notably in Japan, the EU-28 and Canada. Production per inhabitant rose most notably in Indonesia (where it more than doubled), China and South Korea.

**Table 11.2:** Fish catches and aquaculture production, 2001, 2006 and 2011

(tonnes)

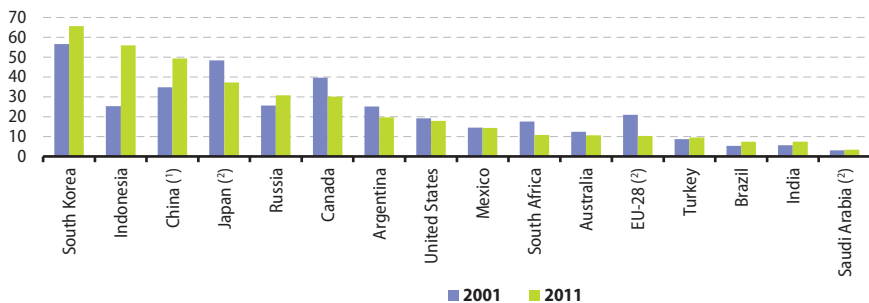
	Total catches			Aquaculture production		
	2001	2006	2011	2001	2006	2011
<b>EU-28<sup>(1)</sup></b>	8 849 112	4 765 453	3 912 916	1 395 984	1 296 918	1 257 456
Argentina	931 081	1 171 980	792 505	1 340	2 528	3 193
Australia	204 919	212 612	165 226	35 403	49 376	71 375
Brazil	730 378	779 113	803 267	205 568	271 697	630 039
Canada	1 076 924	1 122 606	876 212	153 046	171 451	162 414
China	14 403 875	14 905 838	16 046 114	29 869 240	39 359 274	50 173 140
India	3 817 092	3 844 838	4 301 534	2 120 634	3 182 817	4 577 965
Indonesia	4 293 793	4 805 617	5 713 163	1 076 749	2 479 247	7 937 072
Japan	4 837 792	4 433 398	3 849 517	1 311 829	1 224 189	906 518
Mexico	1 445 503	1 364 947	1 571 437	76 075	154 451	137 130
Russia	3 638 827	3 295 920	4 261 503	90 449	106 343	129 651
Saudi Arabia	55 331	65 485	64 481	8 218	15 586	26 755
South Africa	782 640	628 393	538 841	2 830	6 037	6 457
South Korea	2 008 879	1 772 437	1 761 785	668 022	1 279 163	1 499 335
Turkey	527 733	533 048	514 764	67 244	129 333	188 890
United States	4 981 501	4 858 646	5 163 066	480 362	519 967	396 841

(1) Aquaculture production, 2011: estimate made for the purpose of this publication.

Source: Eurostat (online data codes: [tag00076](#), [fish\\_aq\\_q](#) and [tag00075](#)) and the Food and Agriculture Organisation of the United Nations (FishStatJ)

**Figure 11.2:** Production (fish catch and aquaculture) per inhabitant, 2001 and 2011

(kg per inhabitant)



(1) 2001: estimate.

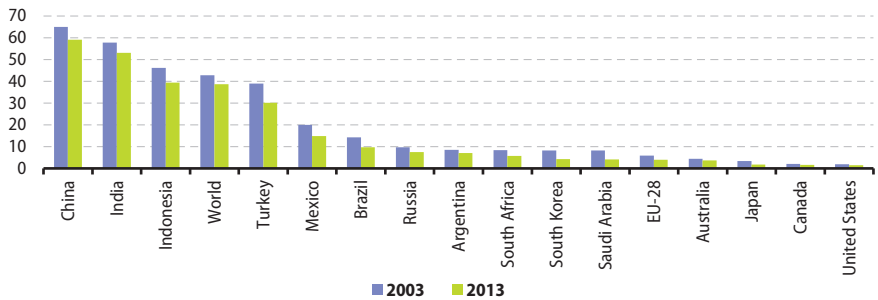
(2) 2011: estimate.

Source: Eurostat (online data codes: [tag00075](#), [fish\\_aq\\_q](#), [tag00076](#) and [demo\\_gind](#)), the Food and Agriculture Organisation of the United Nations (FishStatJ) and the World Bank (Health Nutrition and Population Statistics)



Less than one tenth of the labour force was active in agriculture, hunting, fishing and forestry in most G20 members in 2013. Nevertheless, this share rose to 30 % or higher in Turkey and Indonesia and above 50 % in India and China. The share of the labour force active in agriculture, hunting, fishing and forestry in the EU-28 was 4.0 % (according to data from the [United Nations' Food and Agricultural Organisation](#)). This labour force share fell between 2003 and 2013 in all G20 members, in relative terms most strongly in Saudi Arabia where the share more than halved, while the fall was almost half in South Korea and Japan.

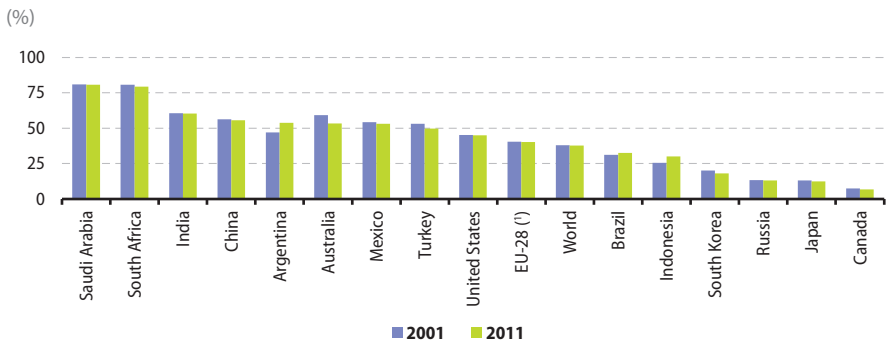
**Figure 11.3:** Share of economically active population in agriculture, 2003 and 2013 (%)<sup>(1)</sup>



(<sup>1</sup>) The economically active population in agriculture is the population engaged in or seeking work in agriculture, hunting, fishing or forestry. Estimates.

Source: the Food and Agriculture Organisation of the United Nations (FAOSTAT: Population)

**Figure 11.4:** Agricultural area as share of land area, 2001 and 2011



(<sup>1</sup>) Data for 2003 instead of 2001. 2003: EU-27. Data for 2010 instead of 2011.

Source: Eurostat (online data codes: [ef\\_lu\\_ovcropaa](#), [ef\\_kvaareg](#) and [demo\\_r\\_d3area](#)) and the Food and Agriculture Organisation of the United Nations (FAOSTAT: Resources)



The agricultural area of the EU-28 was 175.8 million hectares in 2010, some 40.3 % of its total land area: the share of land area used for agriculture (shown in Figure 11.4) can be compared with a similar analysis for forests (already shown in Figure 11.1), from which it can be seen that the EU's agricultural area was around 5 % larger. Among the G20 members, the share of land used for agriculture reached four fifths of the total in South Africa and Saudi Arabia, but was less than one tenth in Canada. The relative share of agriculture in total land area fell in most G20 members between 2001 and 2011, with only Brazil, Argentina and Indonesia recording an increase. Among the G20 members, the most extensive agricultural areas in 2011 were recorded for China, the United States and Australia, all with more than 400 million hectares.

Irrigation supports the production of crops and is essential in some areas. While irrigation may be expected to increase crop production, it can have harmful environmental impacts, for example, if the water used is not from a sustainable source. Less than one tenth (8.3 %) of the agricultural land in the EU-28 was equipped for irrigation in 2010. Among the G20 members, the highest proportion of agricultural area equipped for irrigation was recorded in Japan, followed by South Korea and India. The largest increases between 2001 and 2011 in the share of agricultural area equipped for irrigation in percentage point terms were in China and India.

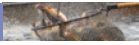
Organic farming places an emphasis on environmental and wildlife protection and animal welfare considerations; note the organic area includes land fully converted to organic farming as well as areas under conversion. Organic areas accounted for 3.6 % of the total agricultural area of the EU-28 in 2010, a share that was above that recorded in 2011 for any of the other G20 members, among which Australia (2.7 %) and Argentina (2.6 %) recorded the highest shares.

**Table 11.3:** Agricultural area, 2001 and 2011

	Agricultural area (1 000 hectares)		Agricultural area (% of total land area)		Area equipped for irrigation (% of total agricultural area)		Organic area (% of total agricultural area)
	2001	2011	2001	2011	2001	2011	2011
<b>EU-28 (1)</b>	172 794	175 815	40.4	40.3	11.1	8.3	3.6
Argentina	128 606	147 548	47.0	53.9	1.2	1.1	2.6
Australia	455 700	409 673	59.3	53.3	0.5	0.6	2.7
Brazil	263 465	275 030	31.1	32.5	1.3	2.0	0.2
Canada	67 502	62 597	7.4	6.9	1.2	1.4	1.3
China	524 099	519 148	56.2	55.7	10.7	12.8	0.4
India	180 370	179 799	60.7	60.5	34.3	37.1	0.6
Indonesia	46 300	54 500	25.6	30.1	12.4	12.3	0.1
Japan	4 793	4 561	13.1	12.5	54.7	54.2	0.2
Mexico	105 400	103 166	54.2	53.1	6.0	6.3	0.4
Russia	216 861	215 250	13.2	13.1	2.1	2.0	0.1
Saudi Arabia	173 791	173 355	80.8	80.6	1.0	1.0	0.0
South Africa	98 013	96 374	80.8	79.4	1.5	1.7	0.0
South Korea	1 945	1 756	20.1	18.1	45.3	44.7	1.1
Turkey	40 968	38 247	53.2	49.7	12.2	13.6	1.6
United States	414 944	411 263	45.3	45.0	6.5	6.5	0.5

(1) Data for 2003 instead of 2001. 2003: EU-27. Area equipped for irrigation, 2003: excluding Germany and Estonia. Data for 2010 instead of 2011.

Source: Eurostat (online data codes: [ef\\_lu\\_ovcropaa](#), [ef\\_kvaareg](#), [ef\\_ov\\_lusum](#), [ef\\_poirrig](#), [ef\\_mporganic](#) and [demo\\_r\\_d3area](#)) and the Food and Agriculture Organisation of the United Nations (FAOSTAT: Resources)



The production of a range of different crops across the G20 members is presented in Table 11.4 with the total production of cereals shown in Figure 11.5. Four G20 members together produced more than three quarters of the production of cereals among the G20 members in 2012, with output in China exceeding 500 million tonnes, ahead of the United States, India and the EU-28. The United States was the largest producer of maize among the G20 members in 2011, while the EU-28 had the highest wheat production, followed by China, India, Russia and the United States. Rice production in G20 members was dominated by China and India, while sugar beet production was high in the EU-28 and sugar cane production high in China, India and Brazil.

**Table 11.4:** Production of selected crops, 2001 and 2011

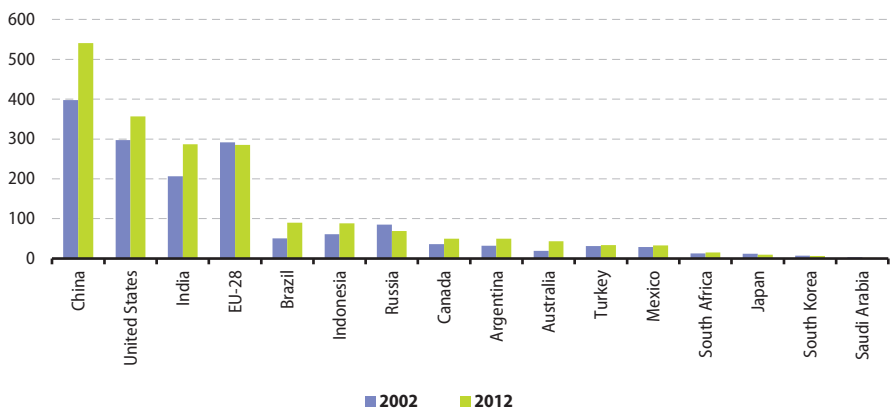
(million tonnes)

	Maize		Wheat		Rice		Sugar beet		Sugar cane	
	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
<b>EU-28</b>	62.8	68.9	91.6	137.3	2.6	3.1	102.4	126.3	:	:
Argentina	15.4	23.8	15.4	14.1	0.9	1.7	:	:	18.7	25.0
Australia	0.3	0.4	24.3	27.4	1.6	0.7	:	:	28.1	25.2
Brazil	42.0	55.7	3.4	5.7	10.2	13.5	:	:	345.9	734.0
Canada	8.4	10.7	20.6	25.3	:	:	0.5	0.8	:	:
China	114.1	192.8	93.9	117.4	177.6	201.0	10.9	10.7	75.7	114.4
India	13.2	21.8	69.7	86.9	139.9	157.9	:	:	296.0	342.4
Indonesia	9.3	17.6	:	:	50.5	65.7	:	:	25.2	24.0
Japan	:	:	0.7	0.7	11.3	8.4	3.8	3.5	1.5	1.0
Mexico	20.1	17.6	3.3	3.6	0.2	0.2	:	:	47.3	49.7
Russia	0.8	7.0	47.0	56.2	0.5	1.1	14.6	47.6	:	:
Saudi Arabia	0.0	0.1	2.1	1.2	:	:	:	:	:	:
South Africa	7.8	10.4	2.5	2.0	0.0	0.0	:	:	21.2	16.8
South Korea	0.1	0.1	0.0	0.0	7.4	6.3	:	:	:	:
Turkey	2.2	4.2	19.0	21.8	0.4	0.9	12.6	16.1	:	:
<b>United States</b>	241.4	313.9	53.0	54.4	9.8	8.4	25.7	26.2	34.6	26.7

Source: Eurostat (online data code: [apro\\_cpp\\_crop](#)) and the Food and Agriculture Organisation of the United Nations (FAOSTAT: Production)

**Figure 11.5:** Production of cereals, 2002 and 2012

(million tonnes)



Source: Eurostat (online data code: [apro\\_cpp\\_crop](#)) and the Food and Agriculture Organisation of the United Nations (FAOSTAT: Production)



Production levels for a selection of vegetables are presented in Table 11.5. After China, the EU-28 had the second highest level of production of potatoes, carrots and turnips, cucumbers and gherkins, and spinach. A similar analysis for a selection of fruits is presented in Table 11.6. Among the G20 members, the EU-28 was by far the largest producer of grapes in 2011, as well as the second largest producer of apples and the third largest producer of oranges and watermelons. Between 2001 and 2011 China's production of all of these fruits increased greatly, as did Indonesia, India and Brazil's production of oranges, Russia and Brazil's production of watermelons and India's production of bananas. The cultivation of coconuts is not widespread among the G20 members, but India and Indonesia together accounted for 47.6 % of the world's production of 58.3 million tonnes in 2011.

