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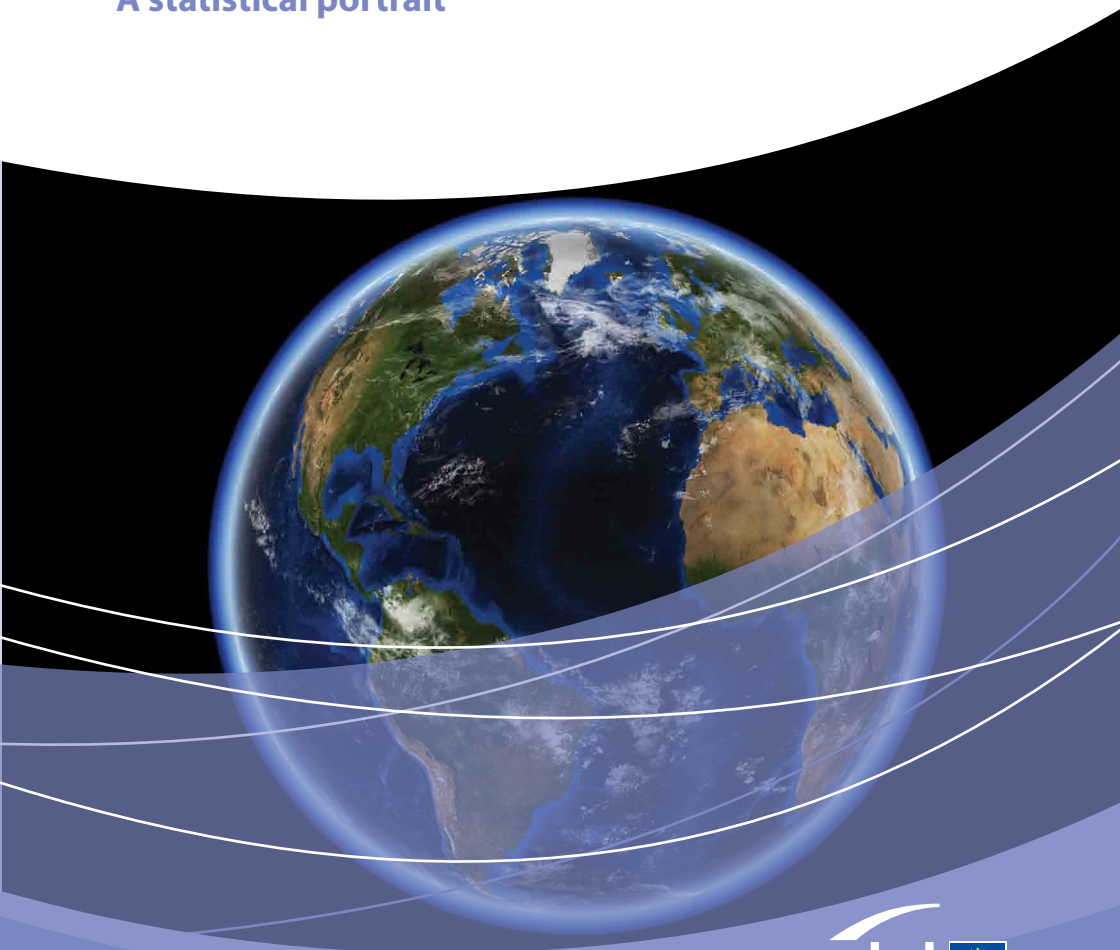
A statistical portrait



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Foreword

This publication *The EU in the world 2013* 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 the European economy, society and environment in comparison with the major economies in 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, 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

EDITOR-IN-CHIEF

Jukka Piirto (Eurostat, Unit B6 — Dissemination)

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PRODUCTION

INFORMA sàrl (informa@informa.lu): Giovanni Albertone, Simon Allen, Andrew Redpath

DATA COVERAGE, SYMBOLS AND DIRECT LINKS TO EUROSTAT'S DATABASE

The data presented within this publication were largely extracted during June / July 2012.

An *italic* font has been used in statistical tables to denote any data that may change in the future (estimates, provisional data or forecasts).

The colon (:) is used to denote information that is not available.

A dash (-) is used to denote information that is not applicable.

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

http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database

FOR MORE INFORMATION PLEASE CONSULT

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E-mail: estat-user-support@ec.europa.eu

Contents

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)	http://www.indec.gov.ar/indec/ingles.asp
Brazilian Institute of Geography and Statistics	http://www.ibge.gov.br/english
Statistics Canada	http://www.statcan.gc.ca/start-debut-eng.html
National Bureau of Statistics of China	http://www.stats.gov.cn/english
Census and Statistics Department (Hong Kong special administrative region)	http://www.censtatd.gov.hk/home/index.jsp
Statistics and Census Service (Macao special administrative region)	http://www.dsec.gov.mo/default.aspx?lang=en-US
Ministry of Statistics and Programme Implementation (India)	http://mospi.nic.in/mospi_new/site/home.aspx
Statistics Indonesia	http://dds2.bps.go.id/eng
Statistics Bureau (Japan)	http://www.stat.go.jp/english/index.htm
National Institute of Statistics and Geography (Mexico)	http://www.inegi.org.mx (in Spanish)
Federal State Statistics Service (Russia)	http://www.gks.ru/wps/wcm/connect/rosstat/rosstatsite.eng
Ministry of Economy and Planning (Saudi Arabia)	http://www.mep.gov.sa/themes/GoldenCarpet/index.jsp
Statistics South Africa	http://www.statssa.gov.za
Statistics Korea	http://kostat.go.kr/portal/english/index.action
Turkish Statistical Institute	http://www.turkstat.gov.tr/Start.do
United States Census Bureau	http://www.census.gov
United States Bureau of Labor Statistics	http://www.bls.gov

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Introduction

Eurostat and the European statistical system

Eurostat is the statistical office of the European Union, situated in Luxembourg. Its task is to provide the European Union (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 Union, 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 at EU-level.

The ESS is the 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 also 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 and the European Central Bank 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 are:

- 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 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 (United States). Between November 2008 and June 2012, the G20 held seven 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 the map on the facing page and are listed in the table below. The G20 members covered 60.7 % of the world's land area, generated 86.7 % of global gross domestic product (GDP) and were home to 65.1 % of the world's population in 2010.

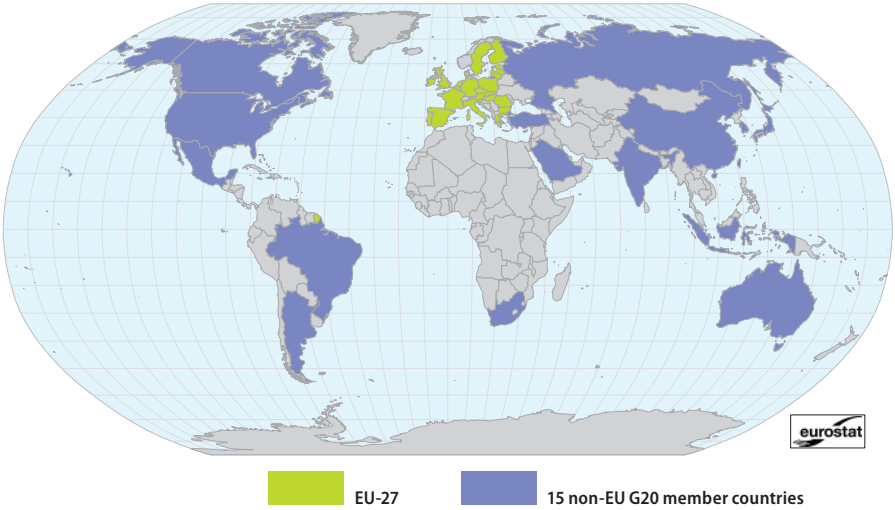


Table 1: Key indicators, 2010

	Total area (km²) (1)	GDP (EUR million)	Population (million)
EU-27	4 422 993	12 260 495	501.8
Argentina	2 780 400	279 297	40.4
Australia	7 741 220	959 452	22.3
Brazil	8 514 880	1 575 745	194.9
Canada	9 984 670	1 189 590	34.0
China	*9 600 001*	4 329 304	1 341.3
India	3 287 260	1 299 184	1 224.6
Indonesia	*1 904 570*	533 641	239.9
Japan	377 947	4 117 729	126.5
Mexico	1 964 380	778 626	113.4
Russia	*17 098 240*	1 116 258	143.0
Saudi Arabia	*2 149 690*	327 877	27.4
South Africa	1 219 090	274 349	50.1
South Korea	99 900	765 157	48.2
Turkey	783 560	554 002	72.8
United States	9 831 510	10 897 714	310.4
World	134 591 234	47 570 320	6 895.9

(1) 2009, except for EU-27.

Source: Eurostat (online data codes: nama_gdp_c, demo_gind and tps00003), the Food and Agriculture Organisation of the United Nations (FAOSTAT: Resources), the United Nations Statistics Division (National Accounts Main Aggregates Database) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2010 Revision)

Publication structure and coverage

The *EU in the world 2013* provides users of official statistics with a snapshot of the wealth of information that is available on Eurostat's website and those 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-27 (the EU of 27 Member States ([1])), occasionally the euro area (based on 17 members ([2])), as well as 15 other major advanced or emerging economies from around the world, in other words, all members of the G20 (Group of Twenty). Note that data are generally presented for the EU-27 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-27 as a whole and the 15 non-EU G20 countries. In exceptional cases when information for the EU-27 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.

Spatial data coverage

The EU-27 and euro area (EA-17) 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-27 refer to a sum or an average for all 27 current Member States regardless of when they joined the EU. In a similar vein, the data for the EA-17 are consistently presented for the 17 current members (euro area membership as of January 2011).

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).

([1]) Comprising Belgium, Bulgaria, the Czech Republic, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, the Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, Sweden and the United Kingdom.

([2]) Comprising Belgium, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Luxembourg, Malta, the Netherlands, Austria, Portugal, Slovenia, Slovakia and Finland.

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-27 and euro area data

Almost all of the indicators presented for the EU-27 and EA-17 aggregates have been drawn from Eurobase, Eurostat's online database. Eurobase is updated regularly, so there may be differences between data appearing 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. Otherwise, European Commission sources have been used, for example, data from the Market Observatory for Energy have been used for retail fuel prices in Chapter 12.

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 below. 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)
The United Nations (UN) and related organisations	
The United Nations	Indstat; Comtrade; Service Trade
The United Nations Statistics Division (UNSD)	National Accounts Main Aggregates Database; Economic Statistics Branch; Millennium Development Goals Database; Environment statistics, Waste section
The United Nations Department of Economic and Social Affairs (UN DESA)	World Population Prospects: the 2010 Revision; World Urbanisation Prospects: the 2011 Revision; Demographic Yearbook; Demographic statistics
The United Nations High Commissioner for Refugees (UNHCR)	UNHCR Statistical Online Population Database
The United Nations Conference on Trade and Development (UNCTAD)	Unctadstat; Maritime transport indicators; Review of maritime transport, 2011
The United Nations Framework Convention on Climate Change (UNFCCC)	Data available from data.un.org/Explorer.aspx
The United Nations Environment Programme (UNEP)	Ozone Secretariat; Water Section; World Conservation Monitoring Centre
The Food and Agriculture Organisation (FAO) of the United Nations	FAOSTAT; FishStatJ
The United Nations World Tourism Organisation (UNWTO)	Tourism highlights, 2012; World tourism barometer
The United Nations Educational, Scientific and Cultural Organisation (UNESCO)	UIS: Science & Technology; Demographic & Socio-economic; Education
The International Telecommunication Union (ITU)	Data available from data.un.org/Explorer.aspx
The International Labour Organisation (ILO)	Key indicators of the labour market; Global wage database; Social Security Department; Global wage report 2010/2011
The World Health Organisation (WHO)	World Health Statistics; World Health Report 2004; Department of Measurement and Health Information)
The World Intellectual Property Organisation (WIPO)	Data available from data.un.org/Explorer.aspx
The International Monetary Fund (IMF)	World Economic Outlook; International Financial Statistics
The World Bank	World Development Indicators; Global Development Finance; Millennium Development Goals; Poverty and Inequality Database
The Organisation for Economic Co-operation and Development (OECD)	International Migration Data 2011; Labour market statistics; Income Distribution and Poverty; Social Expenditure Database; Gross domestic product; Energy and transportation; Factbook 2012
The International Energy Agency (IEA)	Energy balances; Key world energy statistics, 2011; Electricity; Prices
The International Union for Conservation of Nature (IUCN)	World Database on Protected Areas

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 June and July 2012. The accompanying text was drafted in July and August 2012.

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 dollars. Equally, time series for indicators expressed in constant prices have not been converted from the original currency (whether national currencies or 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, population data from the Department of Economic and Social Affairs, and GDP data from the Statistics Division.

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:

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

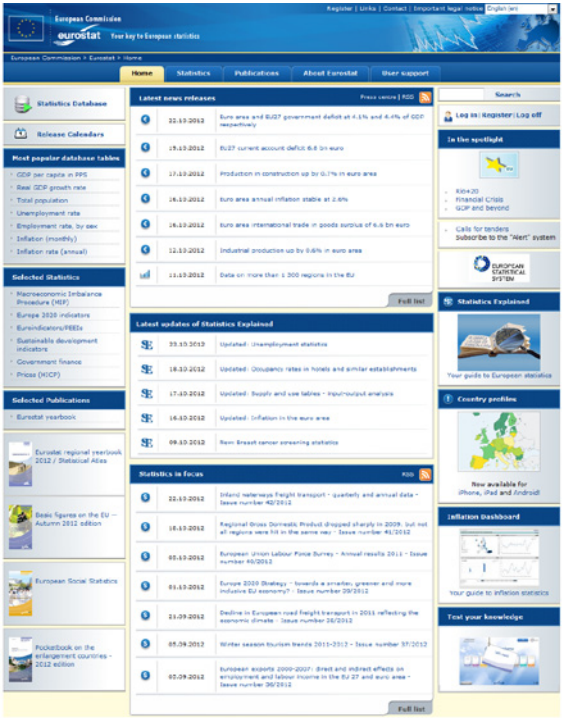
Where appropriate, breaks in series are indicated in the footnotes provided under each table and figure.

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); an acceding state (Croatia) and the candidate countries (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 – Albania, 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, the occupied Palestinian territory, 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 ([3]), 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 use 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, where <data_code> is to be replaced by the online data code printed under the tables or figure in question. Online data codes can also be fed into the 'Search' function on Eurostat's website, which is found in the upper-right corner of the Eurostat homepage, at http://ec.europa.eu/eurostat. 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) ([4]), 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. Note also that the description above presents the situation as of the end of July 2012.

([3]) 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.

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

1 Economy and finance

Indicators from various areas, such as national accounts, government finance, exchange rates and interest rates, consumer prices, and the balance of payments support an analysis of the economic situation. 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.

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 resident institutional units/sectors, that is, GDP less primary income payable to non-residents plus primary 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

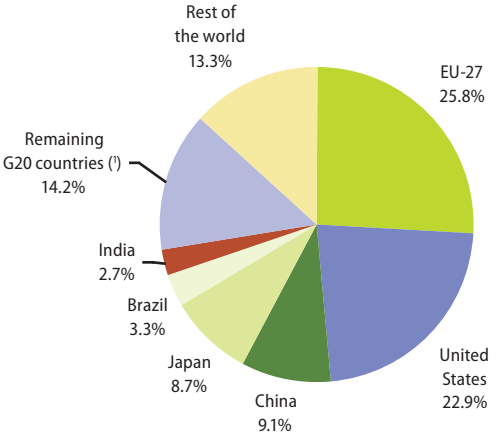
In 2010 world GDP was valued at EUR 47 570 billion, of which the G20 members accounted for 86.7 %, 3.0 percentage points less than in 2000 – see Figure 1.1. The EU-27 accounted for a 25.8 % share of the world's GDP in 2010, while the United States accounted for a 22.9 % share; note these relative shares are based on current price series in euro terms, reflecting movements in bilateral exchange rates. The Chinese share of world GDP was 9.1 % in 2010, ahead of the share for Japan (8.7 %). To put the rapid pace of Chinese growth into context, in current price terms

China's GDP in 2010 was EUR 3 038 billion higher than it was in 2000, an increase equivalent to the combined GDP in 2010 of the six smallest G20 economies (South Korea, Turkey, Indonesia, Saudi Arabia, Argentina and South Africa).

Figure 1.2 shows the breakdown of GDP between the G20 members for 2000 and 2010 – note that these figures are in PPP 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, equivalent to some 13.3 % of the world total in 2010, which was just over half the share recorded for the EU-27 (25.8 %).

Figure 1.1: Share of world GDP, 2010

(%)

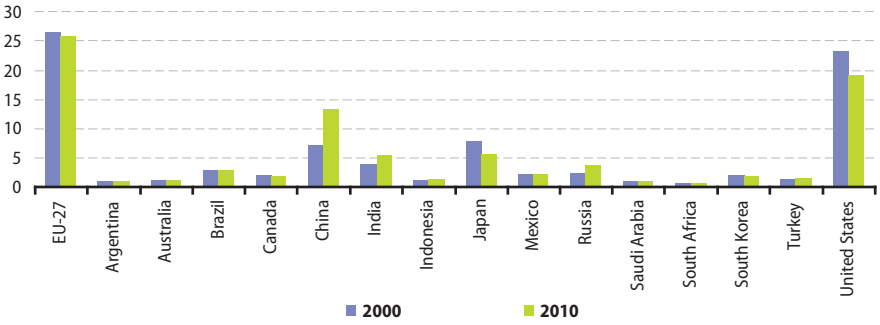


(1) Canada, Russia, Australia, Mexico, South Korea, Turkey, Indonesia, Saudi Arabia, Argentina and South Africa.

Source: Eurostat (online data code: nama_gdp_c) and the United Nations Statistics Division (National Accounts Main Aggregates Database)

Figure 1.2: Share of world GDP, 2000 and 2010

(%, based on current international PPP)

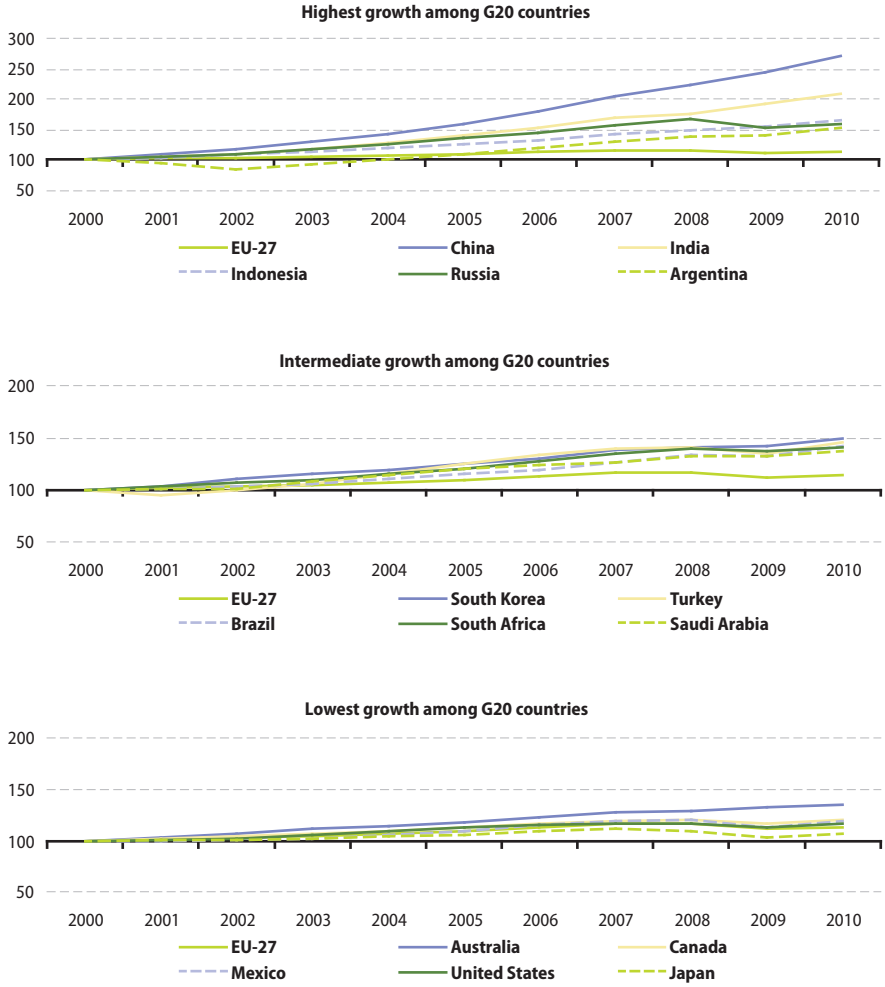


Source: the World Bank (World Development Indicators and Global Development Finance)

Figure 1.3 shows the real growth rate (based on constant price data) of the EU-27 compared with the other G20 members – note the different scale used for the first part of the figure. The lowest rates of change were generally recorded by the developed economies such as Japan, Canada, the United States and the EU-27, while the highest rates were recorded in the two Asian economies of China and India.