**Table 11.5:** Production of selected vegetables, 2011

(1 000 tonnes)

	Potatoes	Green beans	Carrots and turnips	Cucumbers and gherkins	Egg-plant (aubergines)	Lettuce and chichory	Onions	Peas	Spinach	Tomatoes
<b>EU-28</b>	61 935	753	5 450	2 891	780	2 552	6 556	1 639	561	16 134
Argentina	2 127	3	283	:	:	:	718	27	:	699
Australia	1 128	33	321	13	:	145	331	30	8	302
Brazil	3 917	:	:	:	:	:	1 523	:	:	4 417
Canada	4 168	39	279	212	:	63	204	37	4	471
China	88 291	15 702	6 000	47 310	27 700	13 430	24 700	10 267	18 770	48 450
India	42 339	618	384	161	11 896	1 060	15 930	3 571	:	16 826
Indonesia	995	884	301	522	519	:	893	:	161	954
Japan	2 387	:	691	585	322	542	1 070	27	264	703
Mexico	1 433	69	356	425	62	370	1 399	47	20	2 436
Russia	32 681	:	1 575	1 202	:	:	2 123	73	:	2 201
Saudi Arabia	510	:	63	400	56	:	73	:	:	484
South Africa	2 195	23	100	24	:	36	588	8	:	507
South Korea	622	:	153	304	6	117	1 520	:	105	368
Turkey	4 613	615	230	1 749	822	424	2 141	104	222	11 003
United States	19 488	39	1 715	773	62	4 071	3 361	268	409	12 526

Source: the Food and Agriculture Organisation of the United Nations (FAOSTAT: Production)

**Table 11.6:** Production of selected fruits, 2001 and 2011

(1 000 tonnes)

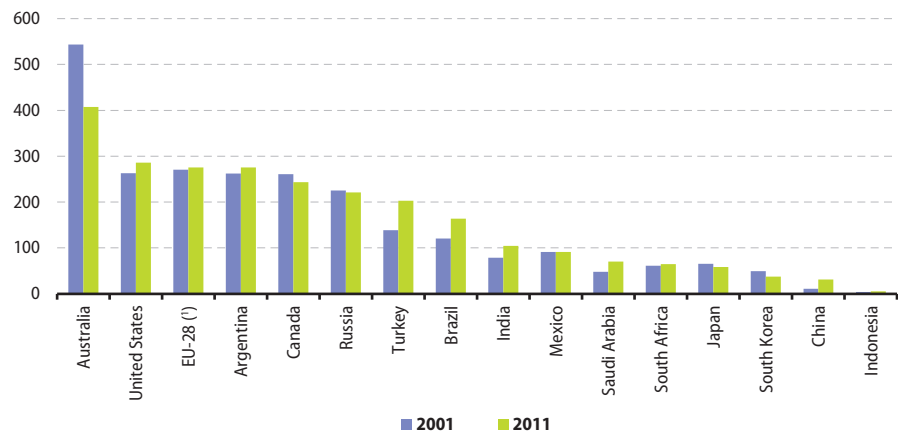
	Apples		Grapes		Oranges		Watermelons		Bananas	
	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
<b>EU-28</b>	12 630	11 605	27 947	24 624	5 995	6 297	2 726	2 718	463	386
Argentina	1 429	1 116	2 482	2 750	918	877	109	124	199	172
Australia	325	300	1 546	1 716	550	291	106	136	358	203
Brazil	716	1 339	1 058	1 542	16 983	19 811	900	2 199	6 177	7 329
Canada	465	390	67	78	:	:	2	18	:	:
China	20 015	35 985	3 680	9 067	1 352	5 835	57 178	68 893	5 272	10 400
India	1 230	2 891	1 060	1 235	2 575	4 571	280	375	14 210	29 667
Indonesia	:	:	:	:	691	1 819	240	498	4 300	6 133
Japan	931	655	225	173	104	54	573	363	:	:
Mexico	443	631	436	281	4 035	4 080	970	1 002	2 028	2 139
Russia	1 640	1 200	235	412	:	:	662	1 575	:	:
Saudi Arabia	:	:	92	160	:	:	251	294	:	:
South Africa	563	781	1 328	1 306	1 294	1 496	55	78	372	387
South Korea	404	380	454	269	:	:	949	609	:	:
Turkey	2 450	2 680	3 250	4 296	1 250	1 730	4 020	3 864	75	207
United States	4 277	4 275	5 960	6 756	11 087	8 078	1 844	1 688	13	8

Source: the Food and Agriculture Organisation of the United Nations (FAOSTAT: Production)

The collection of cows' milk in the EU-28 was greater than the level recorded in any other G20 member in 2011 and the third highest relative to population size (see Figure 11.6). Between 2001 and 2011, milk production per inhabitant fell approximately one quarter in South Korea and Australia and by a lesser proportion in Japan, Canada and Russia. By contrast, large increases were recorded for China (where output per inhabitant more than doubled), Indonesia, Turkey, Saudi Arabia, Brazil and India.

**Figure 11.6:** Milk production per inhabitant, 2001 and 2011

(kg per inhabitant)



(1) Milk collection instead of milk production; estimates.

Source: Eurostat (online data codes: [tag00037](#) and [demo\\_gind](#)), the Food and Agriculture Organisation of the United Nations (FAOSTAT: Production) and the World Bank (Health Nutrition and Population Statistics)





More than half of the total meat production in Argentina and Australia was cattle meat, while similar levels of specialisation were recorded in China and the EU-28 for pig meat and in South Africa, Indonesia, Turkey and Saudi Arabia for poultry meat.

**Table 11.7:** Meat and milk production, 2011

(1 000 tonnes)

	<b>Cattle meat</b>	<b>Pig meat</b>	<b>Poultry meat</b>	<b>Sheep and goat meat</b>	<b>Milk production</b>
<b>EU-28 (1)</b>	7 578	22 475	12 230	992	139 594
Argentina	2 420	301	1 695	57	11 206
Australia	2 110	343	1 054	537	9 101
Brazil	9 030	3 370	11 919	113	32 244
Canada	1 154	1 954	1 222	16	8 400
China	6 475	50 530	16 720	3 937	41 480
India	2 589	329	2 245	890	127 300
Indonesia	503	721	1 643	116	1 329
Japan	500	1 267	1 382	:	7 474
Mexico	1 804	1 202	2 807	100	10 886
Russia	1 625	2 428	2 942	189	31 640
Saudi Arabia	44	:	581	93	1 940
South Africa	829	320	1 492	165	3 256
South Korea	280	837	686	1	1 873
Turkey	647	:	1 626	295	15 056
<b>United States</b>	11 983	10 331	19 792	70	89 015

(1) Milk collection instead of milk production.

Source: Eurostat (online data codes: [tag00044](#), [tag00042](#) and [tag00037](#)) and the Food and Agriculture Organisation of the United Nations (FAOSTAT: Production)



Dramatic events around the world frequently propel environmental issues into the mainstream news, from wide scale floods or forest fires to other extreme weather patterns. The world is confronted by many environmental challenges, for example tackling climate change, preserving nature and [biodiversity](#), or promoting the sustainable use of natural resources. The inter-relationship between an economy and its surrounding environment is a factor for many of these challenges and underlies the interest in sustainable growth and development, with positive social and environmental outcomes.

## Main findings

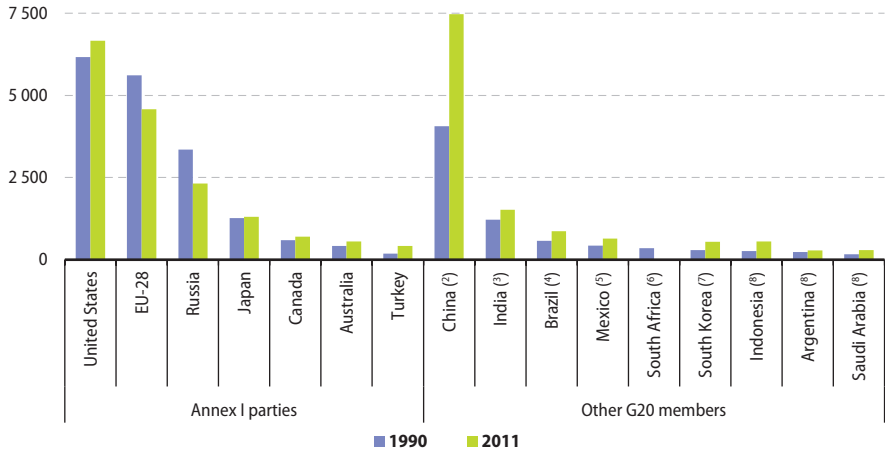
Data relating to [greenhouse gas](#) emissions are collected under the UN's Framework Convention on [Climate Change](#) (UNFCCC). The [Kyoto Protocol](#) is an international agreement linked to the UNFCCC: it was adopted in 1997 and entered into force in 2005. A total of 191 signatories subsequently ratified the Protocol; the United States did not ratify it and Canada subsequently announced its withdrawal. Under the Protocol a list of industrialised and transition economies — referred to as Annex I parties — committed to targets for the reduction of six greenhouse gases or groups of gases; these gases are listed in Table 12.2. The G20 members that are Annex I parties are listed separately in Figure 12.1 and Tables 12.1 and 12.2 from those G20 members that are not. The EU is an Annex I party and was composed of 15 Member States at the time of adoption of the Protocol under which the EU agreed to reduce greenhouse gas emissions by 8 % during the period 2008–12 when compared with their 1990 levels. The [EU-28](#) has subsequently committed to a 20 % reduction in greenhouse gas emissions by 2020.

Total greenhouse gas emissions by Annex I parties in 2011 were 17 231 million tonnes of carbon dioxide equivalents, 9 % lower than the level in the base year (1990 for most parties). Between 1990 and 2011, Russia's emissions fell by 31 %, while the emissions of the EU-28 fell by 18 %. Turkey's emissions more than doubled, while increased emissions were also recorded for Australia (32 %), Canada (19 %), the United States (8 %) and Japan (3 %). Among the



other G20 members (that are not Annex I parties), China had the most substantial level of greenhouse gas emissions — note the latest data for China is from 2005 and it is likely that Chinese greenhouse gas emissions have grown substantially since then.

**Figure 12.1:** Greenhouse gas emissions, 1990 and 2011 <sup>(1)</sup>  
(million tonnes of CO<sub>2</sub>-equivalents)



<sup>(1)</sup> Without land use, land use change and forestry. <sup>(2)</sup> Data for 1994 instead of 1990. Data for 2005 instead of 2011. <sup>(3)</sup> Data for 1994 instead of 1990. Data for 2000 instead of 2011. <sup>(4)</sup> Data for 2005 instead of 2011. <sup>(5)</sup> Data for 2006 instead of 2011. <sup>(6)</sup> 2011: not available. <sup>(7)</sup> Data for 2001 instead of 2011. <sup>(8)</sup> Data for 2000 instead of 2011.

Source: Eurostat (online data code: [env\\_air\\_gge](#)) and the United Nations Framework Convention on Climate Change (UNFCCC)

**Table 12.1:** Greenhouse gas emissions, analysis by sector, 2011 <sup>(1)</sup>

	Total (million tonnes of CO <sub>2</sub> -equivalents)	Energy	Agriculture	Industrial processes	Waste	Solvents
		(% share of total emissions)				
<b>EU-28</b>	4 578.5	79.4	10.1	7.3	2.9	0.2
<b>G20 members that are Annex I parties to the Kyoto Protocol</b>						
Australia	552.3	76.4	15.2	6.0	2.3	0.0
Canada	701.8	81.4	7.7	7.7	3.1	0.0
Japan	1 307.7	91.3	1.9	5.1	1.6	0.0
Russia	2 320.8	82.7	6.2	7.5	3.5	0.0
Turkey	422.4	71.3	6.8	13.3	8.6	0.0
United States	6 665.7	86.2	6.9	4.9	1.9	0.1
<b>Other G20 members</b>						
Argentina <sup>(2)</sup>	282.0	46.8	44.3	3.9	5.0	:
Brazil <sup>(3)</sup>	862.8	38.1	48.2	8.9	4.8	:
China <sup>(4)</sup>	7 465.9	77.3	11.0	10.2	1.5	:
India <sup>(5)</sup>	1 523.8	67.4	23.3	5.8	3.4	:
Indonesia <sup>(6)</sup>	554.3	50.7	13.2	7.7	28.4	:
Mexico <sup>(7)</sup>	641.4	67.1	7.1	9.9	15.9	:
Saudi Arabia <sup>(8)</sup>	296.1	82.8	4.2	6.6	6.4	:
South Africa <sup>(9)</sup>	379.8	78.3	9.3	8.0	4.3	:
South Korea <sup>(10)</sup>	542.9	83.5	3.0	10.7	2.9	:

<sup>(1)</sup> Without land use, land use change and forestry. <sup>(2)</sup> 2000. <sup>(3)</sup> 2005. <sup>(4)</sup> 2006. <sup>(5)</sup> 1994. <sup>(6)</sup> 2001.

Source: Eurostat (online data code: [env\\_air\\_gge](#)) and the United Nations Framework Convention on Climate Change (UNFCCC)



Tables 12.1 and 12.2 provide an analysis of the source of greenhouse gas emissions and an analysis by type of gas — note that the data for the G20 members that are not Annex I parties relate to relatively distant reference years. While energy accounted for at least 70 % of all greenhouse gas emissions in the G20 members that are Annex I parties, this was not the case for some other G20 members where agriculture and waste often made relatively large contributions to the level of greenhouse gas emissions.

An analysis by type of gas reflects, to some extent, the analysis by sector, for example — high shares of methane emissions can be seen in G20 members where a large proportion of emissions were from agriculture and/or waste. As well as resulting from human activities, nitrous oxide emissions can be produced naturally, for example in wet tropical forests, which may in part explain the high share of this gas in total greenhouse gas emissions in Brazil and Indonesia.

Figure 12.2 provides an analysis of emission intensities of carbon dioxide for 2010. These intensities varied considerably between G20 members reflecting, among other factors, the structure of each economy (for example, the relative importance of heavy, traditional industries), the national energy mix (the share of low or zero-carbon technologies compared with the share of fossil fuels), heating and cooling needs and practices, and the propensity for motor vehicle use.

The Gothenburg Protocol is one of several concluded under the [United Nations Economic Commission for Europe Convention on Long Range Transboundary Air Pollution \(CLRTAP\)](#); it aims to control transboundary air pollution and associated health and environmental

**Table 12.2:** Greenhouse gas emissions, analysis by gas, 2011

	Total (million tonnes of CO <sub>2</sub> -equivalents)	Carbon dioxide (CO <sub>2</sub> )	Methane (CH <sub>4</sub> )	Nitrous oxide (N <sub>2</sub> O)	Hydro- fluoro- carbons (HFCs)	Per- fluoro- carbons (PFCs)	Sulphur hexa- fluoride (SF <sub>6</sub> )
		(% share of total emissions)					
<b>EU-28 (1)</b>	4 578.5	82.2	8.5	7.3	1.8	0.1	0.1
<b>G20 members that are Annex I parties to the Kyoto Protocol (1)</b>							
Australia	552.3	73.6	20.4	4.5	1.4	0.0	0.0
Canada	701.8	79.2	12.9	6.6	1.1	0.2	0.1
Japan	1 307.7	94.9	1.6	1.7	1.6	0.2	0.1
Russia	2 320.8	72.6	21.8	5.1	0.4	0.1	0.0
Turkey	422.4	81.6	13.9	3.0	1.3	0.0	0.2
United States	6 665.7	84.1	8.6	5.2	1.9	0.1	0.1
<b>Other G20 members (2)</b>							
Argentina	320.4	56.3	27.1	16.2	0.2	0.0	0.1
Brazil	1 081.2	38.8	41.0	19.2	0.3	0.5	0.1
China	10 728.8	77.2	15.3	5.1	1.7	0.1	0.5
India	2 885.4	69.6	21.5	8.1	0.5	0.1	0.2
Indonesia	745.5	58.2	29.4	12.2	0.0	0.0	0.1
Mexico	611.7	72.5	18.9	7.1	1.4	0.0	0.1
Saudi Arabia	533.9	87.0	11.3	1.2	0.1	0.0	0.5
South Africa	550.5	83.6	11.9	4.0	0.1	0.1	0.3
South Korea	625.1	90.8	5.1	2.3	0.5	0.3	1.0

(1) Without land use, land use change and forestry.

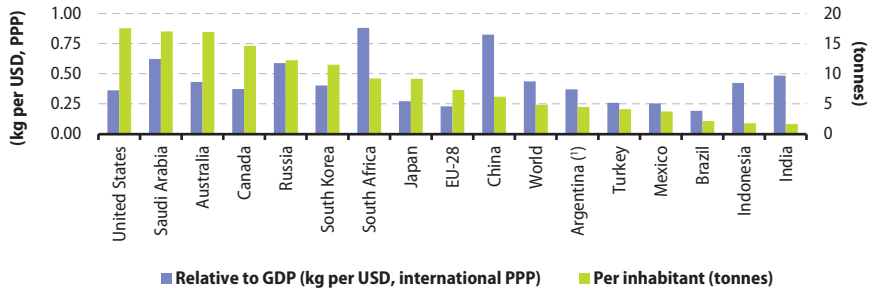
(2) 2010; including land use, land use change and forestry.

Source: the United Nations Framework Convention on Climate Change (UNFCCC) and the World Bank (World Development Indicators)



impacts, notably acidification, eutrophication and ozone pollution. In the G20 members there was a considerable reduction in the consumption of ozone depleting substances (ODS) between 2000 and 2012 and also a large decline in particulate matter (PM10: particles defined as having aerodynamic diameter of 10 µm or less) between 2000 and 2010 (see Table 12.3).

**Figure 12.2:** Quantity of carbon dioxide emissions, 2010



(1) Relative to GDP: 2006.

Source: the World Bank (World Development Indicators) based on the United Nations Framework Convention on Climate Change (UNFCCC)

**Table 12.3:** Air pollution

	Consumption of ozone depleting substances (ODS tonnes) (1)		PM10 (micrograms per m <sup>3</sup> )		Nitrogen oxides (NO <sub>x</sub> ) (2)		Sulphur dioxide (SO <sub>2</sub> )	
	2000	2012	2000	2010	Latest year	(1 000 tonnes)	Latest year	(1 000 tonnes)
EU-28 (3)	11 087	-1 616	26.8	18.4	2011	11 215	2011	6 017
Argentina	3 383	855	68.1	56.8	2000	676	2000	88
Australia	485	-34	17.8	13.1	2010	2 126	2010	2 370
Brazil	11 379	1 388	31.5	18.3	1994	2 301		:
Canada	953	62	21.4	14.5	2010	2 066	2010	1 371
China	90 878	21 522	87.9	58.9		:		:
India	18 696	1 638	90.7	52.0		:		:
Indonesia	5 451	329	119.5	60.1	1994	928		:
Japan	5 989	431	32.8	24.1	2010	1 479	2010	756
Mexico	6 056	1 429	43.5	29.8	2002	1 444	2002	2 613
Russia	25 744	959	27.4	14.5	2007	5 069	2008	625
Saudi Arabia	1 943	1 943	148.2	96.3		:		:
South Africa	815	462	22.1	17.9		:		:
South Korea	13 746	2 088	45.3	30.3	2008	1 045	2008	418
Turkey	1 592	318	53.0	35.1	2010	1 281	2010	463
United States	3 972	-76	23.8	17.8	2010	13 264	2010	6 812

(1) Negative values indicate exports plus destruction exceeded actual production plus imports.

(2) Nitric oxide / nitrogen monoxide (NO) and nitrogen dioxide (NO<sub>2</sub>).

(3) For ozone depleting substances: the European Union reports aggregated consumption data for the region and on behalf of the Member States; for sulphur dioxide: data relate to all sulphur oxides instead.

Source: Eurostat (online data codes: env\_air\_ind, env\_air\_emis, tsdpc260 and tsdpc270), the United Nations Environment Programme (Ozone Secretariat), OECD (Environment at a Glance) and the World Bank (World Development Indicators)



Economy-wide material flow accounts constitute a comprehensive system to record the inputs of materials in an economy. Various indicators are derived from the system, such as **domestic material consumption** which can be related to an output measure such as gross domestic product (GDP) in order to monitor **resource productivity**. These accounts report the amount of materials available either from domestic extraction or from **imports**; from this total of available materials can be subtracted the amount exported to compile a measure of the amount domestic consumption.

Table 12.4 presents a time series showing the development rather than the level of material consumption (excluding energy products) between 1990 and 2008. Among the four EU G20 members, France's material consumption increased 16.4 % over this period, equivalent to an increase of 0.8 % per year; the three other EU G20 members recorded a reduction in material consumption, averaging -1.3 % per year in the case of the United Kingdom. Material consumption increased over this period among all other G20 members except in Japan where it fell, on average, by 3.2 % per year. The largest increase was recorded for China, where material consumption more than trebled (annual increases averaged 6.8 %), followed by Indonesia where it more than doubled (annual increases averaging 5.4 % per year).

**Table 12.4:** Index of non-energy domestic material consumption, 1990–2008  
(1990 = 100)

	1990	2000	2005	2006	2007	2008
Germany	100.0	95.2	79.6	82.1	82.5	80.0
France	100.0	107.1	102.3	105.2	111.7	116.4
Italy	100.0	118.1	99.5	99.9	94.7	82.2
United Kingdom	100.0	85.8	83.2	83.4	84.5	79.5
Argentina	:	:	:	:	:	:
Australia	100.0	127.8	129.7	122.4	127.8	128.7
Brazil	100.0	117.7	139.2	146.6	156.1	165.3
Canada	100.0	102.0	103.3	102.0	98.7	100.8
China	100.0	180.2	254.6	286.5	311.0	324.2
India	100.0	121.1	131.0	139.1	148.9	152.7
Indonesia	100.0	104.0	290.0	286.7	272.3	255.9
Japan	100.0	80.5	60.0	59.9	58.2	55.9
Mexico	100.0	128.2	137.1	141.0	140.0	146.1
Russia	:	:	:	:	:	:
Saudi Arabia	:	:	:	:	:	:
South Africa	:	:	:	:	:	:
South Korea	100.0	144.9	149.8	154.3	158.6	154.2
Turkey	100.0	122.7	126.1	143.6	145.5	162.0
United States	100.0	124.4	132.5	134.1	129.9	115.7

Source: OECD (Green growth)

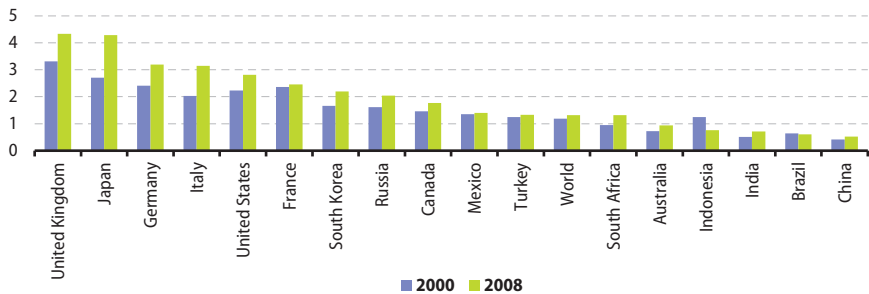




Figure 12.3 compares the level of non-energy material consumption with GDP in order to produce a resource productivity indicator. All four EU G20 members figured among the top six G20 members in terms of non-energy material productivity, along with Japan and the United States. For every kilogramme (kg) of non-energy material resources consumed, the United Kingdom produced USD 4.33 of GDP in 2008, the highest productivity among the G20 members. Japan also produced more than USD 4.00 of GDP per kg of non-energy materials consumed, Germany and Italy more than USD 3.00 and the United States, France, South Korea and Russia more than USD 2.00. The lowest resource productivity levels based on this indicator were recorded for Australia, Indonesia, India, Brazil and China, all less than USD 1.00 per kg. Figure 12.3 shows that this measure of resource productivity increased between 2000 and 2008 in all G20 members except for Indonesia and Brazil, with the greatest percentage increases recorded by South Africa, India, Italy and Japan.