Figure 1.3: GDP, 2000-2010 (1)

(2000 = 100)



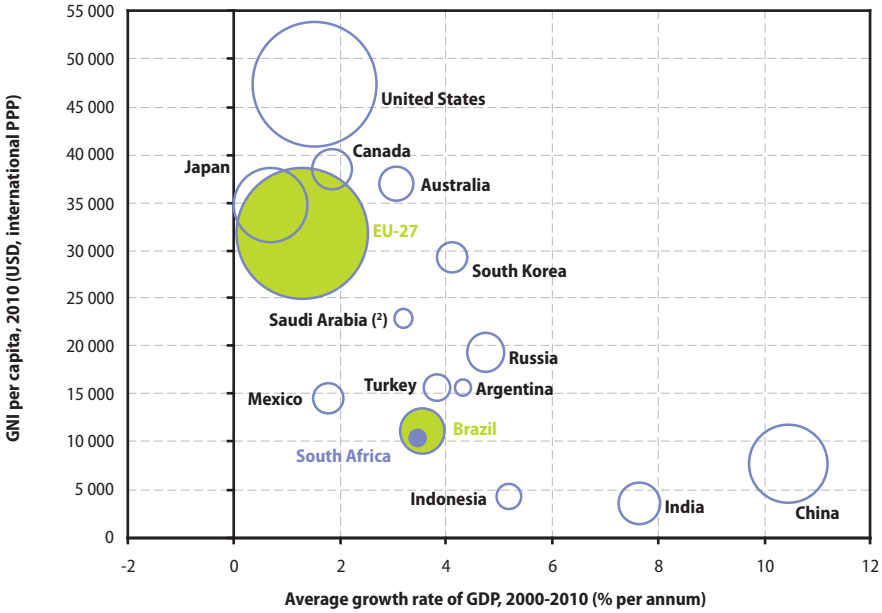
(1) Note the differences in the range of the y-axes between the three separate parts of the figure; the EU-27 series is shown in all three figures for the purpose of comparison.

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 person in 2010 was recorded in the United States; note that the conversion to United States dollars used for this indicator in Figure 1.4 is based on purchasing power parities rather than market exchange rates and so reflects differences in price levels between countries. In comparison with the average GNI per person for the world (USD 11 068 per capita), the level in the United Sates was 4.3 times as high; Canada (3.5 times as high), Australia (3.3) and Japan (3.1) also recorded average GNI per capita that was more than three times the world average, followed by the EU-27 (2.9), South Korea (2.6) and Saudi Arabia (2.1). By contrast, five G20 members recorded GNI per capita levels around or below the world average, namely Brazil (1.0), South Africa (0.9), China (0.7), Indonesia (0.4) and India (0.3).

In broad terms, countries with relatively low GNI per capita recorded relatively high economic growth over the ten years from 2000 to 2010 and this was most notably the case in China and India. By contrast, countries with high GNI per capita recorded relatively low economic growth over the same period, and this was most notably the case in Japan; nevertheless, South Korea, Saudi Arabia and Australia combined a level of GNI per capita that was more than double the world average with an average annual growth in GDP that was above the world average (2.5 %) for the period 2000 to 2010.

Figure 1.4: Growth rate of constant price GDP and GNI per capita, 2000-2010 and 2010 (1)



(1) GNI per capita is presented in United States dollars using purchasing power parity (PPP) rates for 2010; the relative size of each bubble reflects the value of GDP in current prices for 2010.
(2) GNI per capita, 2009.

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 and Global Development Finance)

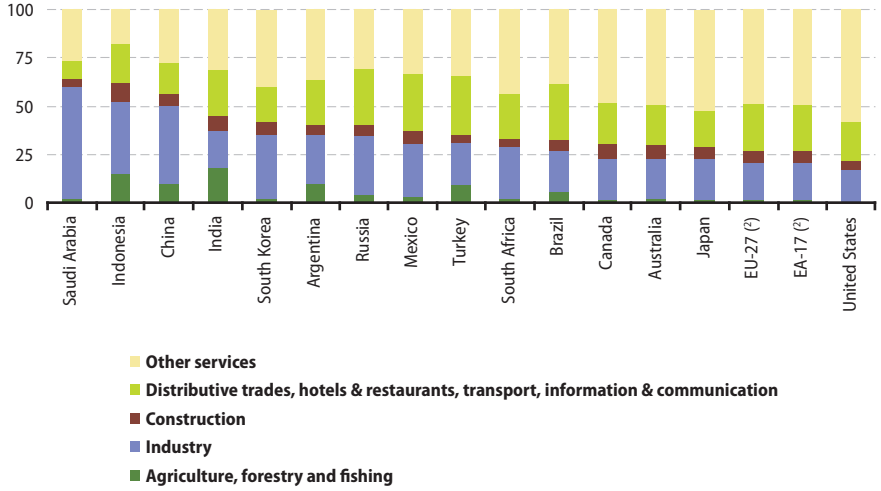
The economic structure of the G20 members varies most greatly in relation to the relative importance of agriculture, forestry and fishing and to a lesser extent in the relative share of industry – see Figure 1.5; note that the data for EU-27 and EA-17 is based on the NACE Rev. 2 activity classification (compatible with ISIC Rev.4 – see the glossary for more information) whereas the data for the other G20 members are based on ISIC Rev.3.

In 2010, agriculture, forestry and fishing contributed 10 % or more of GDP in India, Indonesia and Argentina, whereas its contribution was less than 1.5 % in Japan and the United States. Industry (including mining and quarrying; manufacturing; electricity, gas and water supply) contributed more than half of Saudi Arabian GDP (57.4 %) and more than one third of GDP in China and Indonesia, while in the EU-27 (2011 data), India and the United States the contribution was less than one fifth. The contribution of construction to GDP was less than 10 % in all of the G20 members shown in Figure 1.5, other than in Indonesia where it just reached double figures (10.3 %).

The contribution of distributive trades, hotels and restaurants, transport, information and communication services varied least between the G20 members, ranging from 30.1 % in Turkey to 15.8 % in China, with Saudi Arabia outside this range (9.1 %). In the United States and Japan other services contributed more than half of GDP, while Australia, the EU-27 and Canada recorded contributions from other services just below this level. By contrast, other services contributed between one third and one quarter of GDP in Saudi Arabia, China, Russia and India, and even less in Indonesia (17.4 %).

Figure 1.5: Analysis of GDP, 2010 (1)

(% of total)



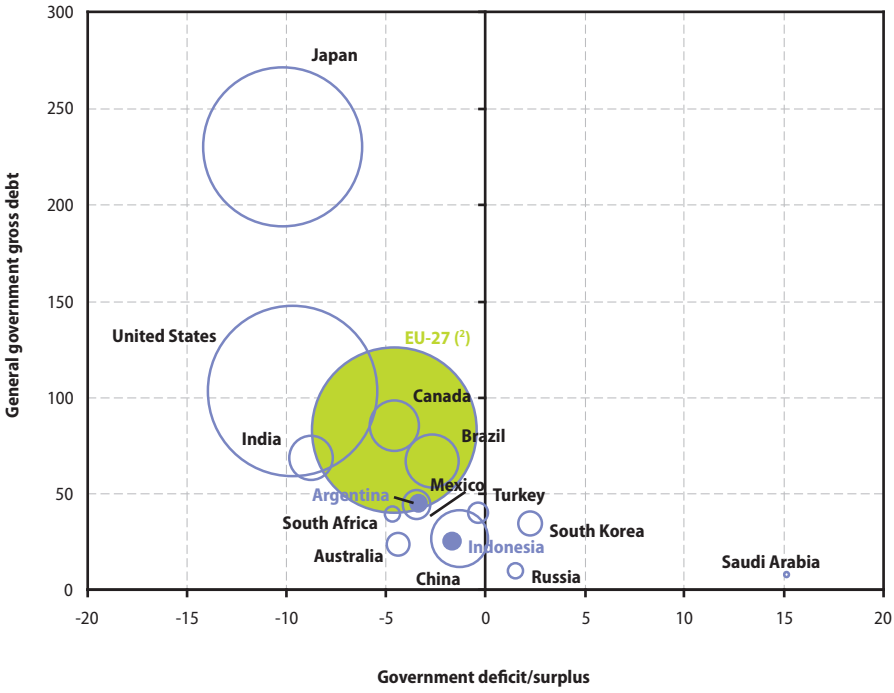
(1) Ranked on the combined share of agriculture, forestry, fishing, industry and construction.
(2) 2011.

Source: Eurostat (online data code: nama_gdp_c) and the United Nations Statistics Division (National Accounts Main Aggregates Database)

The financial and economic crisis of 2008-2009 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 these indicators are expressed in relation to GDP; in Figure 1.6 the size of each bubble reflects the absolute size of general government debt, which ranged in 2011 from EUR 31.1 billion in Saudi Arabia to EUR 11 157 billion in the United States.

From Figure 1.6 it can be seen that most G20 members had a government deficit in 2011. Only three G20 members – 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.

Figure 1.6: Government deficit/surplus and government debt, 2011 (1)
(% of GDP)



(1) The size of each bubble reflects the overall debt of each country.
(2) Maastricht debt criteria.

Source: Eurostat (online data code: gov_dd_edpt1) and the International Monetary Fund (World Economic Outlook)

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 (no recent data available for Argentina, China, Mexico or Saudi Arabia). The highest such ratios for G20 members in 2010 were 50.5 % in Japan, followed closely by the EU-27 (46.9 % in 2011), while the lowest ratios were in India (13.2 %) and Indonesia (14.8 %); note the data for some countries relates only to central government expenditure and revenue (as opposed to general government).

The subtraction of expenditure from revenue results in the government surplus/deficit. Comparing data for 2001 with 2011 (see Table 1.1), Saudi Arabia's government surplus increased, Russia and South Korea's surpluses contracted, while Canada and Australia moved from a government surplus to a government deficit. At the same time, Argentina, India, China and Indonesia's government deficits contracted, Brazil's government deficit remained unchanged, and the government deficits of the United States, Japan, South Africa, the EU-27 and Mexico expanded.

Two of the G20 members recording government surpluses in 2011 saw their levels of debt fall between 2001 and 2011, namely Saudi Arabia and Russia. Other G20 countries with a lower ratio of general government gross debt to GDP in 2011 than in 2001 included Indonesia, Turkey, India, Argentina, South Africa and Brazil, despite all recording government deficits in 2011. All other G20 members shown in Table 1.1 recorded higher general government gross debt relative to GDP in 2011 than in 2001, most notably in Japan and the United States whose ratios of gross debt to GDP passed 200 % and 100 % of GDP respectively.

Table 1.1: General government finances, 2000, 2001, 2010 and 2011

(% of GDP)

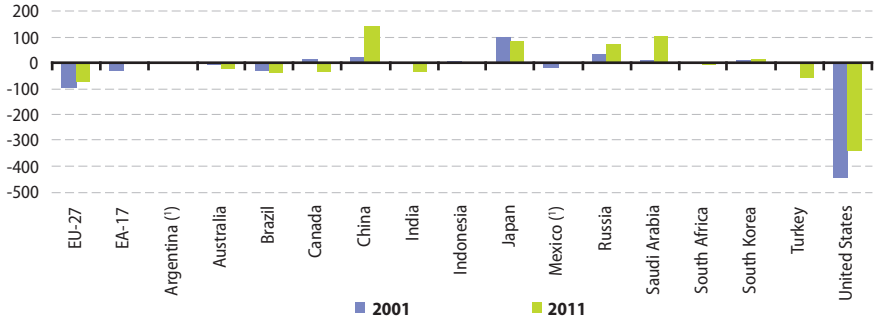
	Expenditure		Revenue		Deficit/ surplus		Gross debt	
	2000	2010	2000	2010	2001	2011	2001	2011
EU-27 (1)	44.8	49.1	45.3	44.6	-1.5	-4.5	61.9	82.5
EA-17 (1)	46.2	49.4	46.0	45.3	-1.9	-4.1	69.2	87.2
Argentina (2)(3)	19.7	:	14.1	:	-6.0	-3.3	53.7	44.2
Australia	:	37.8	:	31.8	0.9	-4.3	17.1	22.9
Brazil (2)(4)	21.7	25.6	19.9	23.1	-2.6	-2.6	70.2	66.2
Canada	41.5	44.0	42.2	38.5	0.7	-4.5	82.7	85.0
China (2)(5)	10.7	:	7.1	11.9	-2.8	-1.2	17.7	25.8
India (2)	15.7	15.0	11.9	11.4	-10.4	-8.7	77.8	68.1
Indonesia (2)(6)	15.4	14.4	18.3	15.1	-2.7	-1.6	80.2	25.0
Japan	38.7	54.8	31.9	46.3	-6.0	-10.1	153.6	229.8
Mexico (2)	15.4	:	14.7	:	-3.2	-3.4	42.0	43.8
Russia (3)	43.0	42.4	49.9	40.9	3.2	1.6	47.6	9.6
Saudi Arabia	:	:	:	:	3.2	15.2	93.7	7.5
South Africa	33.9	39.1	32.9	34.4	-1.2	-4.6	43.5	38.8
South Korea (2)	16.6	19.9	22.3	22.7	2.7	2.3	18.7	34.1
Turkey (2)	:	25.4	:	24.4	:	-0.3	77.9	39.4
United States	:	38.1	:	27.4	-0.3	-9.6	54.7	102.9

(1) Data for 2011 instead of 2010 for general government expenditure and revenue.
(2) Central government instead of general government for expenditure and revenue.
(3) Data for 2002 instead of 2000.
(4) Data for 2009 instead of 2010.
(5) Data for 2002 instead of 2000 for expenditure.
(6) Data for 2002 instead of 2000 for expenditure; data for 2001 instead of 2000 for revenue.

Source: Eurostat (online data code: gov_a_main and gov_dd_edpt1), International Monetary Fund (International Financial Statistics and World Economic Outlook) and the World Bank (World Development Indicators and Global Development Finance)

The current account of the balance of payments provides information on international trade in goods and services (see Chapter 9 for more details), as well as income from employment and investment and current transfers with the rest of the world. Apart from India, many of the Asian members of the G20 recorded current account surpluses in 2011, as did Russia. The largest surplus in 2011 in absolute terms was EUR 144.4 billion for China, while in relative terms Saudi Arabia's surplus reached 24.4 % of GDP. The largest current account deficit was EUR 340.1 billion for the United States while Turkey's deficit represented 9.9 % of GDP. Canada, India, South Africa and Turkey's current account balance moved from a surplus to a deficit between 2001 and 2011, while the other G20 members shown in Figure 1.7 saw their deficits contract or their surpluses expand.

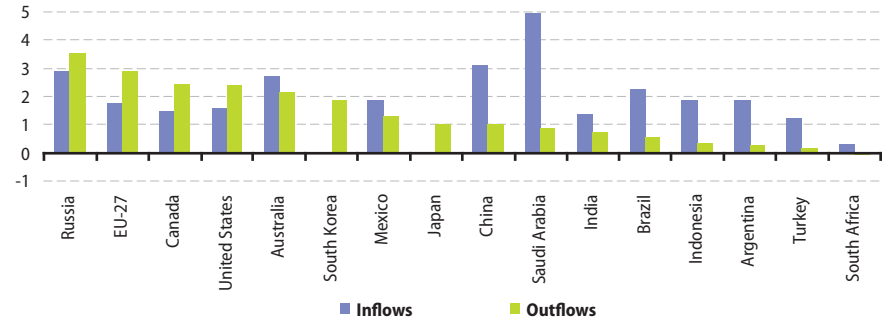
Figure 1.7: Current account balance, 2001 and 2011
(EUR billion)



(1) 2011, estimates.

Source: Eurostat (online data codes: bop_q_eu, bop_q_euro and nama_gdp_c) and the International Monetary Fund (World Economic Outlook)

Figure 1.8: Flows of foreign direct investment, 2011 (1)
(% of GDP)



(1) Ranked on net outflows.

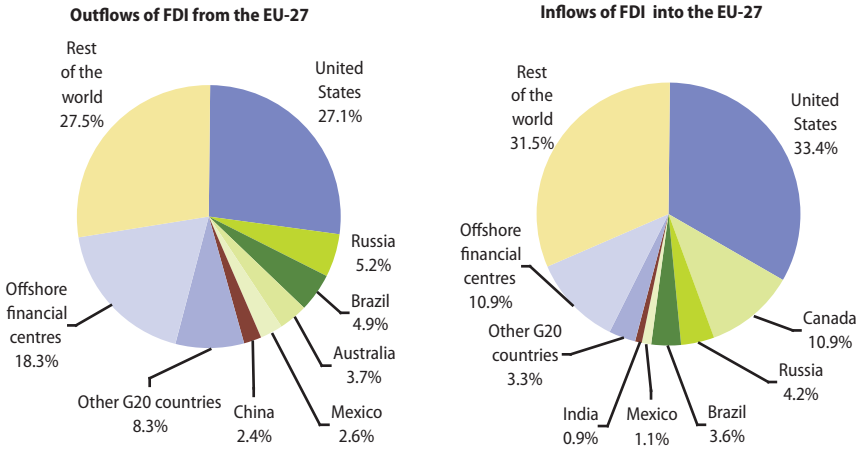
Source: Eurostat (online data code: bop_fdi_main) and the World Bank (World Development Indicators and Global Development Finance)

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 FDI flows: for example, the EU-27's FDI inflows and outflows dropped from a peak in 2007 to a low point in 2010; provisional figures for 2011 indicate an upturn in both directions. Among the G20 members FDI outflows exceeded inflows in 2011 in Russia, the EU-27, Canada and the United States, as well as in South Korea and Japan where inflows were negative (indicating disinvestment). Relative to GDP, the highest inflows of FDI were recorded in Saudi Arabia, China (note the data excludes Hong Kong and Macau), Russia, Australia and Brazil, a mixture of emerging markets and resource rich countries.

EU-27 FDI flows are dominated by the United States which accounted for one third of the EU-27's inward FDI in the period 2008 to 2010 and more than one quarter of its FDI outflows; Canada also accounted for a significant share of EU-27 FDI inflows during these three years. As a whole, G20 countries (excluding Saudi Arabia) accounted for 54.2 % of FDI outflows from the EU-27 between 2008 and 2010 and 57.5 % 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.

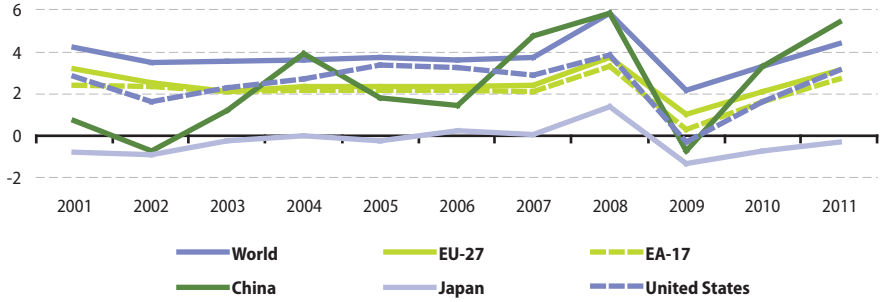
Figure 1.9: Average flows of foreign direct investment by partner, EU-27, 2008-2010 (1)
(% of total)



(1) Saudi Arabia, not available.

Source: Eurostat (online data code: bop_fdi_main)

Figure 1.10: Consumer price indices, 2001-2011
(annual change, %)



Source: Eurostat (online data code: prc_hicp_aind) and the International Monetary Fund (International Financial Statistics)

Table 1.2: Consumer price indices, 2001-2011
(annual change, %)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
EU-27	3.2	2.5	2.1	2.3	2.3	2.3	2.4	3.7	1.0	2.1	3.1
EA-17	2.4	2.3	2.1	2.2	2.2	2.2	2.1	3.3	0.3	1.6	2.7
Argentina	-1.1	25.9	13.4	4.4	9.6	10.9	8.8	8.6	6.3	10.8	9.5
Australia	4.4	3.0	2.8	2.3	2.7	3.5	2.3	4.4	1.8	2.8	3.4
Brazil	6.8	8.5	14.7	6.6	6.9	4.2	3.6	5.7	4.9	5.0	6.6
Canada	2.5	2.3	2.8	1.9	2.2	2.0	2.1	2.4	0.3	1.8	2.9
China	0.7	-0.8	1.2	3.9	1.8	1.5	4.8	5.9	-0.7	3.3	5.4
India	3.7	4.4	3.8	3.8	4.2	6.1	6.4	8.4	10.9	12.0	8.9
Indonesia	11.5	11.9	6.6	6.2	10.5	13.1	6.4	9.8	4.8	5.1	5.4
Japan	-0.8	-0.9	-0.2	0.0	-0.3	0.2	0.1	1.4	-1.3	-0.7	-0.3
Mexico	6.4	5.0	4.5	4.7	4.0	3.6	4.0	5.1	5.3	4.2	3.4
Russia	21.5	15.8	13.7	10.9	12.7	9.7	9.0	14.1	11.7	6.9	8.4
Saudi Arabia	-1.1	0.2	0.6	0.3	0.7	2.2	4.2	9.9	5.1	5.3	5.0
South Africa	5.7	9.2	5.9	1.4	3.4	4.6	7.1	11.5	7.1	4.3	5.0
South Korea	4.1	2.8	3.5	3.6	2.8	2.2	2.5	4.7	2.8	3.0	4.0
Turkey	54.4	45.0	25.3	10.6	10.1	10.5	8.8	10.4	6.3	8.6	6.5
United States	2.8	1.6	2.3	2.7	3.4	3.2	2.9	3.8	-0.4	1.6	3.2
World	4.2	3.5	3.6	3.6	3.7	3.6	3.8	5.8	2.2	3.3	4.4

Source: Eurostat (online data code: prc_hicp_aind) and the International Monetary Fund (International Financial Statistics)

Figure 1.10 shows the annual rate of change in consumer price indices for a selection of G20 members and the world between 2001 and 2011. For most of this period Japan recorded negative annual inflation rates, indicating falling consumer prices, a situation that was mirrored in China and the United States in 2009 during the financial and economic crisis. Table 1.2 provides a complete set of annual rates of change in consumer prices for the G20 members over the period 2001 to 2011. Particularly high annual rates of change were recorded in Turkey and Russia, although both countries recorded much lower inflation in the most recent years.

Short-term lending rates varied greatly between the G20 members in 2011, but to a somewhat lesser extent than they had done ten years earlier. Rates were close to zero in the United States and Japan in 2011 but exceeded 10 % in Brazil and Turkey. In nearly all G20 members interest rates were lower in 2011 than they had been in 2001, with the exceptions of Japan where the interest rate rose (but remained close to zero) and China where the interest rate was roughly the same in both years presented.