**Figure 12.3:** Non-energy material productivity, 2000 and 2008 <sup>(1)</sup>

(USD per kg)



<sup>(1)</sup> Argentina and Saudi Arabia: not available.

Source: OECD (Green growth)

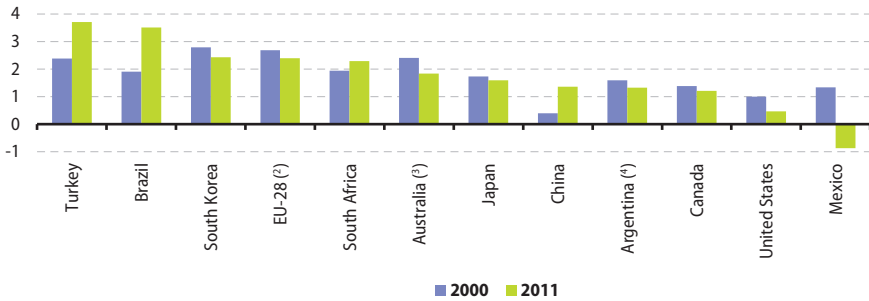
An environmental tax is one whose tax base is a physical unit (or a proxy of one) of something that has a proven, specific negative impact on the environment. Examples are taxes on energy, transport and pollution. As well as raising revenue, environmental taxes may be used to influence the behaviour of producers or consumers. In 2011, the EU-28 Member States raised EUR 304 billion of revenue from environmental taxes, equivalent to 2.39 % of GDP. Figure 12.4 compares the relative importance of environmental taxes between the G20 members and shows how these developed between 2000 and 2011. Environmental taxes in Turkey and Brazil were equivalent to 3–4 % of GDP in 2011. Between 2000 and 2011, the ratio of environmental taxes to GDP fell in most G20 members, the exceptions being South Africa, China, Turkey and Brazil.





**Figure 12.4:** Environment related taxes, 2000 and 2011 (1)

(% share of GDP)



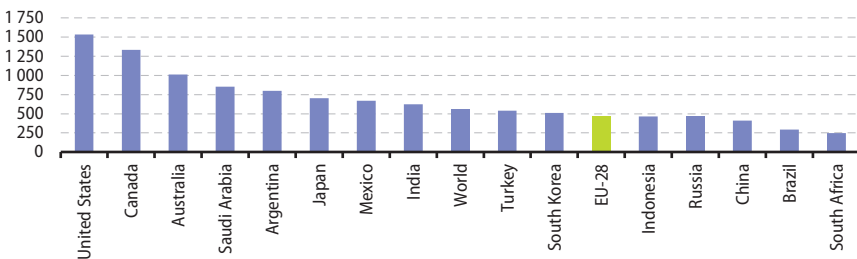
(1) India, Indonesia, Russia and Saudi Arabia: not available.  
 (2) 2000: EU-27.  
 (3) 2010 instead of 2011.  
 (4) 2009 instead of 2011.

Source: Eurostat (online data code: [env\\_ac\\_tax](#)) and OECD (Green growth)

G20 members accounted for approximately two thirds of all freshwater withdrawals worldwide; India, China, the United States and the EU-28 together accounted for more than half. Relative to population size, the United States and Canada had the highest annual freshwater withdrawals in 2011 (see Figure 12.5), at more than double the world average (559 m<sup>3</sup> per inhabitant), which itself was above the EU-28 average (471 m<sup>3</sup> per inhabitant).

**Figure 12.5:** Freshwater withdrawals, 2011

(m<sup>3</sup> per inhabitant)



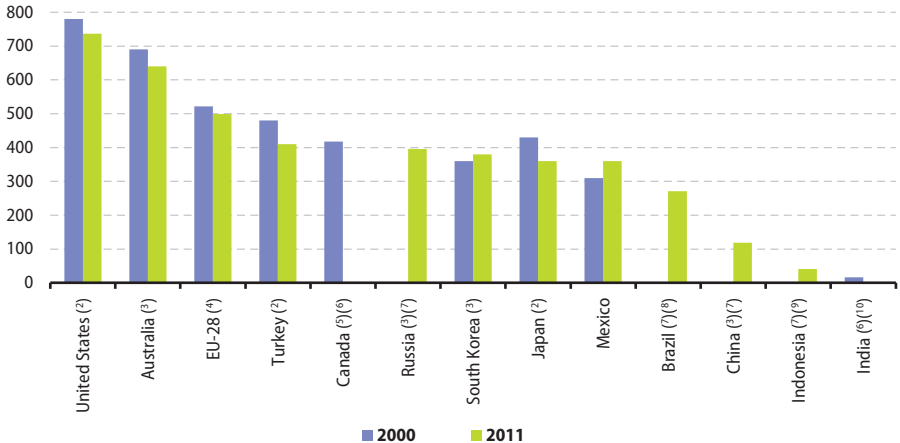
Source: the World Bank (World Development Indicators)



The management and disposal of waste can have serious environmental impacts, taking up space and potentially releasing pollution into the air, water or soil. Among the seven G20 members with data for 2000 and 2011, as shown in Figure 12.6, an analysis over time of the level of waste collection indicates increases were recorded in Mexico and South Korea and decreases elsewhere, notably in Japan and Turkey.

**Figure 12.6:** Municipal waste collection, 2000 and 2011 <sup>(1)</sup>

(kg per inhabitant)



<sup>(1)</sup> Argentina, Saudi Arabia and South Africa: not available.

<sup>(2)</sup> 2010 instead of 2011.

<sup>(3)</sup> 2009 instead of 2011.

<sup>(4)</sup> Municipal waste generated instead of collected. 2000: EU-27 instead of EU-28.

<sup>(5)</sup> 2004 instead of 2000.

<sup>(6)</sup> 2011: not available.

<sup>(7)</sup> 2000: not available.

<sup>(8)</sup> 2007 instead of 2011.

<sup>(9)</sup> 2008 instead of 2011.

<sup>(10)</sup> 2001 instead of 2000.

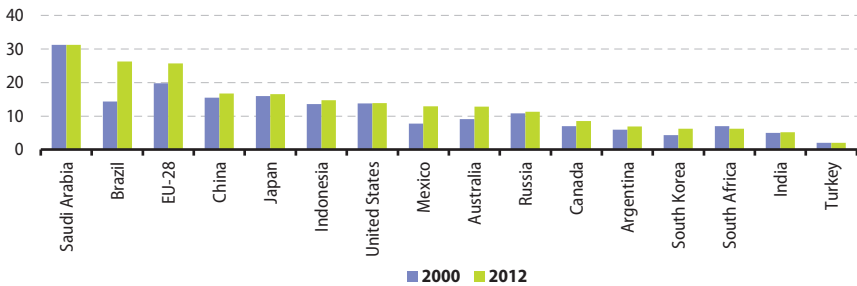
Source: Eurostat (online data code: [env\\_wasmun](#)), the United Nations Statistics Division (Environment statistics, Waste section) and OECD (Environment, Waste)



Terrestrial and marine areas may be protected because of their ecological or cultural importance and they provide a habitat for plant and animal life. According to the [World Conservation Monitoring Centre](#) of the [United Nations Environment Programme](#), in the EU-28 around 25.7 % of the surface area was designated as a protected area as of 2012, along with 18.8 % of territorial waters. Among the other G20 members, the largest shares of surface area that were protected were in Brazil and Saudi Arabia, with Brazil having the largest protected area in absolute terms (2.2 million km<sup>2</sup> in 2012). A large proportion of marine areas around the United States and Australia had protected status and these were also the largest protected marine areas in absolute size, each over 240 000 km<sup>2</sup>. Between 2000 and 2012, South Africa was the only G20 member to report a fall in the proportion of its surface area that was protected, with large increases (in percentage point terms) in Mexico, the EU-28 and Brazil. By contrast, South Africa recorded the largest percentage point increase in the share of its territorial waters that had protected status, with the EU-28 and Mexico also recording relatively high increases.

**Figure 12.7:** Terrestrial protected areas, 2000 and 2012 (1)

(% of surface area)

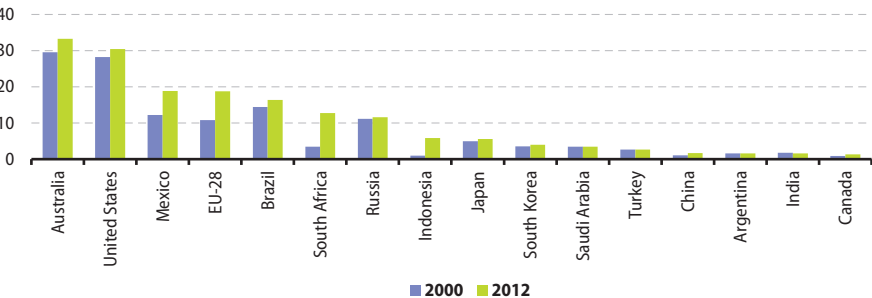


(1) Surface area includes land and inland waters.

Source: the United Nations Environment Programme (World Conservation Monitoring Centre)

**Figure 12.8:** Marine protected areas, 2000 and 2012

(% of territorial waters)



Source: the United Nations Environment Programme (World Conservation Monitoring Centre)



A competitive, reliable and sustainable energy sector is considered essential for all advanced economies. The energy sector has been under the spotlight in recent years due to a number of issues that have pushed energy up the political agenda, including the volatility of prices, interruptions to energy supplies and increased attention to anthropogenic (human-induced) effects of energy use on climate change, in particular, increased levels of greenhouse gas emissions.

## Main findings

Primary production of energy in the EU-28 totalled 805.0 million tonnes of oil equivalent (toe) in 2011. This represented a decrease in comparison with the level of production in 2010 (835.3 million toe) in line with the general downward trend of EU-28 production: primary production in the EU-28 fell in all but one of the last six years, the one increase coming in 2010 as output rebounded (up 2.2 %) from the strong fall (-4.3 %) recorded in 2009 during the financial and economic crisis. This long-term fall in EU output reflects supplies becoming exhausted and/or producers considering the exploitation of limited resources uneconomical.

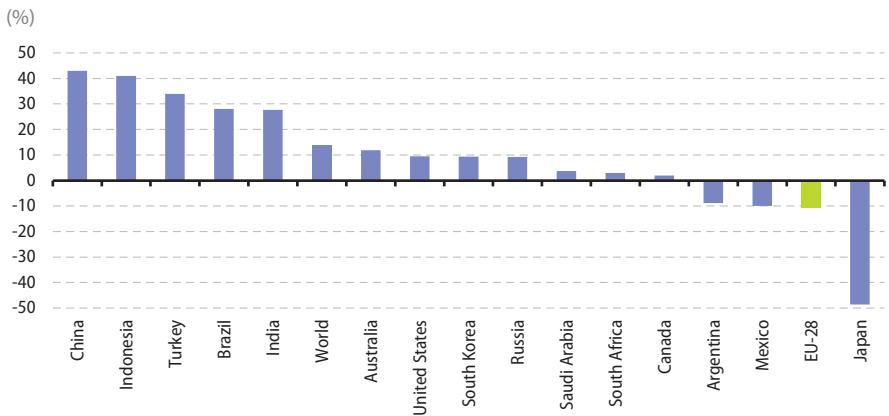
Worldwide primary production of energy reached 13 202 million toe in 2011. The members of the G20 accounted for approximately 71 % of the world's energy production, with Russia, the United States and China recording higher production than the EU-28.

Between 2005 and 2011, global primary production of energy increased 13.7 % — see Figure 13.1. China and Indonesia's primary production increased by more than 40 % during this period, while output in India, Brazil and Turkey increased by more than 20 %. The EU-28 and Mexico both recorded lower primary production of energy in 2011 than in 2005, while production nearly halved in Japan, in large part due to a fall in output from nuclear energy following the Tōhoku earthquake and tsunami on 11 March 2011.