Among the countries shown in Table 1.3, the currencies of Turkey and Mexico devalued the most between 2001 and 2011 relative to the euro. By contrast, the Australian dollar appreciated relative to the euro between these two years while exchange rates for the Canadian dollar and Japanese yen (relative to the euro) were relatively unchanged.

Table 1.3: Interest rates and exchange rates, 2001 and 2011

	Central bank: short-term official lending rates (%)		Exchange rates (1 EUR=… national currency)		Exchange rates (1 USD=…)	
	2001	2011	2001	2011	2001	2011
EA-17	4.25	1.75	-	-	1.1175	0.7194
United Kingdom	4.00	0.50	0.6219	0.8679	0.6947	0.6241
Argentina	24.90	9.98	:	:	0.9995	4.1101
Australia	5.06	4.69	1.7319	1.3484	1.9334	0.9695
Brazil	19.00	11.00	2.1069	2.3265	2.3496	1.6728
Canada	2.50	1.25	1.3864	1.3761	1.5488	0.9895
China	3.24	3.25	7.4131	8.9960	8.2771	6.4615
India	6.50	6.00	42.2471	64.8859	47.1864	46.6705
Indonesia	17.62	6.00	9 167.71	12 206.51	10 260.9	8 770.4
Japan	0.10	0.30	108.68	110.96	121.53	79.81
Mexico	12.89	4.82	8.3710	17.2877	9.3423	12.4233
Russia	25.00	8.00	26.1510	40.8846	29.1685	29.3823
Saudi Arabia	2.25	0.25	:	:	3.7500	3.7500
South Africa	9.50	5.50	7.6873	10.0970	8.6092	7.2611
South Korea	2.50	1.50	1 154.83	1 541.23	1 290.99	1 108.29
Turkey	60.00	17.00	1.1024	2.3378	1.2256	1.6750
United States	1.75	0.13	0.8956	1.3920	-	-

Source: Eurostat (online data codes: irt_cb_a and ert_bil_eur_a), the International Monetary Fund (International Financial Statistics) and the World Bank (World Development Indicators and Global Development Finance)

2 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.

Main findings

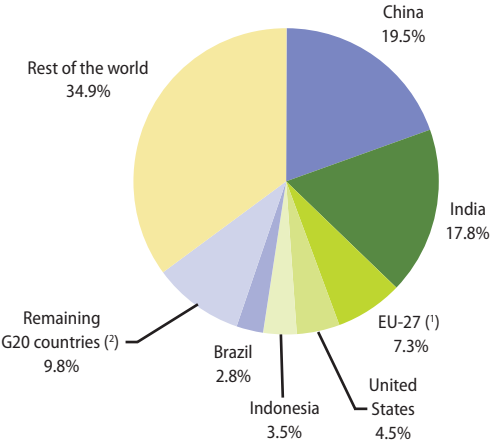
The world's population was approaching 7 000 million inhabitants at the beginning of 2010 and continues to grow. Although all members of the G20 recorded higher population levels in 2010 than 50 years before, between 1960 and 2010 the share of the world's population living in G20 members fell from 73.5 % to 65.1 %. Russia recorded the smallest overall population increase (19.2 %) during these 50 years, while the fastest population growth was recorded in Saudi Arabia, with a near seven-fold increase. The most populous countries in the world in 2010 were China and India, together accounting for 37.2 % of the world's population (see Figure 2.1 and Table 2.1) and 57.1 % of the population in the G20 members. The population of the EU-27 at the beginning of 2010 was 501.1 million inhabitants, 7.3 % of the world's total.

The most densely populated members within the G20 were also in Asia, namely South Korea, India and Japan – each with more than 300 inhabitants per km², followed by China and Indonesia and then the EU-27 with more than 100 inhabitants per km².

Nine of the ten largest urban agglomerations in the world in 2011 were in G20 members, with Dhaka (Bangladesh) the only exception – see Figure 2.2. Including Dhaka, seven of the ten largest urban agglomerations were in Asia, with Mexico City, New York-Newark (United States) and São Paulo (Brazil) completing the list. Worldwide, there were more than 630 urban agglomerations with a population in excess of 750 000 inhabitants and together their population of 1.5 billion people was equivalent to just over one fifth of the world's population.

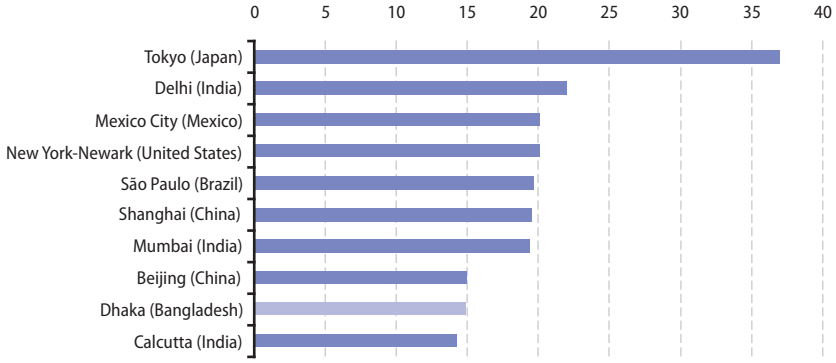
The median age of the world's population in 2010 was 29.2 years. In China, the United States, Australia, South Korea and Russia the median age was at least five years higher than the world average, while in Canada and the EU-27 the median age was more than ten years higher, and in Japan it was more than 15 years above the world average – see Figure 2.3. More information on the age structures of G20 members is presented in Table 2.2, while some of the factors influencing this structure are presented in the rest of this chapter and Chapter 3, including life expectancy, fertility and migration.

Figure 2.1: Share of world population, 2010
(%)



(1) Provisional.
(2) Russia, Japan, Mexico, Turkey, South Africa, South Korea, Argentina, Canada, Saudi Arabia and Australia.
Source: Eurostat (online data code: demo_gind) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2010 Revision)

Figure 2.2: Ten largest urban agglomerations in the world, 2011
(million inhabitants)



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

Table 2.1: Main indicators for population, 1960 and 2010

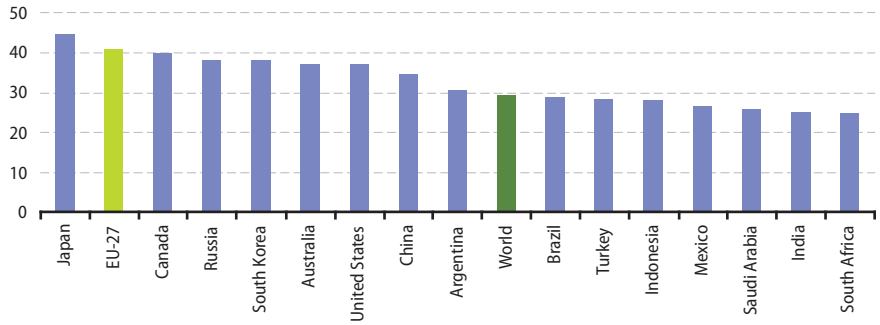
	Population (million)		Share in world population (% of total)		Population density (inhabitants per km²)	
	1960	2010	1960	2010	1960	2010
EU-27 (1)	*402.6*	*501.1*	*13.3*	*7.3*	*93.7*	*116.6*
Argentina	20.6	40.4	0.7	0.6	7.4	14.5
Australia	10.3	22.3	0.3	0.3	1.3	2.9
Brazil	72.8	194.9	2.4	2.8	8.5	22.9
Canada	17.9	34.0	0.6	0.5	1.8	3.4
China	658.3	1 341.3	21.7	19.5	68.6	139.8
India	447.8	1 224.6	14.7	17.8	136.2	372.5
Indonesia	91.9	239.9	3.0	3.5	48.3	125.9
Japan	92.5	126.5	3.0	1.8	244.8	334.9
Mexico	38.4	113.4	1.3	1.6	19.6	57.9
Russia	119.9	143.0	3.9	2.1	7.0	8.4
Saudi Arabia	4.0	27.4	0.1	0.4	1.9	12.8
South Africa	17.4	50.1	0.6	0.7	14.2	41.1
South Korea	25.1	48.2	0.8	0.7	251.9	484.1
Turkey	28.2	72.8	0.9	1.1	35.9	92.8
United States	186.3	310.4	6.1	4.5	19.4	32.2
World	3 038.4	6 895.9	100.0	100.0	22.3	50.6

(1) 1960, excluding French overseas departments and territories.

Source: Eurostat (online data codes: demo_gind and tps00003) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2010 Revision)

Figure 2.3: Median age of the population, 2010

(years)

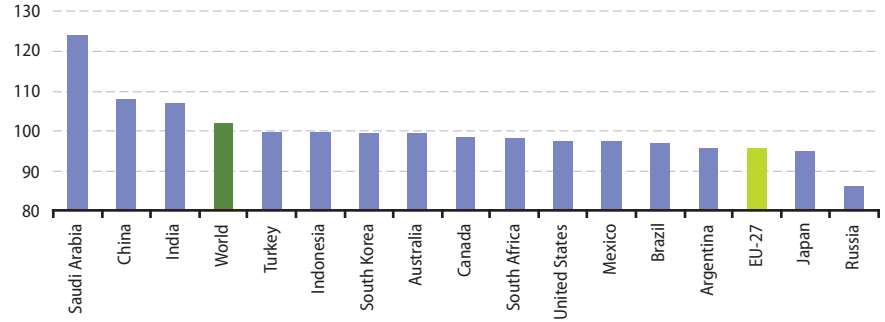


Source: Eurostat (online data code: demo_pjanind) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2010 Revision)

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 86.1 in Russia to 124.0 in Saudi Arabia. Within this range, there were 101.7 men per 100 women across the whole of the world and 95.4 men per 100 women in the EU-27 (see Figure 2.4). The particularly high ratio in Saudi Arabia is 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 2.4: Ratio of men to women in the population, 2010 (1)

(men per 100 women)

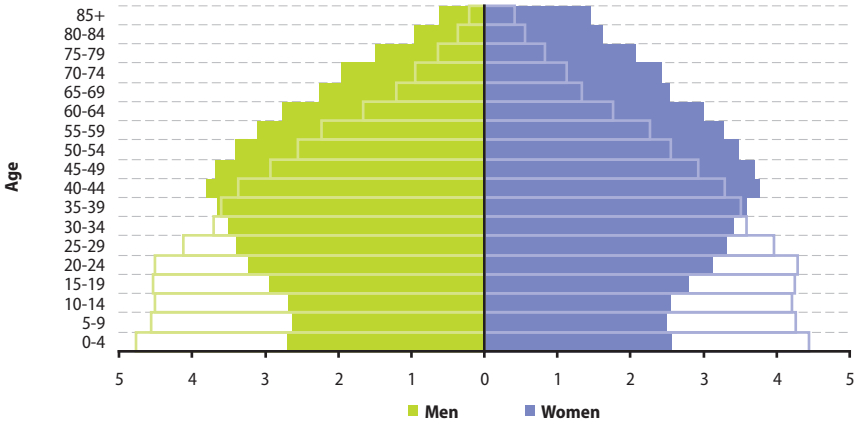


(1) Note: y-axis does not start at 0.

Source: Eurostat (online data code: demo_pjangroup) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2010 Revision)

Figure 2.5: Age pyramids, 2010

(% of total population)



Source: Eurostat (online data code: demo_pjangroup) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2010 Revision)

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 2.5 shows how different the age structure of the EU-27's population is from the average for the 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-27 the share of the age groups below those aged 40 to 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 mid-1960s). Another notable difference is the greater gender imbalance within the EU-27 among older age groups than is typical for the world as a whole.

The age dependency ratios shown in Table 2.2 summarise the level of support for older persons (aged 65 years and over) and younger persons (aged less than 15 years) provided by the working age population (those aged between 15 to 64 years). The overall age dependency ratio for the EU-27 was lower in 2010 than it was in 1960 due to a large fall in the young-age dependency ratio more than cancelling 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 2010 than in 1960, reflecting the large increase in the working age population in this country. In 2010 the highest age dependency ratios among G20 members recorded for Japan, Argentina and Mexico.

Table 2.2: Dependency ratios, 1960 and 2010

(% of the population aged 15-64)

	Age dependency ratio (1)		Young-age dependency ratio (2)		Old-age dependency ratio (3)	
	1960	2010	1960	2010	1960	2010
EU-27 (4)	*54.5*	49.3	*39.0*	23.3	*15.5*	25.9
Argentina	56.9	54.9	48.2	38.5	8.7	16.4
Australia	63.3	48.0	49.3	28.1	14.0	19.9
Brazil	86.1	48.0	80.2	37.7	5.9	10.4
Canada	69.6	44.0	56.9	23.6	12.7	20.3
China	77.3	38.2	70.2	26.9	7.1	11.3
India	77.6	55.1	72.3	47.4	5.4	7.6
Indonesia	77.0	48.3	70.7	40.1	6.3	8.2
Japan	56.0	56.4	47.0	20.9	8.9	35.5
Mexico	95.7	54.9	89.3	45.1	6.4	9.8
Russia	56.9	38.6	47.0	20.8	9.9	17.7
Saudi Arabia	90.2	49.9	83.2	45.5	7.0	4.4
South Africa	81.2	53.3	74.2	46.2	7.0	7.1
South Korea	80.6	38.1	73.8	22.7	6.8	15.4
Turkey	82.6	47.8	77.1	39.0	5.5	8.8
United States	66.7	49.6	51.4	30.0	15.3	19.5
World	73.0	52.4	64.2	40.8	8.8	11.6

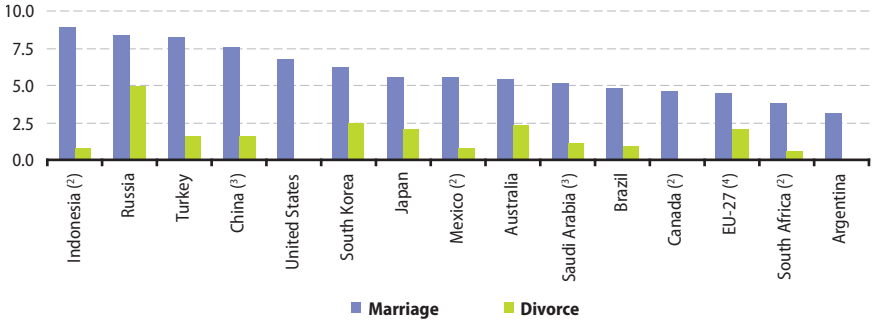
(1) Population aged 0-14 and 65 or more as a percentage of the population aged 15-64.
(2) Population aged 0-14 as a percentage of the population aged 15-64.
(3) Population aged 65 or more as a percentage of the population aged 15-64.
(4) 1960 is estimated based on those EU Member States for which data are available (excludes Estonia, French overseas departments, Cyprus, Latvia, Lithuania, Malta, Romania and Slovenia).

Source: Eurostat (online data codes: demo_pjan and demo_pjanind) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2010 Revision)

Indicators for marriage and divorce provide information in relation to family formation and dissolution. Marriage, as recognised by the law of each country, has long been considered to mark the formation of a family unit. Marriage and divorce rates are generally presented relative to 1 000 members of overall population – see Figure 2.6. The lowest marriage rates among the G20 members in 2009 were in Argentina and South Africa (2008 data) with the rate for the EU-27 the next lowest, while the highest rates were recorded in Indonesia (2008 data), Russia and Turkey. Concerning the divorce rate, the value for Russia stands out, being considerably higher than any of the other G20 members (for which data are available). The ratio of divorces to marriages was highest in Russia and lowest in Indonesia.

Figure 2.6: Crude marriage and divorce rates, 2009 (1)

(per 1 000 population)



(1) India, not available; Argentina, Canada and the United States: divorce rate, not available.
(2) 2008.
(3) 2007.
(4) Divorce rate, 2008.

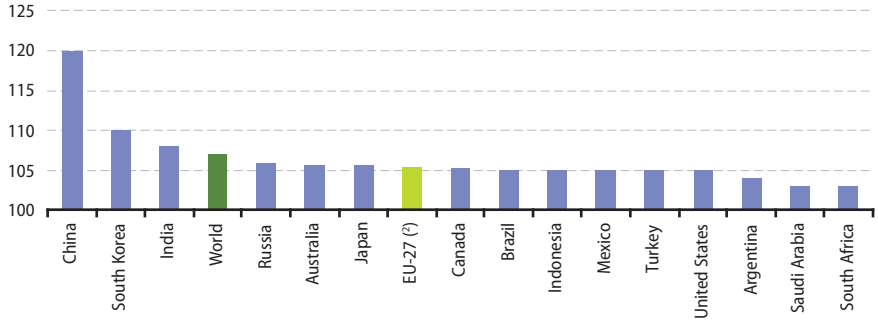
Source: Eurostat (online data code: demo_nind and demo_ndivind) and the United Nations Department of Economic and Social Affairs (Demographic Yearbook)

There are two distinct components of population change: the natural change that results out of 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.

Unlike the gender balance of the whole population, where most G20 members show a slight imbalance towards more women, the ratio of boys to girls at birth shows a somewhat higher number of boys being born than girls – see Figure 2.7. The ratio of the number of births of boys per 100 births of girls fell in a narrow range for most G20 members, between 103 in South Africa and Saudi Arabia and 106 in Russia; India (108) and South Korea (110) were somewhat above this range and China (120) far above it.

One of the reasons used to explain partly the downward development of fertility rates is the decision of parents to delay starting a family. Figure 2.8 shows a wide spread in the average age of women at child bearing during the years 2005 to 2010, from 25.3 years in India to 30 years or above in Japan, Australia, South Korea and Saudi Arabia. For the EU-27 the average age in 2009 was 29.8 years, a slight increase over the 29.3 years average that was recorded in 2003.

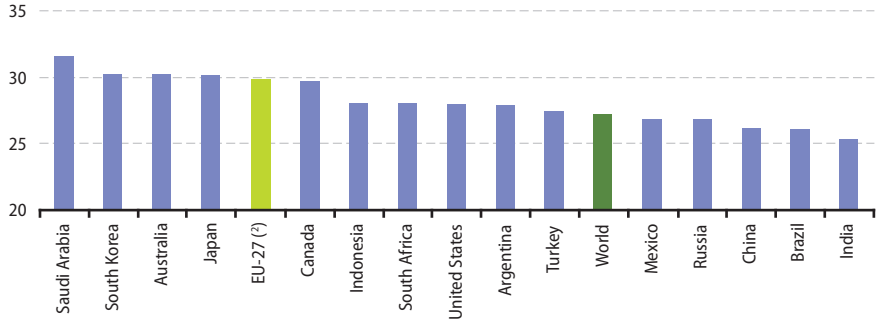
Figure 2.7: Ratio of births of boys to girls, average for July 2005 to June 2010 (1)
(boys per 100 girls)



(1) Note: y-axis does not start at 0.
(2) 2010.

Source: Eurostat (online data code: demo_fasec) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2010 Revision)

Figure 2.8: Mean age at child bearing, average for July 2005 to June 2010 (1)
(years)



(1) Note: y-axis does not start at 0.
(2) 2009.

Source: Eurostat (online data code: demo_find) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2010 Revision)

The crude birth rate in the EU-27 was marginally higher in the years 2006 to 2010 than it was between 2001 and 2005, but remained among the lowest across the G20 members, with only Japan and South Korea recording lower birth rates. Crude birth rates recorded in India, Saudi Arabia and South Africa between 2005 and 2010 were more than double the average rate for the EU-27 in 2010.

When the death rate exceeds the birth rate there is negative natural population change; this situation was experienced in Russia and Japan over the period 2005 to 2010. The reverse situation, natural population growth due to a higher birth rate, was observed for all of the remaining G20 members (see Tables 2.3 and 2.4) with the largest differences recorded in Saudi Arabia, Mexico and India. South Africa recorded the highest crude death rate (in part reflecting an HIV/AIDS epidemic resulting in a high number of deaths among relatively young persons) such that the difference between the crude birth and death rates in this country was not large despite its very high birth rate.

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 ten years between 2000 and 2010 all of the G20 members, except Russia, experienced an increase in their population numbers: Russia's declining population resulted from positive net migration being less substantial than the negative natural population change. Argentina, Brazil, China, India, Indonesia, Mexico, South Korea and Turkey experienced negative net migration that was less than the positive increase from natural population change. The EU-27, Australia, Canada, Saudi Arabia, South Africa and the United States experienced the cumulative effects of positive natural population change and net migration.

Table 2.3: Birth, fertility and death rates, annual averages for July 2000 to June 2010

	Crude birth rate (per 1 000 population)		Fertility rate (births per woman)		Crude death rate (per 1 000 population)	
	2000-2005	2005-2010	2000-2005	2005-2010	2000-2005	2005-2010
EU-27 (1)	10.4	*10.7*	1.5	1.6	9.9	*9.7*
Argentina	18.0	17.5	2.4	2.3	7.8	7.7
Australia	12.7	13.6	1.8	1.9	6.9	6.7
Brazil	19.8	16.4	2.3	1.9	6.4	6.4
Canada	10.6	11.2	1.5	1.7	7.2	7.4
China	13.5	12.6	1.7	1.6	7.1	7.2
India	24.8	23.1	3.0	2.7	8.7	8.3
Indonesia	21.0	19.1	2.4	2.2	7.4	7.2
Japan	8.9	8.6	1.3	1.3	7.9	8.8
Mexico	22.4	20.6	2.6	2.4	4.7	4.7
Russia	9.9	11.4	1.3	1.4	16.0	14.2
Saudi Arabia	24.7	22.1	3.5	3.0	4.1	3.8
South Africa	24.0	21.9	2.8	2.6	13.9	15.2
South Korea	10.2	10.0	1.2	1.3	5.3	5.1
Turkey	19.7	18.7	2.2	2.2	5.7	5.5
United States	14.1	14.0	2.0	2.1	8.5	8.3
World	20.8	20.0	2.6	2.5	8.7	8.4

(1) Crude birth rate and crude death rate: annual averages for 2000 to 2005 and 2005 to 2010; fertility rate: data for 2003 instead of 2000 to 2005 and data for 2008 instead of 2005 to 2010.