**Table 13.1:** Production of primary energy, 2005 and 2011

	Production (million toe)		Analysis by energy type (excluding heat), 2011 (%)				
	2005	2011	Coal and lignite	Crude oil	Natural gas	Nuclear energy	Renewables & waste
<b>EU-28</b>	900.6	805.0	20.7	10.6	17.7	29.1	22.0
Argentina	84.7	77.2	0.1	43.0	45.2	2.1	9.6
Australia	265.2	296.7	75.0	7.8	15.1	0.0	2.1
Brazil	194.7	249.2	0.9	45.3	5.7	1.6	46.6
Canada	401.1	409.0	8.2	42.4	32.4	6.0	11.1
China	1 701.4	2 432.5	75.0	8.3	3.5	0.9	12.2
India	423.9	540.9	46.6	8.0	7.1	1.6	36.7
Indonesia	279.9	394.6	52.4	11.7	18.0	0.0	17.9
Japan	100.5	51.7	0.0	1.3	6.2	51.3	41.2
Mexico	253.4	228.2	3.4	69.6	18.3	1.2	7.6
Russia	1 203.2	1 314.9	13.7	39.2	42.0	3.5	1.7
Saudi Arabia	580.6	601.7	0.0	88.4	11.6	0.0	0.0
South Africa	157.9	162.6	87.8	0.1	0.7	2.2	9.3
South Korea	43.0	47.0	2.0	1.5	0.9	85.8	9.8
Turkey	23.9	32.1	55.6	7.3	1.9	0.0	35.1
United States	1 631.0	1 784.8	30.1	20.2	29.7	12.0	8.0
<b>World</b>	11 608.4	13 201.8	29.2	31.3	21.2	5.1	13.2

Source: Eurostat (online data codes: [ten00076](#), [ten00077](#), [ten00078](#), [ten00079](#), [ten00080](#) and [nrg\\_1071a](#)) and the International Energy Agency (Balances)

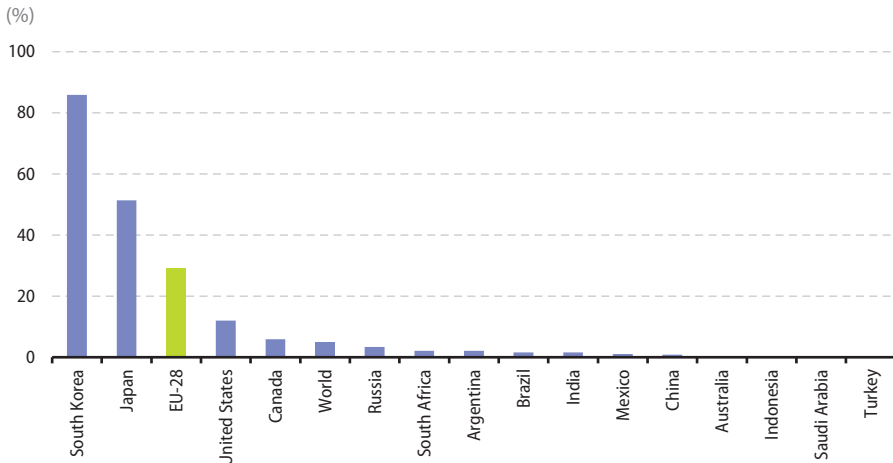
**Figure 13.1:** Change in primary energy production, 2005–11

Source: Eurostat (online data code: [ten00076](#)) and the International Energy Agency (Balances)

For many of the G20 members the mix of energy sources for primary production in 2011 was dominated by just one type. In South Africa, Australia and China three quarters or more of primary production came from coal and lignite, while in Turkey and Indonesia coal and lignite's share was just over half. In Saudi Arabia and Mexico crude oil was dominant, while in South Korea and Japan nuclear energy contributed by far the largest share. Production in Brazil, India and Turkey was a mixture from **renewables** and **waste** as well as one type of fossil fuel, crude oil for Brazil and coal and lignite for India and Turkey. By contrast Argentina, Canada, Russia and the United States had substantial shares of production spread across two or three types of fossil fuels, with none of them accounting for half or more of total production. Energy production in the EU-28 was more varied than in any of the other G20 members with all five types of energy sources shown in Table 13.1 attaining at least a 10 % share of total production, but none exceeding 30 %; this variety reflects the availability of different fossil fuel deposits and the potential for hydro power among EU Member States as well as differing policies towards nuclear fuels and renewables.

The importance of nuclear power as a source of primary production of energy in Japan and South Korea has already been noted and this can be clearly seen from Figure 13.2. The EU-28 was the only other G20 member where more than one quarter of primary energy production was from nuclear energy, while the United States recorded the fourth highest nuclear energy share. Worldwide, renewables and waste (which includes non-renewable industrial and **municipal waste**) contributed 13.2 % of the primary production of energy (see Figure 13.3), a share that was exceeded in Brazil, Japan, India and Turkey (all above 30 %), as well as in the EU-28 and Indonesia. The share of renewables and waste in primary production was particularly low in Australia, Russia and Saudi Arabia, all of which are large exporters of fossil fuels.

**Figure 13.2:** Contribution of nuclear energy to primary production, 2011

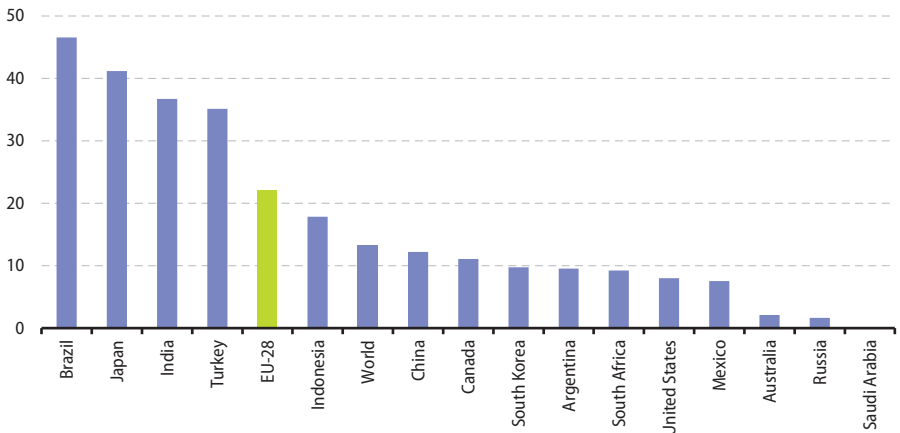


Source: Eurostat (online data codes: [ten00076](#) and [ten00080](#)) and the International Energy Agency (Balances)



The main difference between levels of energy production and consumption is international trade: a shortfall of production needs to be met by positive net imports (the balance of imports minus exports) and a production surplus is generally accompanied by negative net imports. Among the G20 members, the largest net exporters of energy in 2011 were Russia and Saudi Arabia, while net exports from Indonesia, Australia and Canada also exceeded 150 million toe; Mexico and South Africa also recorded net exports. The largest net importer was the EU-28, followed by the United States, Japan and China. Between 2005 and 2011 Argentina moved from being a net exporter of energy to a net importer. During the same period, the United States' net imports declined, as did those of the EU-28 and Japan, while the net exports of Mexico, Saudi Arabia and South Africa also fell. An analysis of the change in gross imports (see Figure 13.4) indicates that only the United States, Japan, the EU-28 and Canada recorded falls between 2005 and 2011, while Saudi Arabia and Argentina's relatively high percentage increases reflect quite low levels of imports in 2005. In quantity terms, China's imports increased by 249.0 million toe between 2005 and 2011, equivalent to half (49.6 %) of the world's increase in energy imports and almost double the increase reported for India (131.4 million toe).

**Figure 13.3:** Contribution of renewables and waste to primary production, 2011 (%)



Source: Eurostat (online data codes: [ten00076](#) and [ten00081](#)) and the International Energy Agency (Balances)

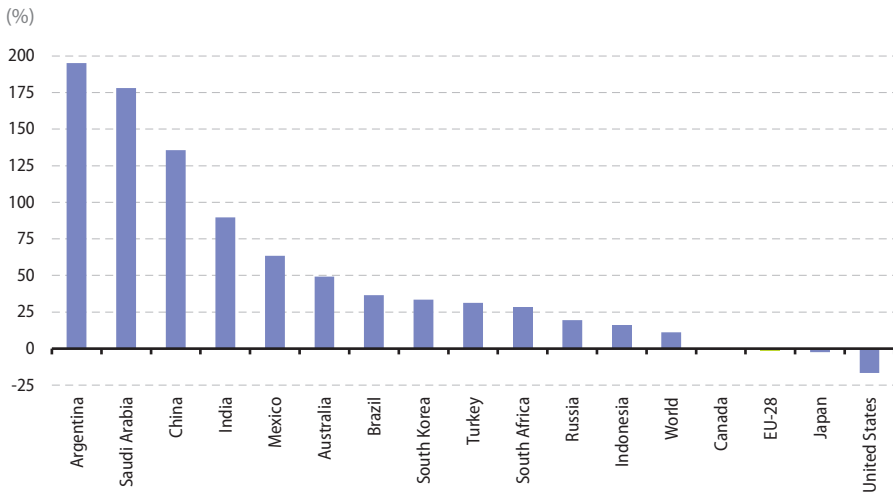
An analysis of the composition of gross energy imports — see Table 13.2 — shows that crude oil and oil products dominated worldwide (67.4 %) and in most G20 members. These products accounted for more than half of all energy imports in all G20 members except for Argentina, Turkey and Russia; gas formed a large part of Argentina and Turkey's energy imports, while in Russia more than half of all energy imports were coal and lignite.



**Table 13.2:** Energy imports, 2005 and 2011

	Net imports (million toe)		Gross imports	Gross imports: analysis by energy type, 2011 (%)				
	2005	2011	2011	Coal and lignite	Crude oil and oil products	Gas	Renewables and waste	Electricity and heat
<b>EU-28</b>	988.5	944.3	1 439.8	10.0	62.7	24.5	0.8	1.9
Argentina	-16.1	5.1	13.4	8.9	41.4	42.7	0.0	7.0
Australia	-148.7	-179.7	46.4	0.1	87.8	12.1	0.0	0.0
Brazil	25.0	28.6	67.7	20.2	61.1	12.9	0.9	4.9
Canada	-133.9	-158.5	81.3	7.3	58.2	31.9	0.9	1.6
China	100.1	378.6	432.6	22.8	71.4	5.7	0.1	0.0
India	122.8	213.5	278.0	27.2	68.3	4.3	0.0	0.2
Indonesia	-99.8	-184.8	47.3	0.1	99.9	0.0	0.0	0.0
Japan	435.8	421.1	435.7	24.8	52.8	22.4	0.0	0.0
Mexico	-79.2	-36.0	51.8	8.8	62.4	28.7	0.0	0.1
Russia	-539.3	-571.8	27.7	59.0	16.9	23.7	0.0	0.5
Saudi Arabia	-431.0	-404.1	10.4	0.0	100.0	0.0	0.0	0.0
South Africa	-30.2	-17.3	32.2	5.5	83.0	8.3	0.0	3.2
South Korea	175.6	227.4	282.3	28.2	57.0	14.8	0.0	0.0
Turkey	61.8	80.2	88.5	17.5	41.2	40.8	0.0	0.4
United States	736.1	457.6	701.4	1.2	86.6	11.5	0.1	0.6
<b>World</b>	-	-	5 008.5	13.9	67.4	17.3	0.3	1.1

Source: Eurostat (online data codes: [nrg\\_100a](#), [nrg\\_101a](#), [nrg\\_102a](#), [nrg\\_103a](#), [nrg\\_105a](#), [nrg\\_106a](#) and [nrg\\_1071a](#)) and the International Energy Agency (Balances)

**Figure 13.4:** Change in gross imports, 2005–11

Source: Eurostat (online data code: [nrg\\_100a](#)) and the International Energy Agency (Balances)



Worldwide **gross consumption** of energy was 13 113 million toe in 2011, of which the G20 members accounted for around four fifths, significantly higher than their collective share of production. Having increased in 2010, the EU-28's gross inland consumption fell back to 1 706 million toe in 2011, dropping 3.5 %. Between 2005 and 2011, global energy consumption increased by 13.7 % and China's gross inland consumption increased by more than a half (53.6 %) — see Figure 13.5. Japan, Canada, the EU-28 and the United States were the only G20 members to record lower gross inland consumption of energy in 2011 than in 2005.

Just over one quarter of worldwide **gross consumption** of energy in 2011 was coal and lignite, close to one third was crude oil and oil products and just over one fifth was gas; combined these three fuels accounted for just over four fifths (81.6 %) of global energy consumption. **Gross inland consumption** was entirely satisfied by such fossil fuels in Saudi Arabia and these three fuels provided more than 90 % of gross inland consumption in Australia and Russia and close to this level in Turkey, Argentina, Japan and Mexico — see Figure 13.6.

South Korea had the highest share of nuclear energy in gross inland consumption, 15.5 %, but this share was considerably lower than for primary production, indicating South Korea's high dependency on imported fossil fuels, notably crude oil and oil products.

Worldwide, renewables and waste accounted for 13.3 % of gross inland consumption (see Figure 13.7). As for primary production, Brazil and India recorded above average shares for

**Table 13.3:** Gross inland consumption, 2005 and 2011

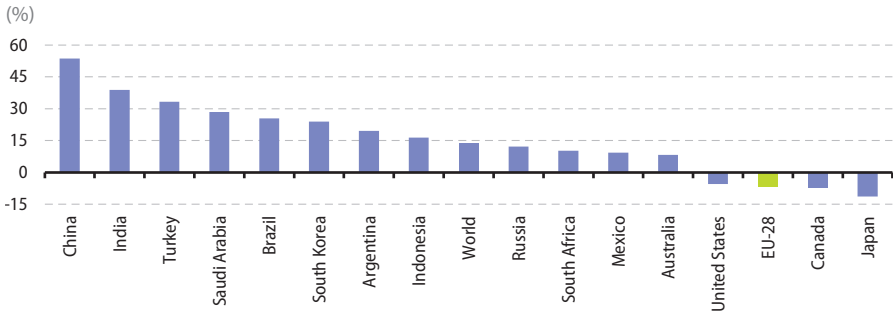
	Consumption (million toe)		Analysis by energy type, 2011 (%)					
	2005	2011	Coal and lignite	Crude oil and oil products	Gas	Nuclear energy	Renewables and waste	Electricity and heat <sup>(1)</sup>
<b>EU-28</b>	1 833.8	1 706.2	16.8	35.3	23.5	13.7	10.8	0.0
Argentina	67.0	80.1	1.5	37.7	50.5	2.1	7.2	1.0
Australia	113.5	122.9	39.2	33.7	22.0	0.0	5.2	0.0
Brazil	215.3	270.0	5.7	40.4	8.5	1.5	42.7	1.2
Canada	272.2	251.8	7.8	32.5	33.2	9.7	18.1	-1.2
China	1 775.7	2 727.7	68.1	16.2	4.0	0.8	10.9	0.0
India	539.4	749.4	43.5	22.1	6.7	1.2	26.5	0.1
Indonesia	179.5	209.0	15.1	34.7	16.6	0.0	33.6	0.0
Japan	520.5	461.5	23.3	44.7	21.7	5.7	4.6	0.0
Mexico	170.3	186.2	5.4	53.8	30.2	1.4	9.3	0.0
Russia	651.7	731.0	15.9	21.7	53.5	6.2	3.0	-0.3
Saudi Arabia	145.4	187.0	0.0	62.6	37.4	0.0	0.0	0.0
South Africa	128.2	141.4	69.7	14.9	2.7	2.5	10.5	-0.2
South Korea	210.2	260.4	30.8	36.0	16.0	15.5	1.7	0.0
Turkey	84.4	112.5	30.2	27.0	32.7	0.0	10.0	0.1
United States	2 318.9	2 191.2	21.9	35.9	26.0	9.8	6.4	0.1
<b>World</b>	11 532.0	13 113.4	28.8	31.5	21.3	5.1	13.3	0.0

(1) Gross inland consumption of electricity and heat is equal to electricity net imports.

Source: Eurostat (online data codes: [ten00086](#), [nrg\\_101a](#), [nrg\\_102a](#), [nrg\\_103a](#), [nrg\\_104a](#), [nrg\\_105a](#), [nrg\\_106a](#) and [nrg\\_1071a](#)) and the International Energy Agency (Balances)

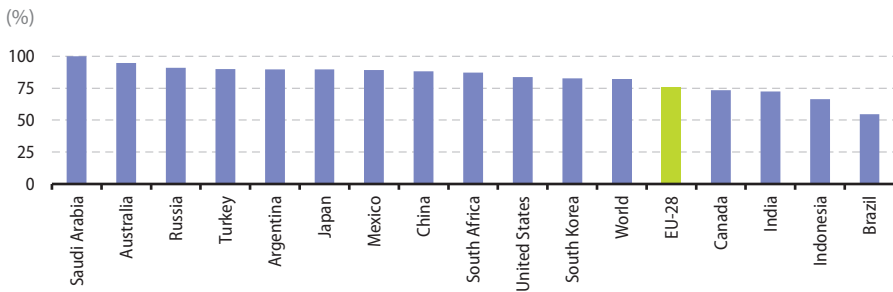
renewables and waste in gross inland consumption, as did Indonesia and Canada, reflecting their large net exports of fossil fuels. By contrast, the EU-28, Turkey and Japan recorded below average shares of renewables and waste in gross inland consumption, despite above average primary production, reflecting their net imports of fossil fuels.

**Figure 13.5:** Change in gross inland consumption, 2005–11



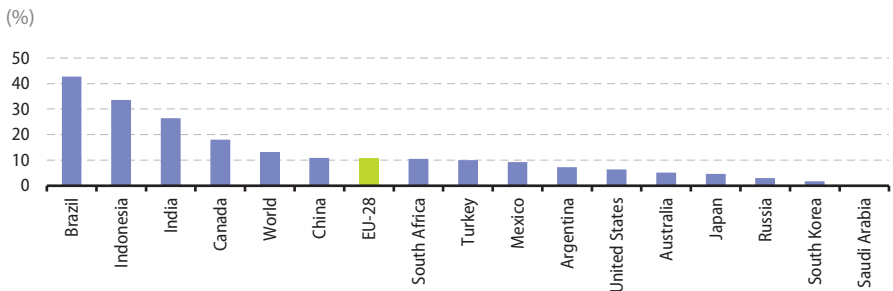
Source: Eurostat (online data code: [ten00086](#)) and the International Energy Agency (Balances)

**Figure 13.6:** Share of coal, lignite, oil and gas in gross inland consumption, 2011



Source: Eurostat (online data codes: [ten00086](#), [nrg\\_101a](#), [nrg\\_102a](#) and [nrg\\_103a](#)) and the International Energy Agency (Balances)

**Figure 13.7:** Share of renewables and waste in gross inland consumption, 2011 <sup>(1)</sup>

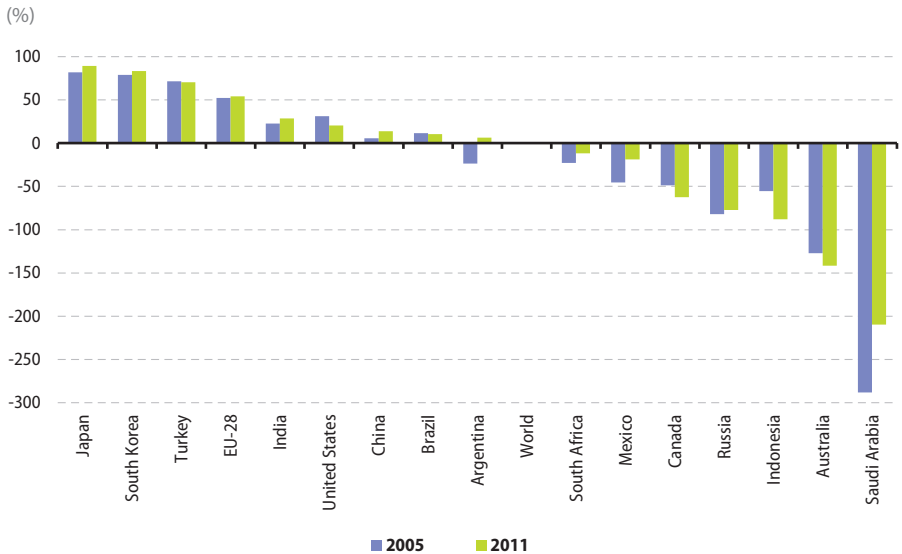


Source: Eurostat (online data codes: [ten00086](#) and [nrg\\_1071a](#)) and the International Energy Agency (Balances)



The **energy dependency** indicator shown in Figure 13.8 reveals the extent to which gross inland consumption was met by net imports — countries with a negative dependency were net exporters. Japan, South Korea, Turkey and the EU-28 all had energy dependency ratios in excess of 50 % in 2011, indicating that more than half of their gross inland consumption was met by imports. Smaller, positive dependency ratios were also recorded for India, the United States, China, Brazil and Argentina. Australia's net exports exceeded its gross inland consumption resulting in an energy dependency ratio that was below -100 %, while Saudi Arabia's net exports were more than twice as high as its gross inland consumption.

**Figure 13.8:** Energy dependency, 2005 and 2011 <sup>(1)</sup>



<sup>(1)</sup> Net imports divided by the sum of gross inland energy consumption plus bunkers, expressed as a percentage.

Source: Eurostat (online data code: [tsdcc310](#)) and the International Energy Agency (Balances)

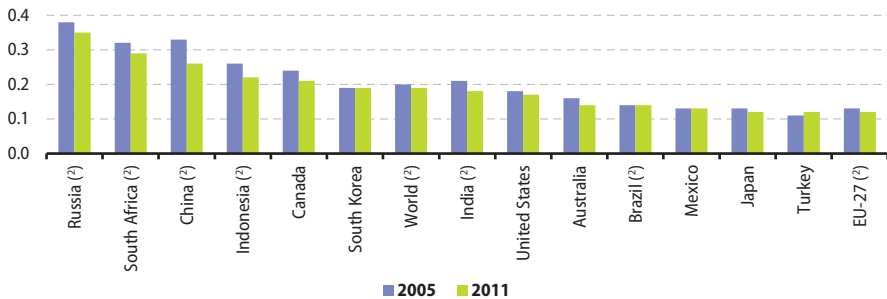


Energy intensity is an indicator of an economy's energy efficiency and relates the quantity of energy consumed to the level of economic output, the latter represented by **gross domestic product (GDP)**. In order to facilitate a comparison over time, GDP is shown in constant prices to remove the effects of inflation; to facilitate spatial comparisons GDP is calculated in a common currency (United States dollars are used in Figure 13.9) using purchasing power parities rather than market exchange rates. It should be noted that the economic structure of an economy plays an important role in determining energy intensity, as post-industrial economies with large service sectors will, a priori, have considerably lower energy use than economies characterised by heavy, traditional, industrial activities.

Energy intensity fell between 2005 and 2011 (2010 for some countries) for all G20 members for whom data are available — see Figure 13.9 — except for Brazil, South Korea and Mexico where energy intensities remained stable and Turkey where this measure rose slightly. Between 2005 and 2011, substantial energy efficiencies were introduced in the Chinese economy as its energy intensity fell by more than one fifth. Russia maintained its position as the most energy intense economy among the G20 members in 2010. By contrast, Japan, Turkey and the EU-27 had the lowest energy intensities.

**Figure 13.9:** Energy intensity, 2005 and 2011 <sup>(1)</sup>

(toe per USD 1 000, international PPP)



<sup>(1)</sup> Ratio between the gross inland consumption of energy and the gross domestic product (GDP). The GDP figures are at 2005 constant prices expressed in United States dollars converted using international purchasing power parities. Argentina and Saudi Arabia: not available.

<sup>(2)</sup> 2010 instead of 2011.

Source: OECD (Statistics)



Total gross electricity generation worldwide was 22.2 million gigawatt hours (GWh) in 2011, of which 84.7 % was generated by G20 members. In absolute terms, China and the United States had the highest levels of electricity generation among G20 members. A total of 3.3 million GWh of electricity was generated in the EU-28 in 2011, a small decrease compared with the level recorded in 2005. Apart from Japan, all other G20 members reported increases between 2005 and 2011, notably China and India where electricity generation increased by at least 50 %.

Coal and lignite-fired power stations generated two fifths of electricity worldwide in 2011; this share was boosted by a high use of these fuels in South Africa, China, Australia and India. Gas-fired power stations generated more than one fifth of the world's electricity with this fuel providing more than half of the electricity generated in Mexico and Argentina and more than two fifths of the total in Russia, Turkey and Saudi Arabia. While oil-fired power stations provided just 4.8 % of the world's electricity, this source was dominant in Saudi Arabia. Nuclear power contributed some 27.6 % of the electricity generated in the EU-28 in 2011, which was more than double the world's average and the second highest share among G20 members behind South Korea.

**Table 13.4:** Gross electricity generation, 2005 and 2011

	Total (GWh)		Analysis by source, 2011 (%) <sup>(1)</sup>					
	2005	2011	Coal and lignite	Oil	Gas	Nuclear	Hydro <sup>(2)</sup>	Other renewables & waste
<b>EU-28</b>	3 323 103	3 290 401	26.9	2.3	21.1	27.6	10.3	11.7
Argentina	105 750	129 892	2.5	15.1	51.3	4.9	24.6	1.7
Australia	228 650	252 623	68.6	1.6	19.7	0.0	6.7	3.5
Brazil	403 033	531 758	2.3	2.8	4.7	2.9	80.6	6.6
Canada	626 144	636 989	12.0	1.0	9.8	14.7	59.0	3.3
China	2 502 498	4 715 716	79.0	0.2	1.8	1.8	14.8	2.4
India	698 249	1 052 330	67.9	1.2	10.3	3.2	12.4	5.0
Indonesia	127 370	182 384	44.4	23.2	20.3	0.0	6.8	5.2
Japan	1 099 790	1 051 251	26.7	14.6	35.6	9.7	8.7	4.7
Mexico	243 823	295 837	11.5	16.4	52.8	3.4	12.3	3.6
Russia	953 086	1 054 765	15.6	2.6	49.2	16.4	15.9	0.3
Saudi Arabia	176 124	250 077	0.0	56.7	43.3	0.0	0.0	0.0
South Africa	244 922	262 538	92.7	0.1	0.0	5.1	1.9	0.2
South Korea	389 390	523 286	42.9	3.2	22.1	29.6	1.5	0.7
Turkey	161 956	229 393	28.9	0.4	45.4	0.0	22.8	2.6
United States	4 294 368	4 349 571	43.1	0.9	24.0	18.9	7.9	5.1
<b>World</b>	18 335 766	22 200 994	41.2	4.8	21.9	11.6	16.1	4.5

<sup>(1)</sup> Other sources not shown.