Source: Eurostat (online data codes: demo_gind and demo_find) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2010 Revision)

Table 2.4: Population change, annual averages for July 2000 to June 2010
(per 1 000 population)

	Total population change		Natural population change		Net migration	
	2000-2005	2005-2010	2000-2005	2005-2010	2000-2005	2005-2010
EU-27 (1)	3.9	3.7	0.5	1.0	3.4	2.7
Argentina	9.3	8.8	10.2	9.8	-1.0	-1.0
Australia	12.5	17.5	5.8	6.9	6.7	10.5
Brazil	12.8	9.4	13.4	9.9	-0.6	-0.5
Canada	10.3	10.5	3.4	3.8	6.9	6.6
China	6.0	5.1	6.3	5.4	-0.4	-0.3
India	15.7	14.3	16.1	14.8	-0.4	-0.5
Indonesia	12.6	10.8	13.7	11.9	-1.1	-1.1
Japan	1.1	0.2	1.0	-0.2	0.1	0.4
Mexico	12.7	12.6	17.7	15.9	-5.0	-3.3
Russia	-4.0	-1.2	-6.2	-2.8	2.2	1.6
Saudi Arabia	36.4	26.5	20.6	18.3	15.7	8.2
South Africa	13.1	9.6	10.1	6.7	3.0	2.9
South Korea	4.5	4.8	5.0	4.9	-0.4	-0.1
Turkey	13.7	13.1	14.0	13.2	-0.3	-0.1
United States	9.9	8.9	5.6	5.7	4.3	3.3
World	12.2	11.6	12.2	11.6	-	-

(1) Net migration includes statistical adjustment and migrant flows between EU Member States; annual averages for 2001 to 2005 and 2006 to 2010.

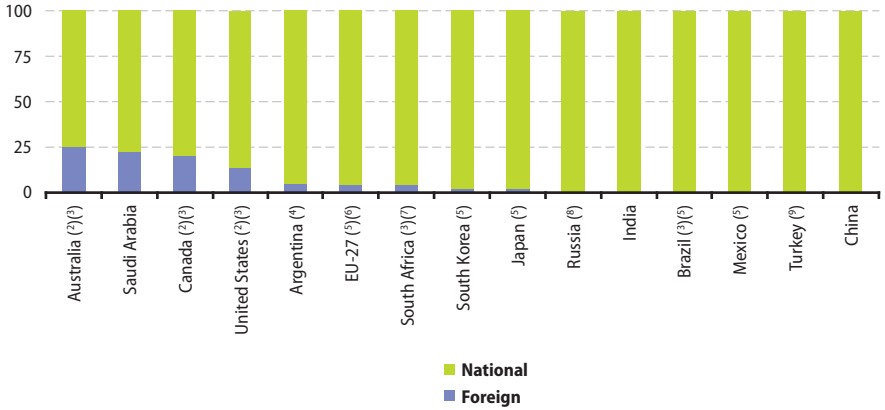
Source: Eurostat (online data code: demo_gind) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2010 Revision)

Australia, Saudi Arabia, Canada and the United States had the largest shares of foreigners in their population (see Figure 2.9 overleaf), in line with high positive net migration rates recorded for these countries in recent years. The EU-27 had a comparatively low share of foreigners (non-EU citizens), equal to some 4.0 % of its total population in 2009. The share of foreigners in China and Turkey was considerably lower, at around 0.1 %, while in Mexico, Brazil and India it was also less than 0.5 %.

In 2011, the United Nations High Commissioner for Refugees reported that there were 895 284 asylum applicants across the world, of which 302 445 (from non-member countries) were in the EU-27. Among those seeking asylum in the EU-27 a relatively high proportion of applicants were from Afghanistan, Russia, Pakistan, Iraq, Serbia, Somalia, Iran and Nigeria (each accounting for between 28 000 and 11 000 asylum seekers). The highest number of asylum applicants into the EU-27 from G20 countries came from Russia (18 330), Turkey (6 455) and China (5 540); note, the latter figure includes applicants from Hong Kong. Figure 2.10 shows that aside from the EU-27, there were relatively high numbers of asylum seekers in South Africa (many of whom originated from neighbouring Zimbabwe) and in Canada in 2011; note that the figures for the United States exclude individuals pending a decision on their asylum claim.

Figure 2.9: Analysis of the citizenship of the population, 2010 (1)

(% of total)

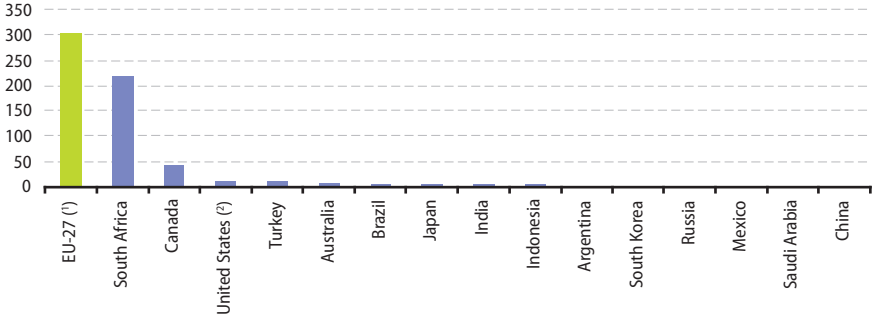


(1) Excludes unknown and stateless persons; Indonesia, not available. (2) 2007. (3) Foreign-born population. (4) 2001. (5) 2009. (6) Non-EU citizens only. (7) Foreigners estimated within the range of 3 % to 4 % for documented and undocumented cases. (8) 2002. (9) 2007.

Source: Eurostat (online data code: migr_pop1ctz), the United Nations Department of Economic and Social Affairs (Demographic Statistics), the OECD (International Migration Data 2011) and national census results

Figure 2.10: Asylum seekers, 2011

(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 more than 9 600 million by 2060, representing an increase of 39.4 % compared with 2010. 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-27 – is projected to increase by 15.1 % between 2010 and 2060 while the EU-27's population is projected (by Eurostat) to increase by 3.0 % 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 2010 and 2060 is projected to be in Saudi Arabia, while the populations of Japan, Russia, China and South Korea are projected to be smaller in 2060 than they were in 2010.

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 (pensions, healthcare, institutional care). The EU-27's old-age dependency ratio is projected to reach 29.5 % by 2060, around 7.3 percentage points above the world average, but considerably lower than in Japan, South Korea or China. With relatively low fertility rates the young-age dependency ratio is projected to be lower in 2060 than it was in 2010 in all G20 members, dropping to 14.3 % in the EU-27, some 4.5 percentage points below the projected world average.

Table 2.5: Population projections, 2010 and 2060 (1)

	Total population (millions)		Population density (inhabitants per km²)		Young-age dependency ratio (%) (2)		Old-age dependency ratio (%) (3)	
	2010	2060	2010	2060	2010	2060	2010	2060
EU-27	*501.8*	*516.9*	*116.6*	*120.3*	23.3	*14.2*	25.9	*29.5*
Argentina	40.4	*51.3*	14.5	*18.4*	38.5	*15.2*	16.4	*26.0*
Australia	22.3	*32.7*	2.9	*4.2*	28.1	*15.3*	19.9	*29.4*
Brazil	194.9	*216.9*	22.9	*25.5*	37.7	*13.0*	10.4	*31.7*
Canada	34.0	*45.1*	3.4	*4.5*	23.6	*14.5*	20.3	*31.1*
China	1 341.3	*1 211.5*	139.8	*126.2*	26.9	*12.5*	11.3	*35.1*
India	1 224.6	*1 718.0*	372.5	*522.6*	47.4	*16.7*	7.6	*19.6*
Indonesia	239.9	*290.3*	125.9	*152.4*	40.1	*14.7*	8.2	*26.8*
Japan	126.5	*103.2*	334.9	*273.2*	20.9	*11.6*	35.5	*43.9*
Mexico	113.4	*142.8*	57.9	*72.9*	45.1	*14.0*	9.8	*28.7*
Russia	143.0	*120.8*	8.4	*7.1*	20.8	*15.4*	17.7	*29.2*
Saudi Arabia	27.4	*46.3*	12.8	*21.5*	45.5	*14.2*	4.4	*22.9*
South Africa	50.1	*57.1*	41.1	*46.8*	46.2	*18.5*	7.1	*14.2*
South Korea	48.2	*44.3*	484.1	*444.6*	22.7	*11.9*	15.4	*40.2*
Turkey	72.8	*90.8*	92.8	*115.9*	39.0	*14.1*	8.8	*26.7*
United States	310.4	*421.0*	32.2	*43.7*	30.0	*17.2*	19.5	*27.5*
World	6 895.9	*9 615.2*	50.6	*70.6*	40.8	*18.7*	11.6	*22.3*

(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.
(2) Population aged 0-14 as a percentage of the population aged 15-64.
(3) Population aged 65 or more as a percentage of the population aged 15-64.

Source: Eurostat (online data codes: demo_gind, tps00003, demo_pjan, demo_pjanind and proj_10c2150p) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2010 Revision)

3 Health

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 health status 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.

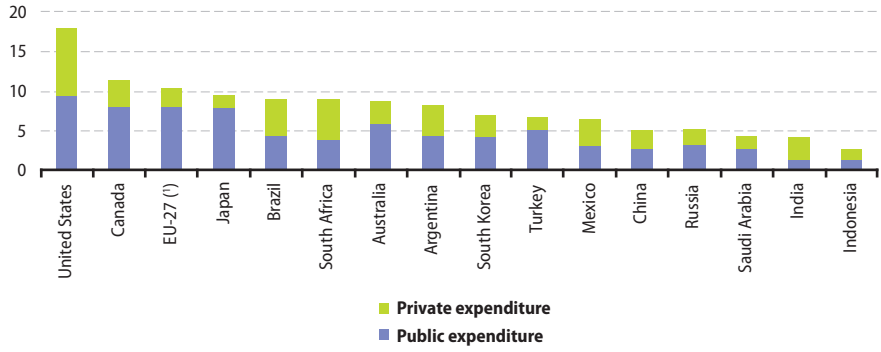
Public expenditure on healthcare is often funded through government financing (general taxation) or social security funds. Private expenditure on healthcare mainly comes from direct household payments (also known as out-of-pocket expenditure) and private health insurance. The mixture of public and private expenditure on health reflects arrangements in healthcare systems. Public expenditure exceeded private expenditure in most G20 members, most notably in Japan, the EU-27 and Turkey. Private expenditure on health was higher than public expenditure in India, South Africa and Brazil, while the two sources of expenditure were more or less balanced in Mexico and Indonesia.

The United States had by far the highest expenditure on health relative to GDP, 17.9 % in 2010. Six of the G20 members committed between 9 % and 11 % of their GDP to health: Canada, the EU-27, Japan, Brazil, South Africa and Australia. Argentina was just below this grouping, with health expenditure equivalent to 8.1 % of GDP, followed by a smaller grouping of South Korea, Turkey and Mexico (6 % to 7 % of GDP). The remaining G20 members spent around 5 % or less of GDP on health, with the lowest relative expenditure recorded for Indonesia (2.6 %).

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, Russia, and to a lesser extent Australia and South Korea, ranked lower.

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 Saudi Arabia, Australia and South Korea, whereas South Africa recorded a relatively low ratio (when contrasted with expenditure as a percentage of GDP).

Figure 3.1: Analysis of expenditure on health, 2010
(% of GDP)



(1) Estimate based on partial data for 2008 and 2009 (excluding Ireland, Greece, Italy, Malta and the United Kingdom).

Source: Eurostat (online data codes: hlth_sha_hf and nama_gdp_c) and the World Health Organisation (World Health Statistics)

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 551 in the EU-27 in 2009 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).

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 2009 the highest number of physicians per 100 000 inhabitants among the G20 members was recorded in Russia (431), followed by the EU-27 (336); the lowest numbers were recorded in Indonesia (29), India (65) and South Africa (77). Argentina, China and Turkey were the only G20 members to record more physicians than nurses and midwives and these three countries, together with Turkey, had the lowest number of nurses and midwives per 100 000 inhabitants.

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, Indonesia and India recorded less than 10 dentists per 100 000 inhabitants while in South Africa the ratio was just above this level. In the United States, Mexico, Canada and Brazil there were more than 100 dentists per 100 000 inhabitants.

Table 3.1: Main indicators for health resources, 2009

	Expenditure on health (EUR per inhabitant) (1)	Number of hospital beds (2)	Number of physicians (3)	Number of nurses and midwives (4)	Number of dentists (5)
		(per 100 000 inhabitants)			
EU-27	2 378	551	336	689	62
Argentina	560	450	316	48	92
Australia	3 601	380	299	959	69
Brazil	747	240	176	642	117
Canada	3 939	320	198	1 043	126
China	167	420	142	138	4
India	41	90	65	100	8
Indonesia	58	60	29	204	6
Japan	3 066	1 370	214	414	74
Mexico	456	160	196	398	142
Russia	396	970	431	852	32
Saudi Arabia	513	220	94	210	23
South Africa	490	280	77	408	13
South Korea	1 085	1 030	202	529	50
Turkey	511	250	154	64	27
United States	6 308	300	242	982	163

(1) EU-27: estimate based on data for 2009 other than Bulgaria, Cyprus, Latvia, Luxembourg, Austria and Portugal (all 2008) and Ireland, Greece, Italy, Malta and the United Kingdom (no data available); other countries: data relate to 2010.
(2) Argentina, Brazil and Indonesia, 2010; Russia, 2006; India and South Africa, 2005.
(3) EU-27: estimate based on data for 2009 other than Ireland, Spain, France, Malta, Austria, Portugal and the United Kingdom (all 2010) and Denmark, Cyprus, the Netherlands, Finland and Sweden (all 2008); South Korea, 2010; Brazil, Canada, Japan and Saudi Arabia, 2008; Indonesia, 2007; Russia, 2006; Argentina and South Africa, 2004.
(4) EU-27: estimate based on data for 2009 other than Spain, France, Malta, Portugal and the United Kingdom (all 2010), Denmark, the Netherlands, Finland and Sweden (all 2008), Luxembourg (2006), and Belgium, the Czech Republic, Italy, Cyprus and Slovakia (no data available); Brazil, India, Saudi Arabia and South Korea, 2008; Indonesia, 2007; Japan and Russia, 2006; the United States, 2005; Argentina, Mexico and South Africa, 2004.
(5) EU-27: estimate based on data for 2009 other than Ireland, France, Malta, Austria and the United Kingdom (all 2010) and Denmark, Cyprus, the Netherlands, Finland and Sweden (all 2008); Brazil, Canada, India and South Korea, 2008; Indonesia and Saudi Arabia, 2007; Japan and Russia, 2006; China, 2005; Argentina, Mexico and South Africa, 2004; the United States, 2000.

Source: Eurostat (online data codes: hlth_sha_hf and demo_gind) and the World Health Organisation (World Health Statistics)

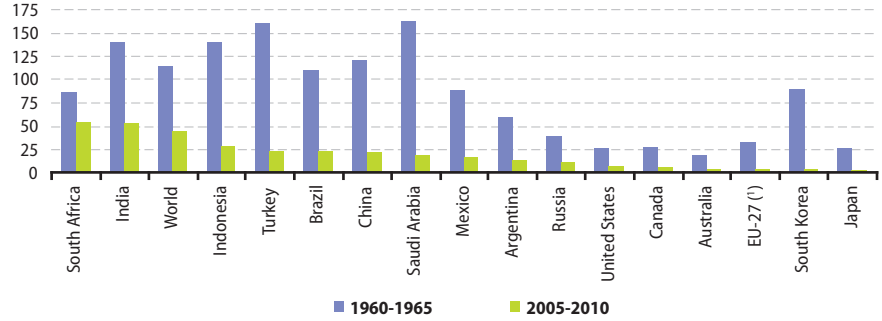
The infant mortality rate presents the ratio between the number of deaths of children aged less than one year and the number of live births in the same reference period; the resulting value is generally expressed per 1 000 live births. The progress made in medical healthcare services is reflected in the rapid decrease of infant mortality rates, with the world average falling from 114.2 deaths per 1 000 live births in the period 1960 to 1965 to 45.6 deaths per 1 000 live births in the period 2005 to 2010.

All of the G20 members recorded falls in infant mortality rates between the two periods shown in Figure 3.2. The largest relative falls were recorded by South Korea, Japan, Saudi Arabia, the EU-27 and Turkey, while South Africa was the only G20 member where the infant mortality rate did not fall by at least 50 %.

The latest data available, covering the period from 2005 to 2010, shows that the lowest infant mortality rates among G20 members were recorded in Japan, South Korea, the EU-27 and Australia, all under 5 deaths per 1 000 live births. By contrast, infant mortality rates in South Africa and India were more than ten times as high as in the four G20 members with the lowest rates and nearly twice as high as the rate in Indonesia which had the next highest rate.

Figure 3.2: Infant mortality rate, average for July 1960 to June 1965 and average for July 2005 to June 2010

(infant deaths per 1 000 live births)



(1) Average for years 1961 to 1965 and 2005 to 2009.

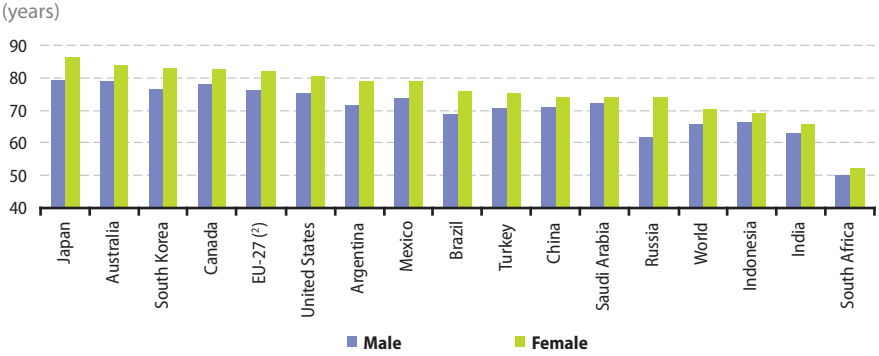
Source: Eurostat (online data code: demo_minfind) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2010 Revision)

The average life expectancy of a new-born baby in the world was 67.9 years during the period from 2005 to 2010, which was 16.7 years higher than the corresponding figure for the period from 1960 to 1965. All G20 members, except for Russia, recorded an increase in life expectancy at birth between the period from 1960 to 1965 and the period from 2005 to 2010. The largest overall increases in life expectancy between these two periods were in China (an increase of 28.7 years), Saudi Arabia (26.7 years), South Korea (25.2 years) and Turkey (24.4 years); the lowest increase in life expectancy at birth was in South Africa (1.3 years). In Russia, life expectancy at birth fell from 69.1 years as recently as the period from 1985 to 1990 to a low of 64.9 years between 2000 and 2005, before recovering to 67.8 years between 2005 and 2010.

The highest life expectancy at birth in the most recent period (2005 to 2010) was in Japan (82.7 years), while in Australia, Canada and South Korea life expectancy also reached or passed 80 years, with the EU-27 (79.2 years, 2005 to 2009) just below this level. In four G20 members life expectancy at birth remained below 70 years, ranging from 67.9 years in Indonesia, through 67.7 years in Russia and 64.2 years in India, down to 51.2 years in South Africa. The relatively low life expectancy for South Africa may be largely attributed to the impact of an HIV/AIDS epidemic.

In all G20 members life expectancy at birth for girls was higher than for boys (see Figure 3.3). By far the largest gender difference was in Russia where the life expectancy for new-born boys was 12.5 years lower than for new-born girls. The global difference between life expectancy of girls and boys was 4.4 years, which was approximately double the difference in South Africa (2.0 years) and Saudi Arabia (2.2 years).

Figure 3.3: Life expectancy at birth, average for July 2005 to June 2010 (1)



(1) Note: y-axis does not start at 0; ranked on a simple average of male and female.
(2) Average for 2005 to 2009.

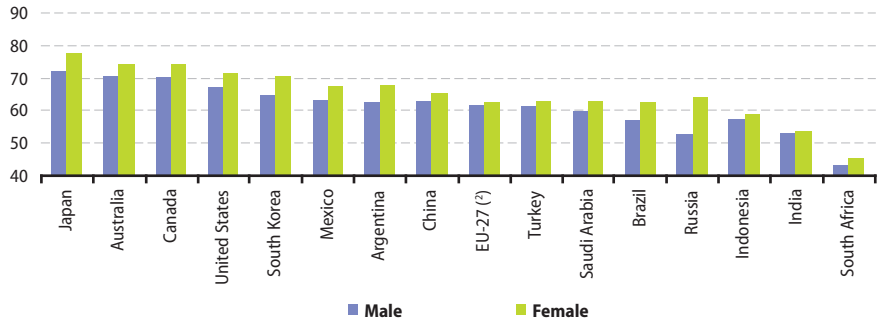
Source: Eurostat (online data code: demo_mlexpec) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2010 Revision)

Unlike life expectancy, indicators on healthy life years introduce the concept of the quality of life, by focusing on those years that may be enjoyed by individuals free from the limitations of illness or disability; note that comparisons across countries may suffer from divergences in the way that limitations due to ill-health are measured in different countries. Chronic disease, frailty, mental disorders and physical disability tend to become more prevalent in older age, and may result in a lower quality of life for those who suffer from such conditions, while the burden of these conditions may also impact on healthcare and pension provisions. As for life expectancy at birth, there was also a gender difference for the number of expected healthy life years at birth, ranging from just 0.2 years of additional healthy life years for girls in India to 11.3 years for girls in Russia. For both males and females, Japan had the highest number of expected healthy life years at birth and South Africa the lowest.

Statistics on causes of death may be used to evaluate the state of health and healthcare as well as to indentify 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. In most G20 members the most common causes of death were diseases of the circulatory system followed by cancer (malignant neoplasms); the order was reversed in Japan, Canada, Russia and Australia, while in India death rates from diseases of the respiratory system were higher than those from diseases of the circulatory system. Among the causes of death shown in Table 3.2 the death rates from cancer were the most similar among the G20 members, while the greatest variation was recorded in relation to death rates for tuberculosis and assault.

Figure 3.4: Healthy life years at birth, 2002 (1)

(years)



(1) Estimates, other than for the EU-27; note the y-axis does not start at 0; ranked on a simple average of male and female; note that any comparison of absolute values should take into account the differences and limitations relating to how ill-health is measured across different countries.

(2) 2010; provisional.

Source: Eurostat (online data code: hlth_hlye) and the World Health Organisation (World Health Report 2004)

Table 3.2: Selected causes of death - standardised death rates, 2008
(per 100 000 inhabitants)

	All causes of death	Circulatory system	Malignant neoplasms	Respiratory system	Digestive system
EU-27 (1)	*600.6*	*217.3*	*169.0*	*43.6*	*30.6*
Argentina	636.7	200.0	135.3	58.9	30.7
Australia	378.0	117.2	118.8	21.6	13.0
Brazil	707.3	237.2	114.7	44.3	40.0
Canada	401.2	118.6	125.8	22.4	15.5
China	731.4	287.3	145.1	109.3	20.1
India	1 146.6	316.5	75.0	153.6	55.3
Indonesia	961.1	323.6	120.9	75.8	35.4
Japan	349.3	97.4	115.1	15.8	14.5
Mexico	616.8	164.8	81.5	37.4	63.4
Russia	435.8	124.2	125.9	22.4	20.4
Saudi Arabia	1 027.0	568.4	129.8	20.5	45.4
South Africa	797.3	398.3	71.0	25.9	28.7
South Korea	1 691.1	261.8	155.4	61.9	29.7
Turkey	673.4	350.3	114.9	64.4	18.1
United States	504.9	155.7	123.8	34.3	19.8
World	844.4	257.2	112.6	62.8	32.7

	Accidents	Tuberculosis	Diabetes mellitus	Self-harm	Assault
EU-27 (1)	*22.6*	*0.9*	*12.4*	*10.3*	*0.9*
Argentina	33.1	1.5	17.7	9.1	6.2
Australia	21.0	0.2	9.9	7.8	1.3
Brazil	41.6	3.2	37.7	5.8	28.5
Canada	20.6	0.2	13.4	9.9	1.6
China	55.6	11.4	13.4	12.1	1.5
India	74.5	28.8	23.8	19.1	4.8
Indonesia	51.3	31.9	29.5	9.7	8.8
Japan	16.1	1.0	4.5	19.8	0.4
Mexico	33.9	2.9	83.8	4.5	18.2
Russia	29.7	6.1	23.0	20.1	2.0
Saudi Arabia	116.3	15.8	4.8	23.4	16.2
South Africa	58.4	2.2	59.0	5.9	2.8
South Korea	35.7	44.4	66.7	7.4	29.1
Turkey	24.5	3.8	14.9	2.2	2.8
United States	35.5	0.1	15.2	10.3	6.5
World	53.7	19.9	18.6	11.6	7.9

(1) 2009.

Source: Eurostat (online data code: hlth_cd_asdr) and the World Health Organisation (Department of Measurement and Health Information)

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 Institute for Statistics of the United Nations Educational, Scientific and Cultural Organisation; the Organisation for Economic Co-operation and Development; and Eurostat.

Main findings

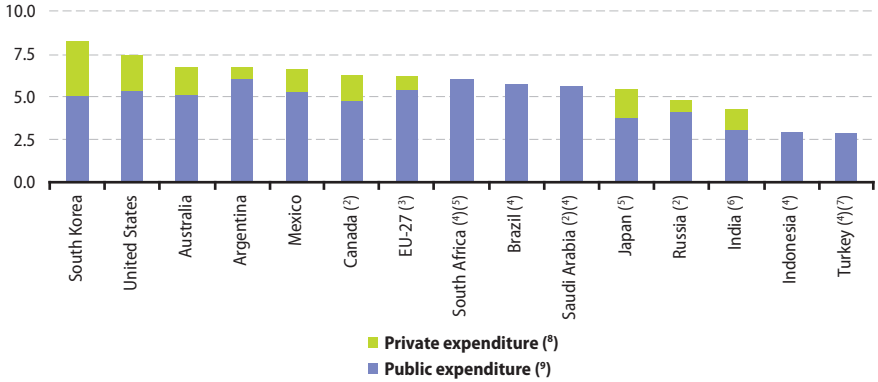
The level of educational enrolment depends on a wide range of factors, such as the age structure of the population, legal requirements concerning the start and end of compulsory education, and the availability of educational resources. The earliest starting age of compulsory education among G20 members (excluding the EU-27) was four years old in Mexico, while the latest was seven years old in Indonesia and South Africa; the range was similar among the EU-27 Member States. The youngest age for completing compulsory education in G20 members (excluding the EU-27) was 11 years old in Saudi Arabia while the oldest was 17 years old in Argentina and the United States; within the EU-27 the range was narrower, from 14 years old 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-27 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; Figure 4.1 provides

information on the level of expenditure relative to GDP – which is available for nearly all G20 members for public spending, while data on private expenditure is more limited. Based on the available data, education expenditure relative to GDP was notably higher in South Korea and the United States than in the other G20 members and notably lower in Russia, India, Indonesia and Turkey. In Argentina and South Africa public expenditure on education was equivalent to 6.0 % of GDP, followed by Brazil (5.7 %) and Saudi Arabia (5.6 %), just ahead of the EU-27 and the United States (both 5.4 %).

Figure 4.1: Analysis of expenditure on education, 2009 (1)
(% of GDP)



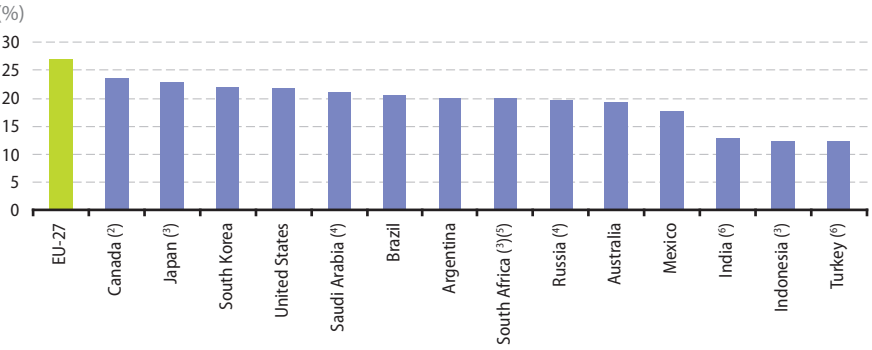
(1) China, not available. (2) 2008. (3) Estimate. (4) Private expenditure, not available. (5) 2010. (6) Public expenditure, 2006; private expenditure, 2005. (7) 2006. (8) Private expenditure on educational institutions and administration. (9) Total public expenditure on education.

Source: Eurostat (online data code: educ_figdp) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Education)

Average public spending per pupil or student in education can be related to GDP per capita as shown in Figure 4.2. This measure is similar to the relative size of public education expenditure compared with to GDP, but is adjusted for the proportion of pupils and students within the whole population, in other words the share of the population on which that relative expenditure is focused. Comparing the public expenditure part of 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; Canada and Japan also recorded high values for this indicator.

In 2010 there were more than 8.3 million teachers and academic staff in the EU-27's education system, ranging from 1.1 million in pre-primary education through 2.2 million in primary and 3.7 million in secondary, to 1.4 million in tertiary education – see Table 4.1. In Brazil, the EU-27 and Mexico more than one tenth of teaching and academic staff were in pre-primary education, a share that fell to 2.7 % in Saudi Arabia. Around one quarter of teaching and academic staff in Canada and the United States were in tertiary education, a share that rose close to one third in Japan and exceeded this in South Korea; in the EU-27 this share was 16.6 %.

Figure 4.2: Public expenditure on education per pupil/student relative to GDP per capita, 2009 (1)



(1) China, not available.
(2) 2002.
(3) 2010.
(4) 2008.
(5) Secondary education only.
(6) 2006.

Source: Eurostat (online data code: educ_fipubin) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Education)

Table 4.1: Number of teachers and academic staff, 2010

(1 000)

	Pre-primary	Primary	Lower secondary	Upper secondary	Tertiary
EU-27 (1)	1 087	2 151	1 824	1 894	1 381
Argentina (2)	72	289	153	171	142
Australia	:	:	:	:	:
Brazil	384	762	794	619	345
Canada (3)	29	141	69	144	133
China	1 106	5 997	3 658	2 759	1 557
India (4)	738	3 388	1 913	2 339	539
Indonesia (5)	340	1 900	915	725	271
Japan	109	399	269	344	528
Mexico	182	530	395	257	310
Russia (6)	607	278	:	:	670
Saudi Arabia	19	298	180	131	50
South Africa (6)	:	232	:	:	:
South Korea (5)	31	158	103	122	223
Turkey (6)	29	:	:	197	101
United States	541	1 795	933	825	1 439

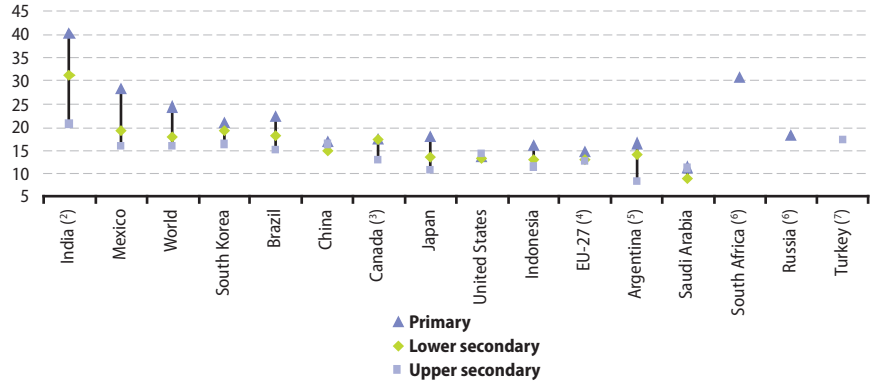
(1) Estimate based on the latest available data (generally 2010) for each EU Member State with the exception of: Denmark, 2001 for all ISCED levels except primary (2010) and tertiary (not available); Estonia, 2004 for tertiary; Ireland, 2003 for lower secondary; Greece, 2007; Lithuania, not available for upper secondary; the Netherlands, not available for pre-primary and lower secondary.
(2) 2008.
(3) 2000.
(4) Pre-primary, 2006; primary, 2004; tertiary, 2004.
(5) Pre-primary, 2009.
(6) 2009.

Source: Eurostat (online data code: educ_pers1d) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Education)

In 2010 there were around 86.6 million pupils in the EU-27 within pre-primary to upper secondary levels of education, of which 15 million (17.2 % of the total) were in pre-primary education, 28 million (32.3 %) were in primary education and 44 million (50.5 %) were in secondary education. Worldwide the total enrolment in these education levels was close to 1.4 billion, with 164 million (11.7 %) in pre-primary education, 691 million (49.4 %) in primary education and 543 million (38.9 %) in secondary 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 2009 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 China, the United States and Saudi Arabia. Overall Saudi Arabia had the lowest pupil-teacher ratios and India the highest.

Figure 4.3: Pupil-teacher ratios, 2010 (1)
(average number of pupils per teacher)



(1) Australia, not available.
(2) Primary, 2004.
(3) Primary and lower secondary, 2000; upper secondary, 2008.
(4) Estimates for the purpose of this publication based on information available for the majority of EU Member States.
(5) 2008.
(6) Primary, 2009; lower and upper secondary, not available.
(7) Upper secondary, 2009; primary and lower secondary, not available.

Source: Eurostat (online data codes: educ_iste and educ_pers1d) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Education)

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 2000 the early childhood education rate in the EU-27 was 85.2 % and this had risen to 92.3 % by 2010 (see Table 4.2).

For the remaining G20 members, Table 4.2 shows a related indicator, namely the gross enrolment rate for pre-primary education, which is the number of pupils or students 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. The gross enrolment rate for pre-primary education rose between 2000 and 2010 in all G20 members (for which data are available).

Worldwide there were more girls than boys in education in each of the three broad stages of education from primary to upper secondary, although the imbalance narrowed between 2000 and 2010, in large part due to major changes in the ratios for India. Within primary education the majority of G20 members recorded an increase in the gender ratio between 2000 and 2010 and in nearly all cases this reflected a move towards a more even gender balance. The EU-27 had a ratio of 1.06 boys for each girl, unchanged from 2000. The developments for lower and upper secondary education were less even. Several G20 members moved towards parity, for example, India from a position of under-participation of boys and South Africa from a position of under-participation of girls. Equally some G20 members moved away from parity, notably Mexico and Argentina, both recording an increase in the above-parity ratio of boys to girls.

Table 4.2: School enrolments, 2000 and 2010

	Gross enrolment rate for pre-primary education (%)		Primary		Lower secondary		Upper secondary	
			(gender ratio: male / female)					
	2000	2010	2000	2010	2000	2010	2000	2010
EU-27 (1)	85.2	92.3	1.06	1.06	1.05	1.07	0.98	1.04
Argentina (2)	60.0	74.1	0.98	0.99	1.01	1.05	1.11	1.26
Australia	:	78.4	1.00	0.99	1.01	0.97	0.99	0.93
Brazil (3)	60.4	69.2	0.94	0.94	1.04	1.04	1.22	1.19
Canada (4)	63.2	71.1	1.00	1.00	1.00	0.98	1.04	0.98
China	38.3	53.9	:	1.03	:	1.06	:	1.02
India (5)	23.8	54.8	0.84	1.00	0.73	0.93	0.68	0.82
Indonesia	23.9	43.4	0.97	1.02	0.96	1.02	0.94	0.98
Japan	84.5	87.7	1.00	1.00	1.00	1.00	1.02	1.00
Mexico	73.7	101.5	0.98	0.99	1.03	1.08	1.01	1.05
Russia (2)	74.5	89.9	0.99	1.00	1.01	1.01	:	0.91
Saudi Arabia	:	11.0	:	0.99	:	0.99	:	0.90
South Africa (2)	32.2	65.0	0.95	0.96	1.06	1.01	1.14	1.08
South Korea	77.0	118.9	1.01	0.99	1.01	0.99	0.98	0.98
Turkey (2)	6.3	21.7	0.92	0.98	0.80	0.94	0.64	0.89
United States	59.1	69.0	0.98	0.99	0.99	1.01	1.04	1.01
World	34.1	48.3	0.93	0.97	0.92	0.97	0.92	0.96

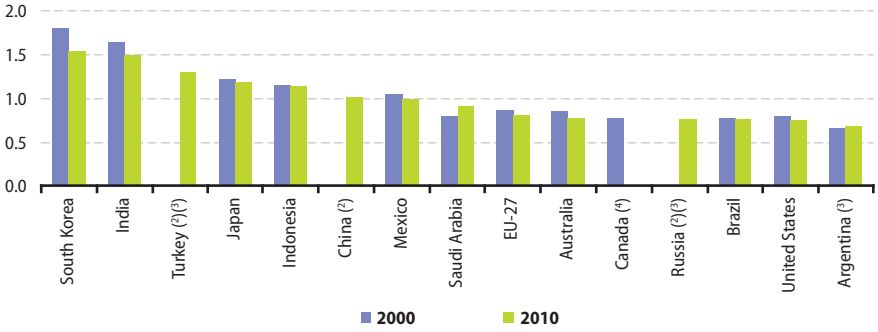
(1) Early childhood education rate instead of the gross enrolment rate for pre-primary education.
(2) Data for 2009 instead of 2010.
(3) Data for 2005 instead of 2010.
(4) Data for 2008 instead of 2010.
(5) Gender ratios, data for 2008 instead of 2010.

Source: Eurostat (online data codes: tps00179 and educ_enrl1tl) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Education)

Tertiary education is generally provided by universities and other higher education institutions. In 2010 there were 19.8 million tertiary education students in the EU-27; worldwide, tertiary education enrolment was 177.7 million.

Figure 4.4 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 2000 and 2010 the gender ratio in tertiary education fell in most of the G20 members (with data available for both years), with the exceptions of Saudi Arabia and Argentina (2000 to 2009) where there was an increase that represented a move towards parity. For South Korea, India, Japan, Indonesia and Mexico the fall in the ratio also represented a move towards parity, in other words the ratio moved downwards towards 1.00, although only in the case of Mexico did it reach this level. In the remaining G20 members, namely the EU-27, Australia, Brazil and the United States the fall in the ratio reinforced the position of more female than male students. In the EU-27 the ratio fell from 0.87 male students for each female student in 2000 to a ratio of 0.80 by 2010.

Figure 4.4: Gender balance of enrolment in tertiary education, 2010 (1)
(gender ratio: male / female)



(1) South Africa, not available.
(2) 2000, not available.
(3) Data for 2009 instead of 2010.
(4) 2010, not available.

Source: Eurostat (online data code: educ_enrl1tl) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Education)

Within the EU-27 close to 4.4 million students graduated from tertiary education in 2010. Among these graduates in the EU-27 three fifths (60.1 %) were women. Across the G20 members only China (no data for India or South Africa – see Table 4.3) had more graduates than the EU-27 in 2010, with a total of 7.9 million, while the next largest graduate levels were recorded for the United States, Russia, Brazil and Japan. The share of women among all graduates was higher than that recorded for the EU-27 in just two G20 members, namely Argentina (64.4 %) and Brazil (60.5 %). Men were in the majority among graduates in Turkey, Indonesia, Japan, China and South Korea.

The combination of social sciences, business and law was the largest field of study for EU-27 graduates and for graduates in most of the other G20 members: Turkey was one exception as engineering, manufacturing and construction was the largest field of study; Saudi Arabia was the other exception where social sciences, business and law was only the fourth largest field of study with humanities and arts the most common.

Table 4.3: Graduates by broad field of study, 2010

	Total number of graduates from tertiary education (1 000)	Share of women in total number of graduates within tertiary education (%)	Social science, business & law	Health & welfare	Engineering, manufacturing & construction	Humanities & arts	Education & training	Science, mathematics & computing	Services	Agriculture & veterinary
			(% share of total graduates) (1)							
EU-27 (2)	4 357 491	60.1	34.9	15.2	12.3	11.8	10.9	9.1	4.2	1.6
Argentina (3)	207 575	64.4	35.1	16.4	7.2	10.1	17.7	7.2	3.8	2.6
Australia (4)	306 901	55.9	44.1	15.0	7.9	10.4	8.9	9.8	2.9	0.9
Brazil	1 024 743	60.5	42.3	14.7	6.1	2.3	24.0	5.7	3.0	1.9
Canada (5)	246 589	58.4	34.2	12.3	10.7	12.7	11.6	10.9	5.5	2.0
China	7 863 663	49.0	:	:	:	:	:	:	:	:
India	:	:	:	:	:	:	:	:	:	:
Indonesia (6)	811 455	48.1	39.0	6.2	16.7	0.5	19.5	6.0	5.8	6.3
Japan	966 635	48.5	28.6	13.5	18.6	16.3	7.6	3.3	9.5	2.7
Mexico	465 813	54.4	47.0	8.9	19.4	4.0	12.5	6.1	0.6	1.6
Russia (7)	2 064 473	:	46.6	5.5	22.4	3.6	9.3	6.2	4.7	1.7
Saudi Arabia	115 790	51.8	14.6	7.4	18.2	29.3	12.3	17.6	0.1	0.5
South Africa	:	:	:	:	:	:	:	:	:	:
South Korea (7)	595 127	49.7	20.9	14.1	23.9	17.8	8.3	7.5	6.3	1.2
Turkey (7)	488 803	46.0	40.7	5.8	13.1	7.2	14.6	7.9	5.1	5.6
United States	2 997 614	58.5	38.0	15.7	7.0	12.5	10.3	8.5	7.0	1.0

(1) Excluding unknown.
(2) Including France, 2009.
(3) 2009.
(4) 2008.
(5) 2002.
(6) Share of women in the total number of graduates, 2004.
(7) 2009.

Source: Eurostat (online data codes: educ_grad4 and educ_itertc) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Education)

5 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 act as employers. The market outcomes – for example, employment, unemployment, wage levels and labour costs – of these relationships heavily affect not only the economy, but directly the lives of practically every person.

The economically active population, also know 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 or other form of business). Members of the population who are neither employed nor unemployed are considered to be 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-27 in 2011 was composed of around 240.4 million persons aged 15 to 64 of whom 216.7 million were in employment. The activity rate is the share of active persons in the total population and in 2011 for the EU-27 this ratio stood at 71.2 %. The employment rate is generally calculated as the share of employed persons in the total population of working age and was 64.3 % in 2011 in the EU-27 – see Table 5.1.

Particular care should be taken when comparing labour market data between different countries given there are 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 analysis 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-27 peaked at 65.8 % in 2008, dropped to 64.5 % in 2009 and further still to 64.1 % in 2010, before recovering slightly to reach 64.3 % in 2011.

Among the G20 members the activity rate among persons aged 15 or more was below 50 % in Turkey and Saudi Arabia (both 2009). At the other end of the scale the Brazilian rate of 68.6 % (2009 data) was the second highest, below the 71.2 % activity rate recorded for the EU-27 (2011 data).

In all G20 members the activity rate of men was higher than the corresponding rate for women, 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 43.2 percentage points in Turkey, and peaked at 56.8 percentage points in Saudi Arabia.

The high gender difference in Indonesia was, in part, due to a particularly high activity rate for men (83.6 %). Brazil and Mexico had the next highest male activity rates, both around 80 %. Most of the other G20 members recorded male activity rates between 70 % and 80 %, with South Africa's male activity rate of 61.2 % well below this range.

By contrast, the high gender differences in Saudi Arabia and Turkey reflected exceptionally low female activity rates in these countries, 17.4 % in Saudi Arabia and 27.6 % in Turkey. For the remaining G20 members the female activity rate ranged from 43.5 % in Mexico to 58.7 % in Australia, with Canada (62.4 %) and the EU-27 (64.9 %) above this range.