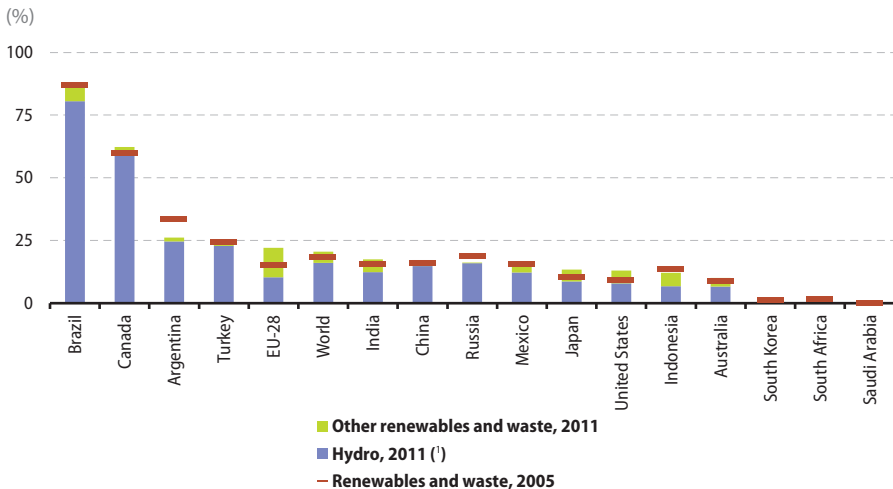
<sup>(2)</sup> Includes production from pumped hydro.

Source: Eurostat (online data codes: [ten00087](#) and [nrg\\_105a](#)) and the International Energy Agency (Electricity)



Hydro-electric power, other renewables and waste supplied 20.5 % of the world's electricity in 2011, with a slightly higher share recorded in the EU-28 (22.0 %) — see Figure 13.10. Brazil and Canada were the G20 members with the highest proportion of gross electricity generation from renewables and waste. Hydro-electricity dominated electricity generation from renewables and waste in all G20 members, with the EU-28 having the highest share of electricity generation from renewable and waste sources other than hydro power. A majority of G20 members recorded a higher share of electricity generation from renewables (including hydro) and waste in 2011 than they had in 2005, the exceptions being Argentina, Russia and Indonesia. In percentage point terms, the largest increases in electricity generation from renewables was recorded in the EU-28, where the share rose from 15.3 % in 2005 to 22.0 % by 2011, a rise of 6.7 percentage points. The United States recorded the second highest increase, up 3.6 percentage points from 9.4 % to 13.0 %.

**Figure 13.10:** Share of renewables and waste in gross electricity generation, 2005 and 2011



(°) Includes production from pumped hydro.

Source: Eurostat (online data codes: [ten00087](#) and [nrg\\_105a](#)) and the International Energy Agency (Electricity)







## Glossary

The following pages provide summary definitions of the key indicators presented in this publication. A larger and more detailed set of definitions can be found in the glossary pages of Eurostat's Statistics Explained website.

**Activity rate:** the percentage of active persons in relation to the comparable total population. The economically active population comprises employed and unemployed persons.

**Adult unemployment rate:** the percentage of those unemployed in the age group 25 years old and over compared with the total labour force (both employed and unemployed) in that age group.

**Age dependency ratios:** population of a specific age (such as 0–14 for young persons or 65 or more for older persons) as a percentage of the population aged 15–64.

**(Urban) agglomeration:** an extended urban (city or town) area including the core area as well as contiguous suburbs.

**Agricultural area:** also known as utilised agricultural area, describes the area used for farming. It includes the following land categories: arable land; permanent grassland; permanent crops; other agricultural land such as kitchen gardens. The term does not include: unused agricultural land; woodland; and land occupied, for example, by buildings, farmyards, tracks or ponds.

**Annual average growth rate (AAGR):** (more accurately the compound annual growth rate) shows an average value for the annual rate of change over a period of time (typically several years) allowing for the compound effect of growth. This rate facilitates comparisons of rates of change for periods of different lengths, for example, comparing annual, five-yearly and ten-yearly rates of change. This rate is calculated by taking the  $n$ th root of the rate of change (as a percentage) between the value at the beginning and end of the period, where  $n$  is the number of years between the two values.

**Aquaculture:** also known as aquafarming, refers to the farming of aquatic (freshwater or saltwater) organisms, such as fish, molluscs, crustaceans and plants for human use or consumption, under controlled conditions. Aquaculture implies some form of intervention in the natural rearing process to enhance production, including regular stocking, feeding and protection from predators.

**Area:** the surface or total area of a country comprises land area and inland water bodies.

**Asylum:** a form of protection given by a state on its territory based on the principle of non-refoulement and internationally or nationally recognised refugee rights. It is granted to a person who is unable to seek protection in his/her country of citizenship and/or residence in particular for fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion.

**Body mass index:** is a person's weight (in kilogrammes) divided by the square of the person's height.



**Broadband:** refers to telecommunications in which a wide band of frequencies is available to send data. Broadband telecommunication lines or connections are defined as those transporting data at high speeds; Eurostat uses a definition based on the speed of data transfer for uploading and downloading data (also called capacity) equal to or higher than 144 kbit/s (kilobits per second or kbps). The technologies most widely used for broadband internet access are digital subscriber lines (DSL) and its variations (xDSL), or cable modems (connection to a local television line).

**Carbon dioxide or CO<sub>2</sub>-equivalents:** the conversion of greenhouse gas emissions to carbon dioxide or CO<sub>2</sub>-equivalents makes it possible to compare them and to determine their individual and total contributions to global warming.

**Constant price GDP:** refers to the level of GDP (gross domestic product, a definition is provided below) expressed in the price terms of a base period (normally a year). The use of a time series of GDP in constant prices rather than current prices removes the impact of price changes and shows the volume change in GDP.

**Consumer price indices (CPI):** measure the change over time in the prices of consumer goods and services acquired, used or paid for by households. CPIs aim to cover the whole set of goods and services consumed within the territory of a country by the population, including, for example, food and beverages, products for personal hygiene, newspapers and periodicals, expenditure on housing, water, electricity, gas and other fuels, health, transport, communications, education, restaurants and hotels.

**Credits:** a credit is an inflow in relation to the provision of goods, services, income and current transfers (and is similar to an export).

**Crop production:** refers to the amount of harvested production not including any losses to the harvest.

**Crude birth rate:** the ratio of the number of births to the population; the value is expressed per 1 000 inhabitants.

**Crude death rate:** also known as the crude mortality rate, the ratio of the number of deaths to the population; the value is expressed per 1 000 inhabitants.

**Current account:** covers international transactions in goods, services, income and current transfers.

**Deadweight tonnage:** the weight measure of a vessel's carrying capacity. It includes cargo, fuel and stores.

**Debits:** a debit is an outflow made for the acquisition of goods, services, income and current transfers (and is similar to an import).

**Deflation:** is the opposite of inflation. It is a decrease in the general price level of goods and services and represents an increase in the value of money, where an amount of money can be exchanged for more goods and services.

**Early leavers from education and training:** generally refer to persons aged 18–24 who have finished no more than a lower **secondary education** and are not involved in further **education** or training.



**Economically active population:** the economically active population comprises employed and unemployed persons.

**Employment rate:** the percentage of employed persons in relation to the comparable total population. For the overall employment rate, the comparison is made with the population of working age; but employment rates can also be calculated for a particular age group and/or sex.

**Energy dependency:** is calculated as net imports divided by the sum of gross inland energy consumption plus bunkers, expressed as a percentage.

**Energy intensity:** is the ratio between the gross inland consumption of energy and GDP.

**Environmental taxes:** are those whose tax base is a physical unit (or a proxy of one) of something that has a proven, specific negative impact on the environment. Examples are taxes on energy, transport and pollution.

**Expenditure on social protection:** is the outlay for social protection interventions. It consists mainly of: social benefits, or transfers in cash or in kind, to households and individuals with the aim to relieve them of the burden of a defined set of risks or needs; administration costs, or costs of managing or administering the social protection scheme; and other miscellaneous expenditure by social protection schemes (payment of property income and other).

**Extra-EU:** refers to transactions with all countries outside of the European Union (EU), in other words the rest of the world except for the EU Member States. The term is used in statistical areas where goods, capital or people moving in and out of the EU are being measured and where the EU as a whole is considered in relationship to the rest of the world. Extra-EU transactions of the EU as a whole are the sum of the extra-EU transactions for the EU Member States.

**Fertility rate:** the mean number of children who would be born to a woman during her lifetime, if she were to spend her childbearing years conforming to the age-specific fertility rates that have been measured in a given year.

**Foreign direct investment (FDI):** is defined as international investment made by an entity resident in one economy (the direct investor) to acquire a lasting interest in an enterprise operating in another economy (direct investment enterprise); this interest is deemed to exist if the direct investor acquires at least 10 % of the voting power of the direct investment enterprise.

**Freshwater withdrawals:** refer to total water withdrawals, not counting evaporation losses from storage basins. Withdrawals also include water from desalination plants in countries where they are a significant source.

**Full-time equivalents (FTE):** is a unit to measure employment or students in a way that makes them comparable although they may work or study a different number of hours per week. The unit is obtained by comparing the number of hours worked or studied by a person with the average number of hours of a full-time worker or student. A full-time person is therefore counted as one FTE, while a part-time person gets a score in proportion to the hours he or she works or studies.

**Gini coefficient (for income distribution):** a Gini coefficient of zero (perfect equality) indicates that everyone has the same income; a Gini coefficient of one (maximum inequality) indicates that only one person has all the income.



**Goods handled:** for maritime freight, covers goods loaded and unloaded, in other words, goods placed on a merchant ship for transport by sea or goods taken off a merchant ship.

**Government debt:** often referred to as national debt or public debt is the sum of external obligations (debts) of the government and public sector agencies. External obligations are the debt or outstanding (unpaid) financial liabilities arising from past borrowing.

**Government deficit/surplus:** a budget deficit occurs when a government's expenditures are greater than its revenues and a surplus occurs when its revenues are higher. Together these two situations may be referred to as the public balance.

**Government expenditure and revenue:** government revenue is the income a government receives, while government expenditure is the money it spends.

**Greenhouse gases:** are a group of gases which contribute to global warming and climate change. There are six greenhouse gases covered by the Kyoto Protocol: the non-fluorinated gases carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O); the fluorinated gases hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF<sub>6</sub>).

**Gross domestic expenditure on research and development (GERD):** includes expenditure on research and development by business enterprises, higher education institutions, as well as government and private non-profit organisations.

**Gross domestic product (GDP):** the sum of the gross value added of all resident institutional units engaged in production, plus any taxes, and minus any subsidies, on products not included in the value of their outputs. Gross value added is the difference between output and intermediate consumption. GDP is also equal to: i) the sum of the final uses of goods and services (all uses except intermediate consumption) measured in purchasers' prices, minus the value of imports of goods and services; ii) the sum of primary incomes distributed by resident producer units.

**GDP (or GNI) converted with PPPs:** the calculation of this indicator requires the conversion of GDP (or GNI, gross national income, a definition is provided below) in national currencies into a common currency unit using purchasing power parities (PPPs) rather than market exchange rates. PPPs are indicators of price level differences across countries; a conversion using PPPs aims to adjust for these price level differences. The converted values can be expressed in relation to a real currency such as the United States dollar (as is done in this publication) or an artificial currency such as purchasing power standards (which is normally done for analysis within the EU).

**Gross electricity generation:** also known as gross electricity production, is the total amount of electrical energy produced by transforming other forms of energy, for example nuclear or wind power. It is commonly expressed in gigawatt-hours (GWh).

**Gross enrolment rate:** is the number of pupils or students enrolled in a particular level of education as a percentage of the population in the theoretical age group for that level of education.



**Gross inland (energy) consumption:** also known as total primary energy supply, is the total energy demand of a country or region. It represents the quantity of energy necessary to satisfy inland consumption of the geographical entity under consideration. This covers: consumption by the energy sector itself; distribution and transformation losses; final energy consumption by end users; statistical differences. It is calculated as: primary production + recovered products + net imports + variations of stocks – bunkers.

**Gross national income (GNI):** is the sum of incomes of residents of an economy in a given period. It is equal to GDP minus primary income payable by resident units to non-resident units, plus primary income receivable from the rest of the world.

**Head count:** a simple count of persons as opposed to the calculation of full-time equivalents. For example, workers or students are counted equally (as one person) regardless of the hours worked or studied.

**Health insurance:** includes coverage by public health programmes (generally financed by taxation and social health insurance) and private health insurance.

**Hectares (ha):** equal to 100 ares or 10 000 m<sup>2</sup>. One km<sup>2</sup> comprises 100 hectares.

**Household consumption expenditure:** expenditure made by households to acquire goods and services is recorded at the price actually paid, which includes indirect taxes (VAT and excise duties) borne by the purchaser.

**Household net adjusted disposable income:** reflects a household member's gross income including social transfers in-kind received (such as education and healthcare) minus taxes on income and wealth and social security contributions and depreciation of capital goods.