Table 5.1: Activity and employment rates, persons aged 15 and more, 2010

(%)

	Activity rate			Employment rate		
	Total	Male	Female	Total	Male	Female
EU-27 (1)	71.2	77.6	64.9	64.3	70.1	58.5
Argentina (2)	60.8	73.9	49.1	55.7	68.4	44.4
Australia	65.5	72.5	58.7	62.1	68.8	55.6
Brazil (2)	68.6	80.2	57.9	62.9	75.3	51.5
Canada	67.0	71.7	62.4	61.6	65.4	57.9
China (3)	59.7	:	:	:	:	:
India	:	:	:	:	:	:
Indonesia (2)	67.2	83.6	51.0	61.9	77.4	46.7
Japan	60.5	71.9	49.8	57.5	68.0	47.5
Mexico	60.4	79.3	43.5	57.3	75.1	41.2
Russia (4)	62.6	70.6	56.0	57.9	64.9	52.1
Saudi Arabia (2)	49.9	74.2	17.4	47.2	71.5	14.6
South Africa (2)	53.1	61.2	46.0	40.5	47.7	34.0
South Korea	61.0	73.0	49.5	58.7	70.1	47.8
Turkey	48.8	70.8	27.6	43.0	62.7	24.0
United States (5)	64.7	71.2	58.6	58.5	63.7	53.6

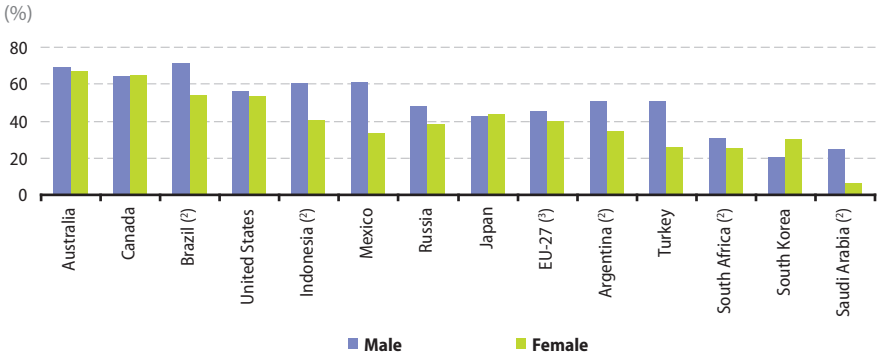
(1) 2011, persons aged 15-64.
(2) 2009.
(3) 2008.
(4) Persons aged 15-72.
(5) Persons aged 16 and more.

Source: Eurostat (online data codes: lfsi_act_a and lfsi_emp_a) and the International Labour Organisation (Key indicators of the labour market)

The relative position of the G20 members in terms of the employment rate was similar to that for the activity rate. The main difference was in South Africa, where the employment rate was just 40.5 % (2009 data), some 12.6 percentage points below the activity rate and this was the lowest employment rate among the G20 members. South Korea, Saudi Arabia (2009 data), Japan and Mexico recorded employment rates that were particularly close to their activity rates, indicating low unemployment.

Figure 5.1 focuses on a particular part of the working age population, namely persons aged 15 to 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 service. In comparison with the activity rates presented in Table 5.1, in all of the G20 members (with data available) the gender difference in activity rates was smaller among the younger population than the whole population. In fact, for South Korea, Japan and Canada the female activity rate was higher than the male activity rate. The gender difference in the activity rate for younger persons was over 20 percentage points in Mexico and Turkey, and between 10 and 20 percentage points in Indonesia, Saudi Arabia, Brazil and Argentina.

Figure 5.1: Youth activity rate, persons aged 15-24, 2010 (1)



(1) China and India, not available.
(2) 2009.
(3) 2011.

Source: Eurostat (online data code: lfsi_act_a) and the International Labour Organisation (Key indicators of the labour market)

Among the 216.7 million persons aged 15 to 64 in employment in the EU-27 in 2011 around five in every six (83.5 %) 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 pattern to that observed for the EU-27.

The United States and Russia stand out with very high shares of paid employees, in excess of 90 %; at the other end of the ranking, around two thirds of persons in employment were paid employees in Brazil and Mexico, this share falling to three fifths in Turkey and down to one third in Indonesia. The self-employed contributed close to one half of all employment in Indonesia and more than one quarter in Mexico and Turkey, but less than one tenth in Japan, Russia and the United States. In many G20 members a relatively small proportion of employment is made up of family workers, generally less than 2 %. Nevertheless, family workers contributed 13.6 % of total employment in Turkey and 17.3 % in Indonesia.

Data availability for part-time employment is relatively weak. In the EU-27, part–time employment accounted for 9.0 % of male employment in 2011 and 32.1 % of female employment. For men, this share was relatively low compared with other G20 members, although lower rates were observed in South Korea and Turkey. For women, the rate in the EU-27 was one of the higher rates observed, although in Australia, Argentina and Japan more than one third of women in employment worked on a part-time basis.

Table 5.2: Working status, persons aged 15 and more, 2009

	Number of persons in employment (1 000)	Share of employment by working status (%)		
		Employees	Self-employed	Family workers
EU-27 (1)	216 685	83.5	15.0	1.5
Argentina	10 402	76.0	23.3	0.7
Australia	10 953	88.4	11.3	0.3
Brazil (2)(3)	92 689	66.4	24.8	4.6
Canada (4)	17 126	84.6	15.3	0.1
China	:	:	:	:
India	:	:	:	:
Indonesia	104 871	33.4	49.3	17.3
Japan (3)	62 820	86.9	9.4	3.2
Mexico (5)	43 344	66.1	27.4	6.5
Russia (6)	70 965	92.7	7.2	0.1
Saudi Arabia	:	:	:	:
South Africa	13 306	84.6	14.5	0.9
South Korea	23 506	70.0	24.3	5.7
Turkey (7)	22 593	60.9	25.5	13.6
United States (8)	145 362	93.0	6.9	0.1

(1) 2011, persons aged 15-74.
(2) Persons aged 10 and more; analysis by working status does not sum to 100 % due to persons whose working status is not classified.
(3) Analysis by working status does not sum to 100 % due to persons whose working status is not classified.
(4) 2008.
(5) Persons aged 14 and more.
(6) 2008, persons aged 15-72.
(7) 2010.
(8) 2008, persons aged 16 and more.

Source: Eurostat (online data code: lfsa_egaps) and the International Labour Organisation (Key indicators of the labour market)

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 2011 the number of unemployed persons in the EU-27 was 23.2 million, equivalent to an unemployment rate of 9.7 %. Among the G20 members (no data available for China or India) the unemployment rate in 2010 ranged from 5.0 % in Japan to 11.9 % in Turkey, with South Korea (3.7 %) below this range and South Africa (23.8 %, 2009 data) above it.

In the EU-27 male and female unemployment rates were relatively similar, 9.6 % for men and 9.8 % for women; this pattern was also observed in Australia and Mexico. 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 Brazil and South Africa and to a lesser extent in Argentina. Unemployment rates were more than 1.0 percentage point lower for women than for men in the United States, Canada and Russia.

The level of unemployment and the unemployment rate reflect economic developments, with unemployment generally rising after a fall in output and unemployment reducing again after output starts to increase. The time series presented in Table 5.4 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 path was extended into 2007 and 2008 in most cases; nevertheless, the unemployment rate for the United States and Turkey rose in 2008. In 2009, all G20 members witnessed a rise in their respective unemployment rates except for Indonesia (for which there is a break in series in 2009). For 2010 the development

Table 5.3: Unemployment indicators, persons aged 15 and more, 2010

	Number of unemployed persons (1 000)	Unemployment rate (%)		
		Total	Male	Female
EU-27 (1)	23 220	9.7	9.6	9.8
Argentina (2)	984	8.6	7.8	9.8
Australia	621	5.2	5.1	5.4
Brazil (2)	8 251	8.3	6.1	11.0
Canada	1 483	8.0	8.7	7.2
China (3)	8 860	:	:	:
India	:	:	:	:
Indonesia (2)	8 963	7.9	7.5	8.5
Japan	3 320	5.0	5.4	4.5
Mexico	2 467	5.3	5.3	5.3
Russia (4)	5 636	7.5	8.0	6.9
Saudi Arabia (2)	463	5.4	3.5	15.9
South Africa (2)	4 173	23.8	22.0	25.9
South Korea	921	3.7	4.0	3.3
Turkey	3 046	11.9	11.4	13.0
United States (5)	14 822	9.6	10.5	8.6

(1) 2011, persons aged 15-74.
(2) 2009.
(3) 2008.
(4) Persons aged 15-72.
(5) Persons aged 16 and more.

Source: Eurostat (online data codes: une_rt_a and une_nb_a) and the International Labour Organisation (Key indicators of the labour market)

in unemployment rates was more varied: the EU-27 and the United States recorded further increases in unemployment rates, while the rate fell most strongly in Turkey. Between 2007 and 2009 or 2010 (depending on data availability) the unemployment rate increased most strongly in the United States, more than doubling from 4.6 % in 2007 to 9.6 % by 2010 .

The impact of the global financial and economic crisis on the youth unemployment rate has attracted particular attention. It should be remembered that a large share of persons between these 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. Figure 5.2 provides a comparison between youth unemployment rates and adult unemployment rates; all G20 members shown in the figure recorded a higher youth unemployment rate. The largest differences between youth and adult unemployment rates, all in excess of 10 percentage points, were recorded in the EU-27, Turkey, Russia and the United States.

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 as well as having a sustained impact on income and social conditions. Among the G20 members with data available (see Table 5.5) Mexico and South Korea reported long-term unemployment rates close to zero, while this rate reached 4.1 % in the EU-27.

Table 5.4: Unemployment rate, persons aged 15 and more, 2001 to 2011

(%)

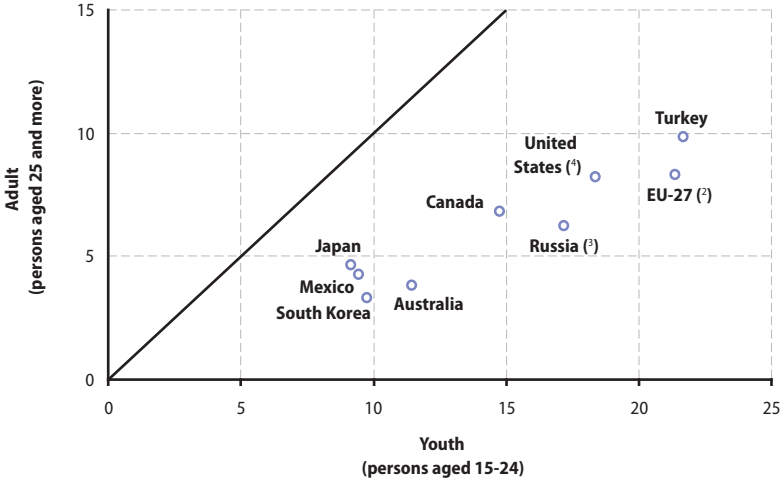
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
EU-27 (1)	8.6	8.9	9.1	9.2	9.0	8.3	7.2	7.1	9.0	9.7	9.7
Argentina (2)	18.3	17.9	16.1	12.6	10.6	10.1	8.5	7.8	8.6	:	:
Australia	6.8	6.4	5.9	5.4	5.0	4.8	4.4	4.2	5.6	5.2	:
Brazil	9.3	9.1	9.7	8.9	9.3	8.4	8.1	7.1	8.3	:	:
Canada (3)	7.2	7.7	7.6	7.2	6.8	6.3	6.0	6.1	8.3	8.0	:
China	3.6	4.0	4.3	4.2	4.2	4.1	4.0	:	:	:	:
India	:	:	:	:	4.4	:	:	:	:	:	:
Indonesia (4)	8.1	9.1	9.5	9.9	11.2	10.3	9.1	8.4	7.9	:	:
Japan	5.0	5.4	5.2	4.7	4.4	4.1	3.9	4.0	5.0	5.0	:
Mexico	2.5	2.9	3.0	3.7	3.5	3.2	3.4	3.5	5.2	5.3	:
Russia (5)	9.0	7.9	8.2	7.8	7.2	7.2	6.1	6.3	8.4	7.5	:
Saudi Arabia (6)	4.6	5.2	:	:	:	6.3	5.6	5.0	5.4	:	:
South Africa (7)	29.5	30.5	31.2	26.2	26.7	25.5	23.0	22.9	23.8	:	:
South Korea	4.0	3.3	3.6	3.7	3.7	3.4	3.2	3.2	3.6	3.7	:
Turkey	8.4	10.4	10.5	10.8	10.6	10.2	10.3	11.0	14.0	11.9	:
United States (8)	4.7	5.8	6.0	5.5	5.1	4.6	4.6	5.8	9.3	9.6	:

(1) Persons aged 15-74.
(2) Breaks in series: 2003, 2006 and 2009.
(3) Break in series: 2004.
(4) Breaks in series: 2005 and 2009.
(5) Persons aged 15-72.
(6) Break in series: 2009.
(7) Breaks in series: 2002, 2004, 2006, 2007, 2008 and 2009.
(8) Persons aged 16 and more.

Source: Eurostat (online data code: une_rt_a) and the International Labour Organisation (Key indicators of the labour market)

Figure 5.2: Youth and adult unemployment rates, 2010 (1)

(%)



(1) Argentina, Brazil, China, India, Indonesia, Saudi Arabia and South Africa, not available. (2) 2011, 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)

Table 5.5: Youth and long-term unemployment, 2010

(%)

	Youth unemployment (persons aged 15-24)				Long-term unemployment (persons aged 15 and more)	
	Rate			Share in all unemployment	Rate	Share in all unemployment
	Total	Male	Female			
EU-27 (1)	21.4	21.9	20.8	22.8	4.1	42.9
Argentina	:	:	:	:	:	:
Australia	11.5	11.9	11.1	40.2	1.0	18.5
Brazil	:	:	:	:	:	:
Canada	14.8	17.1	12.4	28.7	0.9	12.0
China	:	:	:	:	:	:
India	:	:	:	:	:	:
Indonesia	:	:	:	:	:	:
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	17.2	16.9	17.5	27.5	:	:
Saudi Arabia	:	:	:	:	:	:
South Africa	:	:	:	:	:	:
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 (2)	18.4	20.8	15.8	26.0	2.8	29.0

(1) 2011; long-term unemployment for persons aged 15-74. (2) 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)

Wages are the main source of income for most workers. Wage statistics may be compiled from a variety of sources and may differ in terms of their methodology, for example, the definitions used and the coverage of workers. The data for the four EU Member States that are G20 members are presented separately in Table 5.6 as they are based on the average wages of full-time employees (and therefore exclude part-time employees) and concern workers within industry and services (excluding, for example, workers in agriculture, forestry or fishing). Wage information is presented in euro terms having been converted using market exchange rates and so the indicators do not represent purchasing power, although recipients of wages face different price levels for their expenditure.

As well as information on average wages, Table 5.6 shows the minimum wage for those countries where one exists. The minimum wage may be set on an hourly, daily or monthly basis and the figures shown have been converted to a monthly average, again expressed in euro. As of the second half of 2011 a minimum wage existed in 20 of the 27 EU Member States, ranging from EUR 123 per month in Bulgaria to EUR 1 758 in Luxembourg; among the countries without an economy-wide minimum wage there may be sectoral collective agreements.

Table 5.6: Wage indicators

(EUR)

	Mean wage of full-time employees (annual wage divided by 12)			Minimum monthly wage
	2010 (1)			2011 (2)
	Total	Men	Women	
EU-27	:	:	:	123 to 1 758
Germany	*3 508*	*3 775*	*2 925*	:
France	2 861	3 091	2 487	1 365
Italy	:	:	:	:
United Kingdom	3 177	3 559	2 593	1 084

	Mean monthly wage			Minimum monthly wage
	2009			2009
	Total	Men	Women	
Argentina	366	412	309	277
Australia	2 432	2 887	1 929	1 329
Brazil (3)	481	:	:	155
Canada	2 252	2 525	1 879	1 012
China	286	:	:	:
India (4)	133	:	:	:
Indonesia (4)	77	:	:	53
Japan	2 441	:	:	948
Mexico	283	329	271	74
Russia	422	:	:	84
Saudi Arabia (5)	441	:	:	:
South Africa	877	:	:	167
South Korea	1 479	:	:	391
Turkey	896	:	:	321
United States	2 339	:	:	901

(1) France, 2009.
(2) There were 20 EU Member States that had a minimum wage in 2011.
(3) Minimum wage, 2008.
(4) 2008.
(5) 2007.

Source: Eurostat (online data codes: tps00175 and earn_mw_cur) and the International Labour Organisation (Key indicators of the labour market and Global wage database)

Time series of changes in wages are less sensitive to methodological differences between countries. Furthermore, rates of change based on data in national currencies are not influenced by changes in exchange rates and real rates of change (adjusted for changes in consumer prices) reflect changes in the purchasing power of the working population.

Developments in real wage rates between 2000 and 2009 were very varied among the G20 members as can be seen in the time series presented in Table 5.7. China, with the largest workforce among the G20 members, recorded double-digit annual real wage growth throughout the period studied, while Russia recorded similar developments until 2009 when real wages fell. Indonesia started the decade with an annual increase of 10.4 % but then experienced four consecutive annual reductions in real wages. The two South American G20 members, Argentina and Brazil, experienced the reverse situation, moving from negative rates of change in the first half of the decade to real wage growth between 2006 and 2009; Argentina experienced double-digit annual wage growth from 2007 to 2009. In most of the other G20 members the rates of change were generally more subdued, with 8.3 % wage growth in India in 2008 the only rate of change greater than +/- 5 %. Several of the G20 members recorded a fall in real wages in 2008 and or 2009, reflecting the impact of the global financial and economic crisis, as inflation exceeded any (upward) change in nominal wages.

Table 5.7: Real wage growth

(%)

	Annual real wage growth				
	2000-2005	2006	2007	2008	2009
Germany	-0.4	-0.9	-0.6	-0.4	-0.4
France	0.6	0.5	1.5	2.7	*-0.8*
Italy	0.3	0.4	0.1	-0.7	*2.4*
United Kingdom	2.3	1.8	0.6	0.8	-0.5
Argentina	-4.0	6.3	10.8	12.7	12.4
Australia	1.1	3.2	5.0	-0.9	2.0
Brazil	-1.7	4.0	3.2	3.4	3.2
Canada	0.0	0.4	2.1	0.5	1.3
China	12.6	12.9	13.1	11.7	12.8
India	2.6	0.4	-0.6	8.3	:
Indonesia	10.4	-6.1	-1.1	-2.4	-0.3
Japan	0.7	-0.3	-0.1	-1.9	-1.9
Mexico	3.3	3.1	1.3	-2.6	-5.0
Russia	15.1	13.3	17.3	11.5	-3.5
Saudi Arabia	0.2	-0.8	-1.7	:	:
South Africa	:	:	1.0	0.0	3.5
South Korea	4.4	3.4	-1.8	-1.5	-3.3
Turkey	:	2.6	1.1	0.2	1.7
United States	:	1.1	1.0	-1.0	2.2

Source: National statistics offices *in* Global wage report 2010/2011, International Labour Office

6 Living conditions and social protection

The data on living conditions and social protection shown in this publication aims 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

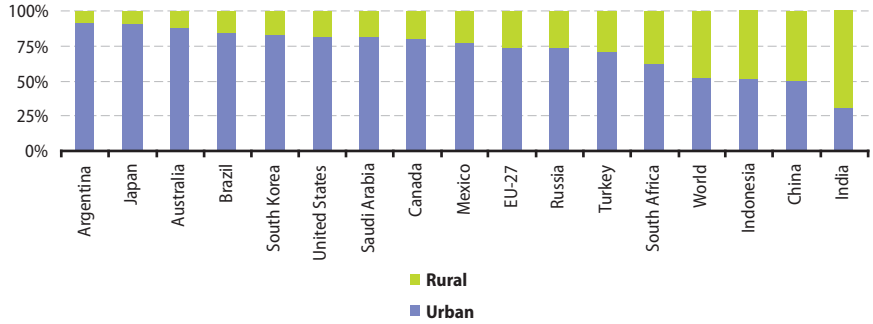
The growth of cities and urban agglomerations results essentially from migration from rural areas and can be related, among other factors, to industrialisation. In developing economies urban areas may be seen as offering stable employment compared with traditional agricultural practices. Urban and rural areas may offer different opportunities for people, for example, in terms of social mobility and ease of access to diverse economic activities (and related job opportunities), educational possibilities, transport and communication networks, accommodation, as well as leisure and recreational activities. Alongside issues of proximity and choice in terms of the consumption of goods and services, urban and rural areas may also be contrasted in relation to a range of other issues, for example, in terms of living costs, congestion, pollution, crime and poverty.

In recent years Eurostat, with other services of the European Commission, has worked on the development of various territorial typologies based on population size and density. Traditionally, territorial typologies have been based on the classification of administrative units (such as municipalities) according to their population density; this could lead to villages in units with a very small area being classified as urban, whereas large towns in very large administrative units could potentially be considered as rural. A new typology has been introduced that is based on a grid of 1 km² cells which are individually classified according to population size and population density; these standard grids are grouped into clusters which in turn are used to classify administrative units or regions into their degree of urbanisation or into an urban-rural typology. Based on this approach, data for 2006 indicate that 40 % of the EU-27 population lived in predominantly urban regions, 36 % in intermediate regions, and 24 % in predominantly rural regions.

According to the World Urbanisation Prospects report of the United Nations, globally just over half (52.1 %) of the world's population lived in urban areas in 2011 and the remainder in rural areas – see Figure 6.1. More than two thirds of the Indian population lived in rural areas in 2011, while in China and Indonesia the urban and rural populations were almost equal in size. In all other G20 members more than half or the population lived in urban areas, ranging from 62.0 % in South Africa, through 73.9 % in the EU-27 to 92.5 % in Argentina.