**Income quintile share ratio:** the ratio of the proportion of total national income that is earned by the top 20 % of income earners compared with the proportion of total national income that is earned by the bottom 20 % of income earners.

**Industrial producer price index:** the producer price index, abbreviated as PPI and also called the output price index, is a business cycle indicator whose objective is to measure the monthly development of transaction prices of economic activities. The output price index for an economic activity measures the average price development of all goods and related services resulting from that activity.

**Industrial production index:** the production index is a business cycle indicator which aims to measure changes in value added at factor cost over a given reference period. It does this by measuring changes in the volume of output and activity at close and regular intervals, usually monthly.

**Infant mortality rate:** is the mortality of live-born children aged less than one year.

**Inflation:** is an increase in the general price level of goods and services. When there is inflation in an economy, the value of money decreases because a given amount will buy fewer goods and services than before.

**Inflation rate:** is the percentage change in the price index for a given period compared to that recorded in a previous period. It is usually calculated on a year-on-year or annual basis.



**International standard classification of education (ISCED):** is an instrument for compiling internationally comparable education statistics. The version used in this publication is ISCED 1997. There are seven levels of education in ISCED 1997.

**Level 0 (pre-primary education in ISCED):** generally for children aged at least three years.

**Level 1 (primary education in ISCED):** generally begins between five and seven years of age.

**Level 2 (lower secondary education in ISCED):** usually the end of this level coincides with the end of compulsory education.

**Level 3 (upper secondary education in ISCED):** entrance age is typically 15 or 16 years.

**Level 4 (post-secondary, non-tertiary education in ISCED):** between upper secondary and tertiary education; serves to broaden the knowledge of ISCED level 3 graduates; typical examples are programmes designed to prepare pupils for studies at ISCED level 5 or programmes designed to prepare pupils for direct labour market entry.

**Level 5 (tertiary education (first stage) in ISCED):** includes tertiary programmes with academic orientation (type A) which are largely theoretical and tertiary programmes with an occupational orientation (type B). The latter are typically shorter than type A programmes and aimed at preparing students for the labour market.

**Level 6 (tertiary education (second stage) in ISCED):** reserved for tertiary studies that lead to an advanced research qualification (Ph.D. or doctorate).

**Intra-EU:** refers to all transactions occurring within the EU.

**ISIC:** is the United Nations International Standard Industrial Classification of All Economic Activities.

**Landfilling:** is the final placement of waste into or onto the land in a controlled or uncontrolled way; covers both landfilling in internal sites (by the waste generator) and in external sites.

**Life expectancy:** is the mean additional number of years that a person of a certain age can expect to live, if subjected throughout the rest of his or her life to the current mortality conditions (death rates observed for the current period).

**Literacy:** is the ability to read and write with understanding a short simple statement on everyday life.

**Long-term unemployed:** persons who have been unemployed for one year or more.

**Material consumption:** measures the total amount of material directly used in an economy, excluding hidden flows. It is calculated from domestic material extraction, plus imports minus exports.

**Material productivity:** relates material consumption to economic activity, typically GDP.

**Meat production:** covers the carcass weight of slaughtered animals, whose meat is declared fit for human consumption.

**Median:** a value or quantity lying in the middle of a ranked list of observations such that there is an equal probability of an observation above or below it.

**Milk production and collection:** milk production covers farm production of milk. A distinction is made between milk collected by dairies and milk production on the farm. Milk collection is only a part of the total use of milk production on the farm, the remainder generally includes own consumption, direct sale and cattle feed.



**Municipal waste:** collected by or on behalf of municipalities, by public or private enterprises. Originating from households, commerce and trade, small businesses, office buildings and institutions (schools, hospitals, government buildings). Also included is waste from selected municipal services (such as park and garden maintenance and street cleaning services) if managed as waste.

**NACE Rev. 1.1 and NACE Rev. 2:** the statistical classification of economic activities in the European Community, abbreviated as NACE. Various NACE versions have been developed since 1970. NACE Rev. 2 was adopted at the end of 2006 and its implementation began in 2007, replacing NACE Rev. 1.1. At the 2-digit level, NACE Rev. 1.1 is consistent with ISIC Rev.3 and NACE Rev. 2 is consistent with ISIC Rev.4.

**Natural population change:** difference between the number of live births and deaths during a given time period (usually one year); it can be either positive or negative.

**Net enrolment:** is the number of children enrolled in a particular level of education who are of the theoretical age for that level as a percentage of the population in the theoretical age group for that level of education.

**Net migration:** difference between immigration to and emigration from a given area during a given time period (net migration is positive when there are more immigrants than emigrants and negative when there are more emigrants than immigrants). Since many countries either do not have accurate figures on immigration and emigration, or have no figures at all, net migration has to be estimated. It is usually estimated as the difference between the total population change and the natural increase during the year. Net migration gives no indication of the relative scale of the separate immigration and emigration flows to and from a country; a country may report low net migration but experience high immigration and emigration flows.

**Obesity:** relates to a person with a body mass index exceeding  $30 \text{ kg/m}^2$ .

**Old-age dependency ratio:** population aged 65 or more as a percentage of the population aged 15–64.

**Organic area:** covers land fully converted to organic farming and areas under conversion. Organic farming is a way of agricultural production which uses organic production methods and places emphasis on environmental and wildlife protection and, with regard to livestock production, on animal welfare considerations.

**Out-of-pocket medical expenses:** are expenditures borne by a patient where neither public nor private insurance cover the full cost of the health good or service.

**Overcrowding (of a dwelling):** is based on the number of rooms per person in a dwelling, where non-living rooms (such as a kitchenette, scullery/utility room, bathroom, toilet, garage, consulting rooms, office or, shop) are excluded.

**Overweight:** relates to a person with a body mass index exceeding  $25 \text{ kg/m}^2$ .

**Ozone depleting substances (ODS):** substances contributing to ozone (O<sub>3</sub>) depletion in the Earth's atmosphere; these substances are listed in the Montreal Protocol which is designed to phase out their production and consumption.



**Participation in early childhood education:** for the EU this is defined as the share of the population — aged between four years and the age when compulsory education starts — which participates in early education; for other countries the indicator shown is the gross enrolment ratio for pre-primary education, which is the number of children in pre-primary education as a percentage of the eligible official school-age population corresponding to the same level of education in a given school year – it may include under and over-age enrolment.

**Passenger cars:** a road motor vehicle, other than a moped or a motorcycle, intended for the carriage of passengers and designed to seat no more than nine persons (including the driver). This category also includes vans designed and used primarily for the transport of passengers, as well as ambulances and motor homes.

**Passenger-kilometre (p-km or passenger-km):** a unit of measurement representing the transport of one passenger by a defined mode of transport over one kilometre.

**Passengers carried:** for air transport, all passengers on a particular flight (with one flight number) counted once only and not repeatedly on each individual stage of that flight. All revenue and non-revenue passengers whose journey begins or terminates at the reporting airport and transfer passengers joining or leaving the flight at the reporting airport; excludes direct transit passengers.

**Patent application:** is for an invention, in other words a new solution to a technical problem which satisfies the criteria of novelty, inventiveness (must involve a non-obvious inventive step) and industrial applicability. A patent is an intellectual property right, a public title of industrial property that gives its owner the exclusive right to use his/her invention in the technical field for a limited number of years.

**Percentage point:** the unit for the arithmetic difference between two values expressed as percentages.

**Population density:** the number of inhabitants per square kilometre (km<sup>2</sup>) of land area.

**Population:** number of people in a given area at a point in time. The average population is calculated as the arithmetic mean of the population on 1st January of two consecutive years. The average population is often used for indicators expressed per inhabitant.

**Poverty rate:** is the proportion of the population with an income (either before or after taking account of taxes and transfers) below the poverty threshold, where the threshold is set independently in each country as a percentage (typically 50 % or 60 %) of the **median** income level.

**Primary production of energy:** is any extraction of energy products in a useable form from natural sources. This occurs either when natural sources are exploited (for example, in coal mines, crude oil fields, hydropower plants) or in the fabrication of biofuels. Transforming energy from one form into another is not primary production.

**Proxy:** is something or someone that can represent something or someone else. For example, a proxy value of something that is available can be used in a calculation to represent the value of something else that is not available.

**Pumped hydro:** water is pumped to a higher level (normally during periods of low electric power demand) and then released to produce electric power to balance demand.





**Pupil-teacher ratios:** are calculated by dividing the number of full-time equivalent pupils and students in each level of education by the number of full-time equivalent teachers at the same level; this ratio should not be confused with average class sizes.

**Renewables and waste:** renewable energy sources are sources that replenish (or renew) themselves naturally and include biomass and renewable wastes, hydropower, geothermal energy, wind energy, solar energy, wave and tidal power.

**Research and development personnel:** consists of all individuals employed directly in the field of research and development, including persons providing direct services, such as managers, administrators and clerical staff.

**Roundwood:** production (also known as removals in the context of forestry) comprises all quantities of wood removed from the forest and other wooded land, or other tree felling sites.

**Sawnwood:** wood that has been produced either by sawing lengthways or by a profile-chipping process and, with a few exceptions, is greater than 6 millimetres (mm) in thickness.

**Standardised death rates (SDR):** the death rate of a population adjusted to a standard age distribution. It is calculated as a weighted average of the age-specific death rates of a given population; the weights are the age distribution of that population. As most causes of death vary significantly with people's age and sex, the use of standardised death rates improves comparability over time and between countries. The reason for this is that death rates can be measured independently of the age structure of populations in different times and countries.

**Surface area:** the surface or total area of a country comprises land area and inland water bodies.

**Territorial waters:** are waters extending at most 12 nautical miles from the baseline of a coast (normally the low-water line); 1 nautical mile is equal to 1 852 metres.

**Tonne-kilometre (t-km or tonne-km):** a unit of measure of freight transport which represents the transport of one tonne of goods (including packaging and tare weights of intermodal transport units) by a given transport mode over a distance of one kilometre.

**Trade integration:** average of imports and exports (of goods and/or services) from the balance of payments divided by GDP, expressed as a percentage.

**Unemployment rate:** the number of unemployed persons as a percentage of the labour force.

**Value added:** can be calculated as production value minus intermediate consumption or as the gross operating surplus plus personnel costs. Value added may be valued in various ways, most commonly at factor cost (EU, Brazil, Indonesia and Turkey), basic prices (Russia and South Africa) and producer prices (China and India).

**Wastewater collection:** a system of conduits which collect and conduct wastewater. Collecting systems are often operated by public authorities or semi-public associations.

**Wastewater treatment:** is the treatment of wastewater in wastewater treatment plants. Wastewater treatment plants are usually operated by public authorities or by private companies working by order of public authorities. Includes wastewater delivered to treatment plants by trucks.

**Young-age dependency ratio:** population aged 0–14 as a percentage of the population aged 15–64.

**Youth unemployment rate:** the percentage of the unemployed in the age group 15–24 years old compared with the total labour force (both employed and unemployed) in that age group.



# Statistical symbols, abbreviations and acronyms

## Units of measurement

%	per cent
µm	micrometre
CO <sub>2</sub> -equivalents	carbon dioxide equivalents
DWT	deadweight tonnes
EUR	euro
GWh	gigawatt-hour
Kg	kilogram
km	kilometre
km <sup>2</sup>	square kilometre
m <sup>3</sup>	cubic metre
ODS tonnes	tonnes of ozone depleting substances
passenger-km	passenger-kilometre
toe	tonne of oil equivalent
tonne-km	tonne-kilometre
USD	United States dollar

## Geographical aggregates

EA-17	Euro area of 17 Member States
EA-18	Euro area of 18 Member States
EU-25	European Union of 25 Member States
EU-27	European Union of 27 Member States
EU-28	European Union of 28 Member States
G20	Group of Twenty
G7	Group of Seven



## Other abbreviations and acronyms

AAGR	annual average growth rate
CH <sub>4</sub>	methane
CO <sub>2</sub>	carbon dioxide
EA	euro area
EFTA	European Free Trade Association
ESS	European statistical system
EU	European Union
Eurostat	statistical office of the European Union
FDI	foreign direct investment
GDP	gross domestic product
GERD	gross domestic expenditure on research and development
GNI	gross national income
HFCs	hydrofluorocarbons
ICT	information and communication technology
ISCED	International standard classification of education
ISIC	International standard industrial classification of all economic activities
N <sub>2</sub> O	nitrous oxide
NACE	statistical classification of economic activities within the European Community
NEETs	(young people) not in employment, education or training
NO	nitric oxide / nitrogen monoxide
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
OECD	Organisation for Economic Co-operation and Development
PDF	portable document format
PFCs	perfluorocarbons
PM10	particles (particulate matter) measuring 10 µm or less in diameter
PPP	purchasing power parities
R & D	research and development
Rev.	revision
SF <sub>6</sub>	sulphur hexafluoride
SO <sub>2</sub>	sulphur dioxide
UN	United Nations
UNFCC	United Nations' Framework Convention on Climate Change



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