Figure 6.1: Share of the population living in rural and urban areas, 2011

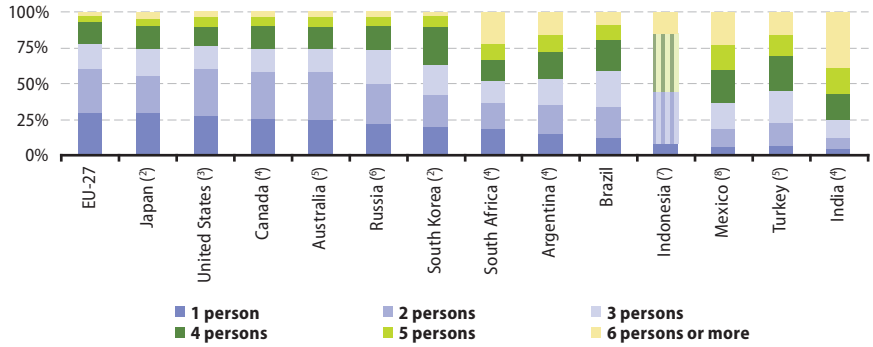
(% of total)



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

Figure 6.2: Analysis of the total number of households by the number of household members, 2010 (1)

(% of total)



(1) China and Saudi Arabia, not available.
(2) 2005.
(3) 2009.
(4) 2001.
(5) 2006.
(6) 2002.
(7) Two persons includes three persons; four persons includes five persons.
(8) 2000.

Source: Eurostat (online data code: ilc_lvph03), the United Nations Department of Economic and Social Affairs (Demographic statistics) and national surveys

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 6.2 shows that more than half of all households in the EU-27, Japan, the United States, Canada and Australia were one and two person households, whereas the majority of households in India, Turkey, Mexico and Indonesia had four or more persons.

Table 6.1: Household consumption expenditure, 2009
(% 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-27 (1)	16.8	2.4	5.7	27.7	5.5	3.4	11.9	3.3	8.4	1.0	5.3	8.7
Argentina (2)	33.4		8.3	10.8	7.2	7.6	15.2		8.2	3.1	:	6.1
Australia (3)	10.7	3.6	3.2	20.5	5.2	5.4	10.9	2.7	11.1	3.4	6.9	16.3
Brazil	20.3		5.5	35.9		7.2	19.6	:	2.0	3.0	:	6.4
Canada (4)	9.8	4.2	5.1	23.6	6.8	4.3	14.5	2.3	10.6	1.4	7.3	10.1
China (5)	36.5		10.5	10.0	6.4	7.0	13.7		12.0			3.9
India	30.6	3.1	6.5	14.8	4.1	4.1	15.0	2.0	1.4	1.6	2.5	14.4
Indonesia	50.6		3.3	19.9	5.9	20.3						
Japan (6)	14.4	3.1	4.7	26.9	4.0	4.0	10.6	2.7	9.6	2.3	7.4	10.4
Mexico (4)	27.1	2.8	3.4	14.9	8.8	5.2	19.0	2.0	3.2	4.3	8.0	12.4
Russia	30.5	8.4	9.6	10.0	5.1	3.7	11.8	5.3	5.0	1.3	3.6	5.6
Saudi Arabia (7)	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 (7)	19.3	1.1	4.7	22.2	6.5	1.6	18.8	3.3	4.3	2.3	2.1	13.6
South Korea (8)	14.0	2.2	4.1	17.2	4.3	7.7	11.8	4.8	8.5	4.8	7.1	13.6
Turkey	23.0	4.1	5.1	28.2	6.2	1.9	13.6	4.2	2.6	1.9	5.2	4.1
United States	6.8	2.1	3.5	19.5	4.3	20.2	9.1	2.4	9.3	2.3	6.2	14.3

(1) 2005. (2) 2004/2005; restaurants are included within food and beverages; hotels are included within recreation and culture.
(3) Restaurants are included within food and beverages; hotels are included within recreation and culture; communications are included within miscellaneous goods and services. (3) 2008. (4) 2004. (5) Urban households only. (6) 2003. (7) 2006. (8) 2002.

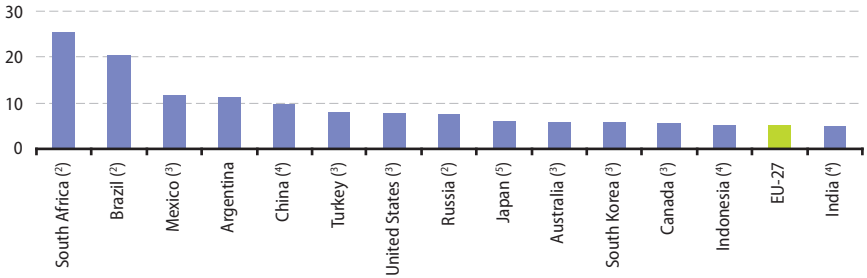
Source: Eurostat (online data code: hbs_str_t211), the United Nations Statistics Division (Economic Statistics Branch) and national household surveys

Table 6.1 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 in Canada and Australia.

Income generally has a major impact on an individual's living conditions. Figures 6.3 and 6.4 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 1 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, Mexico, Argentina and China had the highest income inequality among G20 members according to both of these measures, whereas the EU-27 was among the members with the lowest income inequality.

Figure 6.3: Income quintile share ratio, 2010 (1)

(ratio)

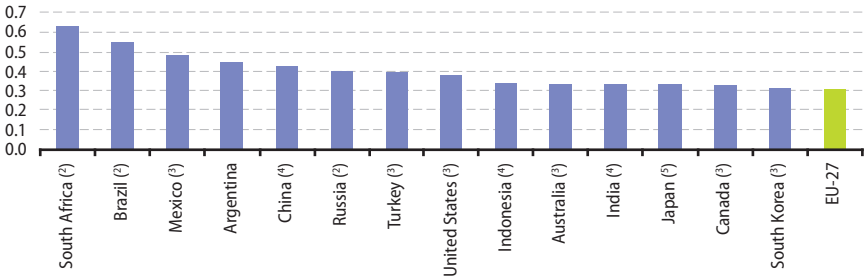


(1) The indicator shows the ratio of the proportion of total national income that is earned by the top 20 % of income earners compared with the proportion of total national income that is earned by the bottom 20 % of income earners; Saudi Arabia, not available.
(2) 2009.
(3) 2008.
(4) 2005.
(5) 2007.

Source: Eurostat (online data code: ilc_di11), the World Bank (Poverty and Inequality Database) and the OECD (Income Distribution and Poverty)

Figure 6.4: Gini coefficient for income distribution, 2010 (1)

(ratio)



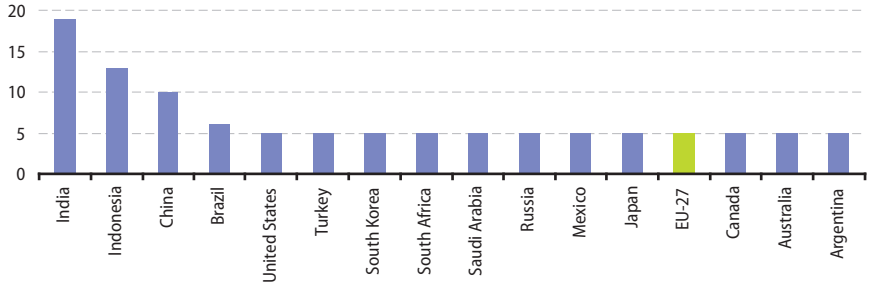
(1) This indicator measures inequality; a Gini coefficient of zero (perfect equality) would mean that everyone has the same income; a Gini coefficient of one (maximum inequality) would mean that only one person has all the income; Saudi Arabia, not available.
(2) 2009.
(3) 2008.
(4) 2005.
(5) 2007.

Source: Eurostat (online data code: ilc_di11), the World Bank (Poverty and Inequality Database) and the OECD (Income Distribution and Poverty)

Figure 6.5 presents a non-monetary indicator for an analysis of the effects of poverty, in this case under-nourishment. For most G20 members the proportion of the population suffering from under-nourishment was around 5 %, with substantially higher proportions in India, Indonesia and China.

Figure 6.5: Prevalence of undernourishment, 2008 (1)

(% of the population)

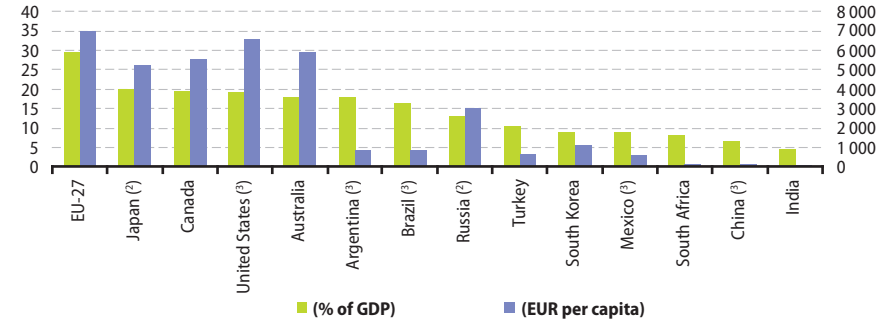


(1) The indicator shows the proportion of the population whose food intake is insufficient to meet dietary energy requirements (undernourishment).

Source: the World Bank (Millennium Development Goals)

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 6.6 shows the level of social protection expenditure in the G20 members relative to GDP and relative to the size of the population; the per capita measure is presented in euro converted at market exchange rates and so does not reflect price level differences in the G20 members.

Figure 6.6: Expenditure on social protection, 2009 (1)



(1) Percentage of GDP: left-hand axis; EUR per capita: right-hand axis; Indonesia and Saudi Arabia, not available.
(2) 2008.
(3) 2007.

Source: Eurostat (online data code: spr_exp_sum), the OECD (Social Expenditure Database) and the International Labour Organisation (Social Security Department)

Industry, trade and services, tourism and the information society

7

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 on the next two double pages (Figures 7.1 to 7.3) illustrate developments for industrial output, industrial output prices and retail trade sales 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. These short-term statistics show developments over time and so may be used to calculate rates of change.

The impact of the global financial and economic crisis on industrial activities and the subsequent recovery can be clearly seen for the two industrial indicators in Figures 7.1 and 7.2. In the years leading up to the recent crisis there was growth in industrial output in the vast majority of 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. Already in 2008 the annual rates of change in the industrial production index turned negative for some G20 members, notably Japan, the United States and the EU-27. 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 most notable exception being India (6.6 % growth), while industrial output remained relatively unchanged in Indonesia and South Korea. By 2010 the annual rates of change had turned positive for all G20 members, although they turned negative again in Japan in 2011 in part as a consequence of the tsunami in March 2011.

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 Turkey, South Africa and the EU-27 and as much as 21.3 % in Japan.

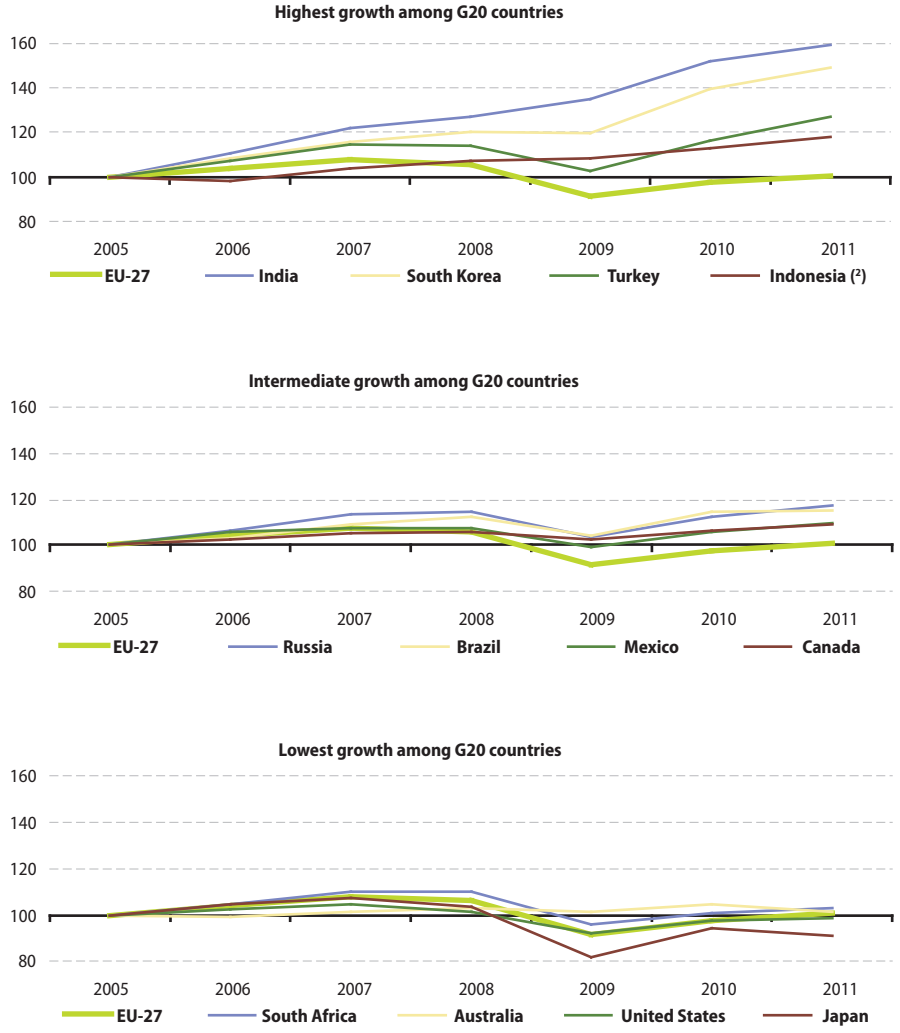
As well as clearly illustrating the impact of the financial and economic crisis, Figure 7.1 shows the contrasting developments of industrial activity among the G20 members in recent years as all three parts are shown with the same scale and each include the time series for the EU-27. Rapid industrial growth can be seen in India and South Korea, and to a somewhat lesser extent in Turkey, Indonesia, Russia and Brazil. By contrast, industrial output in 2011 in South Africa, Australia, the EU-27 and the United States was approximately the same as it had been in 2005; in other words, by 2011 output had not returned to the pre-crisis levels of 2007 and/or 2008.

As already noted, the growth rate in industrial output prices 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 the rapid increase in prices reflected the rising cost of energy, food and other natural resources, as increased demand from developing countries outstripped supply. In 2009 many G20 members recorded an abrupt fall in output prices, although there were rises in Argentina, Mexico, India and Turkey in 2009 that were more modest than those experienced in 2008. The largest falls in output prices in 2009 were recorded in the United States, Russia, Australia and Japan, where industrial output prices fell more than 5 %. By 2010 all G20 members, except for Japan, recorded rising industrial output prices which continued into 2011.

Over the period from 2005 to 2011 industrial output prices nearly doubled in Argentina, equivalent to an annual growth rate of 12.0 %. Russia (11.4 %) and Indonesia (10.6 %) also averaged double-digit price increases during the period shown in Figure 7.2. Despite falling prices in 2009, EU-27 industrial output prices increased by 3.1 % per year on average between 2005 and 2011, while Japanese industrial output prices averaged increases of just 0.8 % per annum.

The volume of retail sales index reflects developments once price changes have been removed; retail sales indices have particular importance as they can be used as short-term approximations for final domestic demand by households. From Figure 7.3 it can be clearly seen that the financial and economic crisis also had an impact on retail trade output, although a much less profound one than on industrial output. The volume of retail sales fell in 2008 by 5.0 % in the United States and by a more modest 0.8 % in the 17 member euro area (the index was unchanged in the EU-27). In 2009 many G20 members recorded a fall for their volume of retail sales, most notably -7.6 % in the United States and -5.0 % in Russia; among the G20 members with data available, only Brazil, Australia and South Korea continued to record an increase in their volume of retail sales in 2009. By 2010 this index had returned to an upward path in all G20 members shown in Figure 7.3 and by 2011, the volume of sales index had returned above pre-crisis levels in all G20 members except for the EU-27 and the United States.

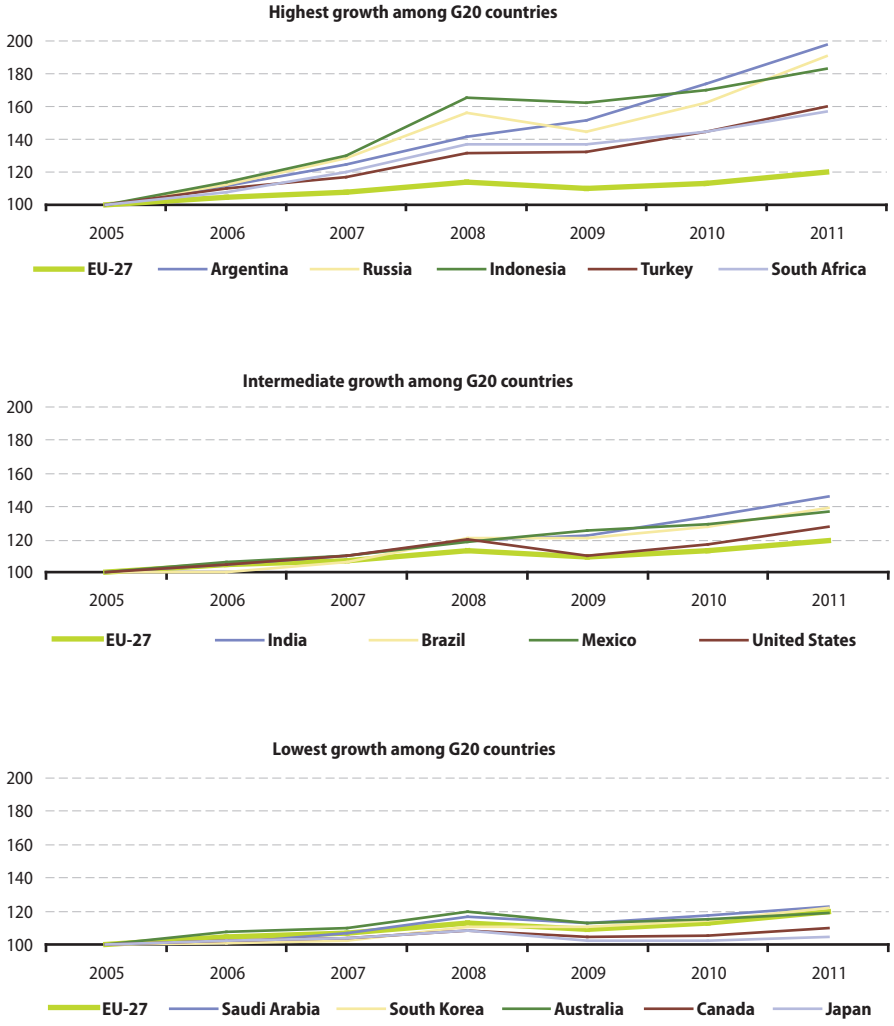
Figure 7.1: Industrial production index, 2005-2011 (1)
(2005=100)



(1) The EU-27 series is shown in all three figures for the purpose of comparison.
(2) Covers manufacturing instead of industry.

Source: Eurostat (online data code: sts_inpr_a) and the International Monetary Fund (International Financial Statistics)

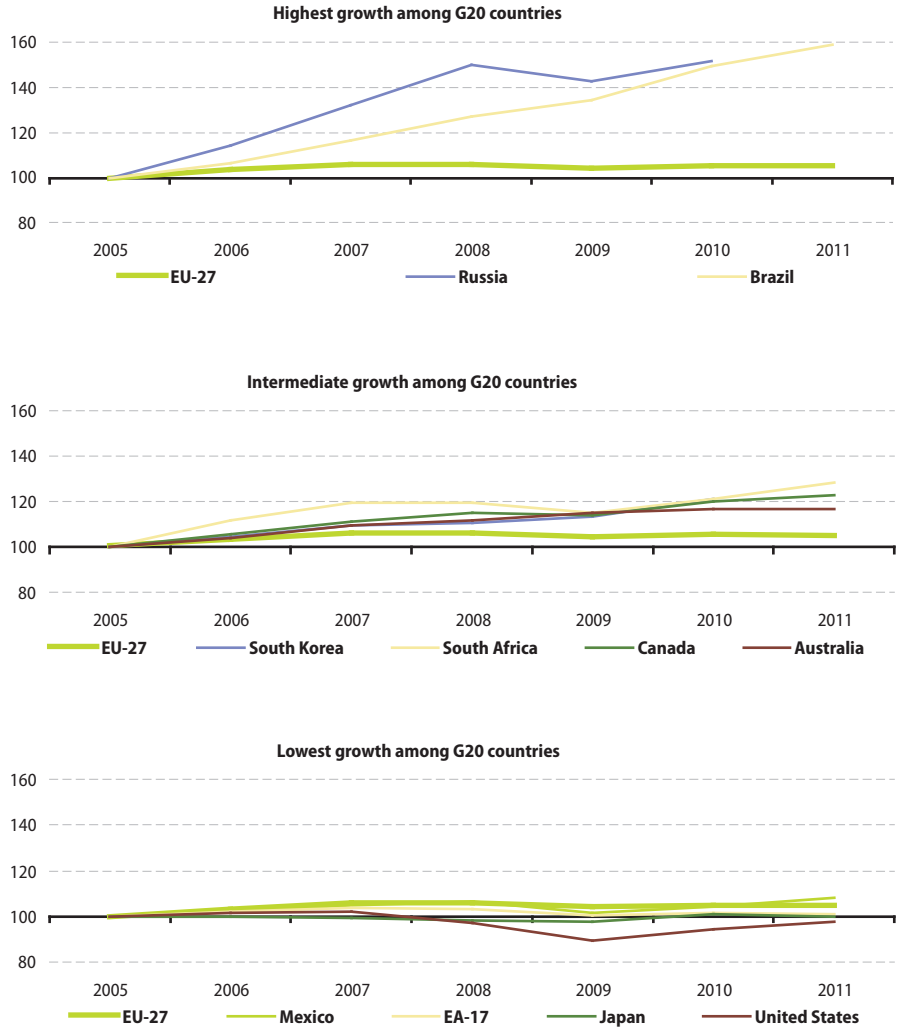
Figure 7.2: Industrial producer price index, 2005-2011 (1)
(2005=100)



(1) The EU-27 series is shown in all three figures for the purpose of comparison.

Source: Eurostat (online data code: sts_inpp_a) and the International Monetary Fund (International Financial Statistics)

Figure 7.3: Volume of retail sales index, 2005-2011 (1)
(2005=100)



(1) The EU-27 series is shown in all three figures for the purpose of comparison.

Source: Eurostat (online data code: sts_trtu_a) and the International Monetary Fund (International Financial Statistics)

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 Tables 7.1 and 7.2 focuses on manufacturing divisions: for the EU-27 the dataset used was composed of the 24 manufacturing divisions of the NACE Rev. 2 classification (for the purpose of analysis in Table 7.1 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 South Korea, food and beverages manufacturing was one of the three largest manufacturing divisions (in value added terms) in all G20 members (see Table 7.1), and in several G20 members it was the largest of all manufacturing activities. The manufacture of basic metals, chemicals and motor vehicles as well as fuel processing (mainly refining and coking) were also activities that frequently figured in the top three manufacturing divisions. Somewhat less common was machinery manufacturing which was one of the three largest manufacturing activities in Japan, the EU-27 and the United States, while metal products manufacturing figured in third place in the EU-27 and the manufacture of radio, television

Table 7.1: Largest manufacturing activities, based on value added, 2009 ([1])

(% share of manufacturing)

	Largest activity		Second largest		Third largest	
EU-27	Food & beverages	11.7	Machinery	10.7	Metal products	9.8
Argentina	:	:	:	:	:	:
Australia	:	:	:	:	:	:
Brazil ([2])	Food & beverages	17.5	Fuel processing	11.5	Chemicals	11.2
Canada ([3])	Food & beverages	13.9	Basic metals	8.5	Chemicals	8.1
China ([2])	Basic metals	14.3	Chemicals	10.8	Food & beverages	8.8
India ([3])	Chemicals	15.5	Basic metals	14.4	Fuel processing	13.0
Indonesia	Food & beverages	17.7	Chemicals	17.2	Motor vehicles	7.4
Japan ([2])	Motor vehicles	14.3	Machinery	12.9	Food & beverages	10.3
Mexico ([2])	Food & beverages	24.4	Fuel processing	17.4	Motor vehicles	13.6
Russia	Food & beverages	19.5	Fuel processing	17.8	Basic metals	12.3
Saudi Arabia	:	:	:	:	:	:
South Africa ([4])	Fuel processing	20.0	Food & beverages	19.0	Basic metals	10.6
South Korea ([3])	Radio, TV & comm.	20.2	Motor vehicles	10.2	Basic metals	9.1
Turkey ([3])	Basic metals	11.9	Food & beverages	10.3	Motor vehicles	8.4
United States ([3])	Chemicals	16.2	Food & beverages	13.3	Machinery	9.1

([1]) EU-27 data based on 24 divisions of the NACE Rev. 2 classification; data for other countries based on 23 divisions of the ISIC Rev.3 classification.
([2]) 2007.
([3]) 2008.
([4]) Food and beverages manufacturing includes also tobacco manufacturing; fuel processing includes also chemicals and chemical products manufacturing.

Detailed notes.

EU-27:	includes 2008 data for food and beverages and basic metals manufacturing.
Canada:	excluding 1514, 1532, 1542, 1543, 16, 221, 231, 233, 2693, 2696, 2914, 2921, 2923, 2925, 2926, 2927, 3313, 332, 333, 3592, 3599, 3692 and 37.
China:	excluding 221 and 233.
India:	includes 2007 data for 313; excluding 221, 233 and 37.
Japan:	excluding 221, 30 and 372.
Mexico:	excluding 182, 221, 223, 231, 233, 273, 333, 353 and 37.
Russia:	excluding 233, 311, 32, 343, 351, 353, 359.
South Africa:	excluding 243 and 30.
South Korea:	excluding 221, 233, 313 and 37.
United States:	includes 2007 data for 182 and 231; excluding 221, 233 and 37.

Source: Eurostat (online data code: sbs_na_ind_r2) and the United Nations (Indstat)

and communication equipment was the largest manufacturing division in South Korea. The cumulative share of manufacturing valued added generated by the three largest manufacturing divisions ranged from 31 % in Canada and Turkey to 55 % in Mexico.

The most specialised G20 member for a particular manufacturing activity is the one where that activity's share in the non-financial business economy is highest, regardless of the size of the economy or the activity concerned. There are many reasons why a country or region specialises in a particular activity; these are varied and include the availability of natural resources (for example, for mineral and forest-based manufacturing), the availability of skilled employees, costs, infrastructure, legislation and the proximity to markets. Table 7.2 shows which G20 country outside of the EU-27 was the most specialised for each of the manufacturing divisions and compares the share of that activity in total manufacturing value added in the most specialised G20 country with the share for the EU-27. Compared with the most specialised G20 countries, the EU-27 was relatively specialised in publishing, printing and reproduction of recorded media and fabricated metal products, while it was relatively unspecialised in fuel processing, the manufacture of tobacco products and the manufacture of radio, television and communication equipment.

Table 7.2: Most specialised country in each manufacturing division, based on value added share within manufacturing, 2007 to 2009

(% share of manufacturing value added total)

ISIC Rev.3 code and label	Most specialised G20 country outside of the EU and the activity's share in manufacturing in that country (1)		EU-27 (2)
	Country	Share (%)	Share (%)
15 Food products and beverages	Mexico	24.4	11.0
16 Tobacco products	Indonesia	5.1	0.5
17 Textiles	Turkey	8.2	*1.7*
18 Wearing apparel; dressing and dyeing of fur	United States	6.3	*1.3*
19 Leather and leather products	Indonesia	1.7	0.7
20 Wood and wood products	Canada	4.0	*2.3*
21 Paper and paper products	Indonesia	6.1	*2.3*
22 Publishing, printing and reproduction of recorded media	Canada	3.3	*5.5*
23 Fuel processing: coke, refined petroleum products and nuclear fuel (3)	Russia	17.8	1.6
24 Chemicals and chemical products	Mexico	17.4	10.7
25 Rubber and plastics products	Japan	5.4	4.6
26 Other non-metallic mineral products	India	7.0	4.7
27 Basic metals	India	14.4	4.9
28 Fabricated metal products	United States	7.7	9.8
29 Machinery and equipment	Japan	12.9	11.6
30 Office, accounting and computing machinery	China	2.2	*0.6*
31 Electrical machinery and apparatus	China	4.8	*4.7*
32 Radio, television and communication equipment and apparatus	South Korea	20.2	2.9
33 Medical, precision and optical instruments, watches and clocks	United States	7.0	*3.3*
34 Motor vehicles, trailers and semi-trailers	Japan	14.3	8.6
35 Other transport equipment	South Korea	6.5	*3.1*
36 Furniture; other manufacturing	South Africa	8.1	3.2
37 Recycling	Russia	0.6	*0.5*

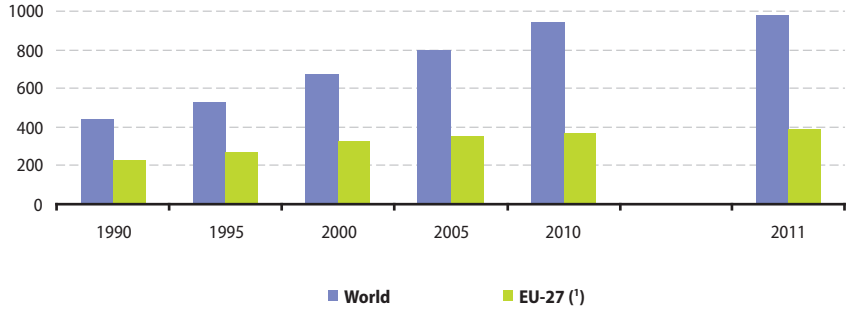
(1) Argentina, Australia or Saudi Arabia, not available; see Table 7.1 for list of latest reference years and exclusions.
(2) EU-27 data are for 2007 and based on NACE Rev. 1.1 (directly comparable at the division level with ISIC Rev.3).
(3) South Africa's combined share for Divisions 23 and 24 is 20.0 %.

Source: Eurostat (online data code: ebd_all) and the United Nations (Indstat)

In 2011 there were around 983 million international tourist arrivals worldwide, among which 385 million were in the EU-27. The number of international tourist arrivals in the EU-27 increased by 155 million between 1990 and 2011, but the EU-27's share of worldwide tourist arrivals dropped from 52.9 % to 39.2 % over the same period. It should be noted that the EU-27 total includes arrivals in EU Member States of international tourists from other EU Member States; approximately 70 % of arrivals in EU-27 Member States in 2010 came from other EU Member States – an extended analysis is provided in Figure 7.5.

Figure 7.4: International tourist arrivals, 1990-2011

(million)

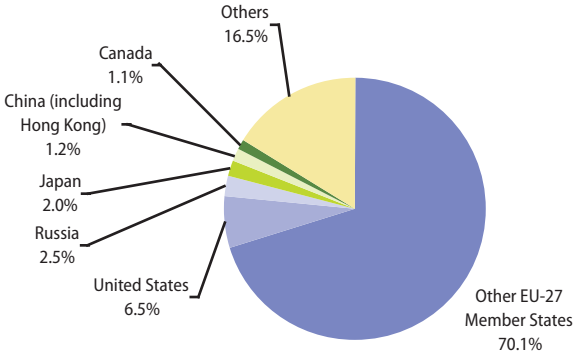


(1) Includes intra-EU arrivals; data relate to international tourist arrivals at frontiers (excluding same-day visitors), other than for Germany, Luxembourg, the Netherlands, Austria, Portugal, Romania, Slovenia, Slovakia and Sweden, where the data relate to international tourist arrivals at collective tourism establishments.

Source: the United Nations World Tourism Organisation (Tourism highlights, 2012)

Figure 7.5: Non-resident arrivals in tourist accommodation establishments within the EU-27 Member States, selected countries, 2010 (1)

(% of total)



(1) The United Kingdom, 2009; excluding Ireland and the Netherlands.

Source: Eurostat (online data code: tour_occ_arnraw)

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 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 7.3 it can be seen that international tourists from the United States spent considerably less abroad (EUR 56.8 billion) in 2011 than international tourists spent in the United States (EUR 83.5 billion). A similar surplus of receipts over expenditure was recorded in France, Italy, Australia and India. By contrast, tourists from Germany spent more than twice as much abroad (EUR 60.6 billion) as international tourists spent in Germany (EUR 27.9 billion). In fact, tourists from Germany spent more abroad than international tourists from any other G20 member (for which data are available).

The short time series presented in Table 7.3 shows that expenditure by international tourists from Brazil and China more than doubled between 2008 and 2011 and there were also large increases recorded for tourists from India and Russia. India, Australia and South Korea recorded relatively large increases in international tourism receipts between 2008 and 2011.

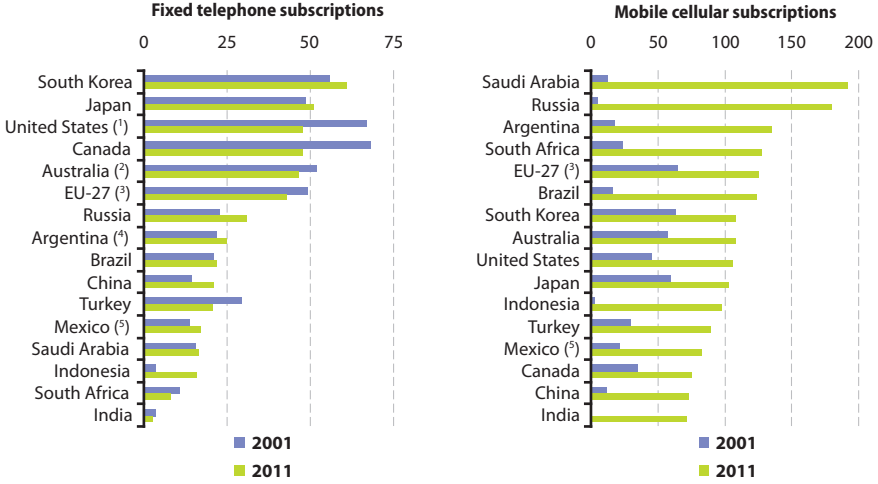
Table 7.3: International tourism expenditure and receipts, 2008-2011

(EUR billion)

	Expenditure				Receipts			
	2008	2009	2010	2011	2008	2009	2010	2011
EU-27	:	:	:	:	:	:	252.7	271.2
Germany	61.9	58.2	58.9	60.6	27.1	24.8	26.2	27.9
France	27.9	27.5	29.1	29.9	38.5	35.5	35.1	43.0
Italy	20.9	20.0	20.4	20.7	31.1	28.9	29.3	30.9
United Kingdom	46.6	36.0	37.7	36.3	24.5	21.6	24.4	25.8
Argentina	:	:	:	:	:	2.8	3.7	3.8
Australia	12.5	12.6	16.7	19.3	16.8	18.2	22.5	22.6
Brazil	7.5	7.8	12.4	15.3	:	3.8	4.3	4.7
Canada	18.5	17.3	22.3	23.7	10.7	9.8	11.9	12.2
China	24.6	31.3	41.4	52.2	27.8	28.4	34.6	34.8
India	6.5	6.7	8.0	9.9	8.0	8.0	10.7	12.6
Indonesia	:	:	:	:	:	4.0	5.2	5.7
Japan	19.0	18.0	21.0	19.5	:	7.4	10.0	7.9
Mexico	:	:	:	:	9.0	8.1	8.9	8.4
Russia	16.2	15.0	20.1	23.3	8.1	6.7	6.7	8.2
Saudi Arabia	10.3	14.6	15.9	13.0	:	4.3	5.1	6.1
South Africa	:	:	:	:	:	5.4	6.8	6.9
South Korea	13.0	10.8	14.2	14.0	6.6	7.0	7.8	8.8
Turkey	:	:	:	:	14.9	15.2	15.7	16.5
United States	54.7	53.1	57.0	56.8	75.1	67.5	78.1	83.5
World	:	:	:	:	:	:	699.0	740.0

Source: the United Nations World Tourism Organisation (World tourism barometer and Tourism highlights, 2012)

Figure 7.6: Telephone subscriptions, 2001 and 2011
(number per 100 inhabitants)



(1) 2001, local loops. (2) 2001, excludes ISDN. (3) Data for 2009 instead of 2011. (4) 2001, only refers to Telefónica de Argentina S.A. and Telecom Argentina S.A. (5) 2011, preliminary.

Source: Eurostat (online data code: isoc_tc_ac2) and the International Telecommunication Union

Table 7.4: ICT access and usage, 2001, 2006 and 2011
(% or per 100 inhabitants)

	Individuals using the internet (% of total)			Fixed broadband subscriptions (per 100 inhabitants)		
	2001	2006	2011	2001	2006	2011
EU-27 (1)(2)	:	55.0	73.0	1.3	16.5	*27.2*
Argentina	9.8	20.9	47.7	0.3	4.1	10.5
Australia (3)	52.7	66.0	79.0	0.6	18.8	23.9
Brazil (4)	4.5	*28.2*	45.0	0.2	2.5	8.6
Canada (5)	60.2	*72.4*	83.0	9.2	24.7	32.0
China (6)	2.6	10.5	38.3	0.0	3.9	11.6
India	0.7	2.8	*10.1*	0.0	0.2	1.0
Indonesia	2.0	4.8	18.0	0.0	0.1	*1.1*
Japan (7)	38.5	68.7	79.5	3.0	20.9	27.4
Mexico	7.0	*19.5*	*36.2*	0.0	2.8	*10.6*
Russia	2.9	18.0	49.0	0.0	2.0	12.2
Saudi Arabia	4.7	19.5	47.5	0.1	0.9	5.7
South Africa (8)	6.3	7.6	21.0	0.0	0.7	1.8
South Korea (9)	56.6	78.1	83.8	16.9	29.7	36.9
Turkey (10)	5.2	*18.2*	42.1	0.0	4.0	10.3
United States	49.1	68.9	77.9	4.5	20.1	28.7

(1) Use of the internet, persons aged 16 to 74. (2) Broadband subscriptions, based on sum of data for 27 EU Member States. (3) Use of the internet, 2006 and 2011, persons aged 15 or more. (4) Use of the internet, 2006 and 2011, persons aged 10 or more; use of the internet, 2011, use within three months prior to the survey. (5) Use of the internet, 2006, persons aged 16 or more. (6) Use of the internet, 2006, persons aged 6 or more, online at least one hour per week. (7) Use of the internet, 2001, PC based only; use of the internet, 2006, persons aged 6 or more. (8) Broadband subscriptions, data for 2002 instead of 2001. (9) Use of the internet, persons aged 3 or more; use of the internet, 2001, use within the month prior to the survey. (10) Use of the internet, 2001, persons aged 16 to 74.

Source: Eurostat (online data code: isoc_ci_eu_i) and the International Telecommunication Union

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. While the number of fixed telephone subscriptions relative to the size of the population increased between 2001 and 2011 in some of the G20 members, notably Indonesia, it was mobile subscriptions where the largest increases were generally recorded – see Figure 7.6. By 2011 several G20 members registered more mobile subscriptions than inhabitants (indicating that some users had more than one subscription), with the highest ratio of subscriptions to inhabitants in Saudi Arabia.

Table 7.4 shows that there was also widespread growth between 2001 and 2011 in the use of the internet, even among G20 members with already high usage in 2001. By 2011 Canada and South Korea topped the ranking of internet use, with more than four in every five inhabitants online, with Japan, Australia and the United States just below this level. 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 South Africa, Indonesia and India this ratio was below 2 subscriptions per 100 inhabitants.

Table 7.5 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 7.5: ICT access and usage, enterprises, 2009

(% of enterprises)

	Proportion of enterprises:		
	using the internet	with a web presence	receiving orders over the internet
EU-27 (1)	95.0	69.0	13.0
Argentina	:	:	:
Australia (2)	87.0	36.0	24.0
Brazil (3)	92.7	52.8	40.8
Canada (2)	94.9	69.7	13.1
China	:	:	:
Hong Kong	60.6	20.0	1.5
Macao (2)	35.8	:	10.0
India	:	:	:
Indonesia	:	:	:
Japan (4)	99.6	91.6	23.3
Mexico	:	:	:
Russia (5)	76.2	25.3	11.8
Saudi Arabia	:	:	:
South Africa	:	:	:
South Korea (5)	48.7	12.3	2.0
Turkey	88.8	52.2	9.1
United States	:	:	:

(1) Data for 2011 instead of 2009; 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) 2007.
(3) Enterprises with more than 9 employees.
(4) Sample results.
(5) 2008.

Source: Eurostat (online data codes: isoc_ci_eu_en2 and isoc_ec_eseln2) and the United Nations Conference on Trade and Development (Unctadstat: core indicators on ICT use by business)

8 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. Among the many issues of importance are 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-27 reached 420.8 million m^3 in 2010, making the EU-27 the largest producer within the G20 – see Table 8.1. Forest cover within the EU extended to 156.9 million hectares in 2009, around 37.7 % of all land area.

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 in the EU-27 was 5.1 million tonnes in 2009, about one quarter less than in 2000 – see Table 8.2. The largest fish catch among G20 members in 2010 was reported for China, around three times the level for the EU-27. Aquaculture production in the EU-27 was 1.3 million tonnes in 2009, similar in size to the production in South Korea, but far behind that of China, Indonesia and India. Relative to population size, the EU-27's combined fish catch and aquaculture production was 12.7 kg per inhabitant in 2009, a relatively low level compared with most G20 members.

Table 8.1: Production of roundwood and sawnwood, 2000-2010 (1)

(1 000 m^3)

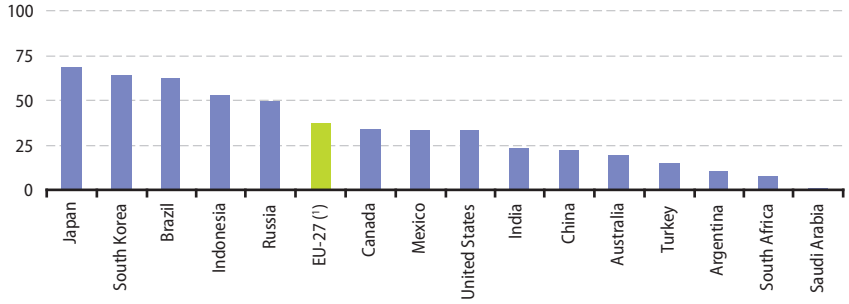
	Roundwood			Sawnwood		
	2000	2005	2010	2000	2005	2010
EU-27 (2)	*408 095*	443 484	420 794	*100 064*	*108 082*	*100 374*
Argentina	9 970	14 218	14 410	821	1 739	2 151
Australia	31 181	31 933	29 788	4 093	4 687	5 094
Brazil	235 402	255 743	271 501	21 600	23 557	25 080
Canada	201 845	203 121	132 461	50 465	60 187	38 667
China	323 646	302 037	291 251	7 104	18 398	37 685
India	296 141	328 677	332 499	7 900	14 789	14 789
Indonesia	137 830	123 791	113 849	6 500	4 330	4 169
Japan	18 121	16 276	17 281	17 094	12 825	9 415
Mexico	45 666	44 629	45 686	3 110	2 674	3 615
Russia	158 100	185 000	173 000	20 000	23 913	28 312
Saudi Arabia	179	213	247	:	:	:
South Africa	30 959	34 564	30 888	1 498	2 217	1 876
South Korea	4 041	4 815	5 653	4 544	4 366	3 798
Turkey	15 939	16 185	20 554	5 528	6 445	6 243
United States	466 549	467 347	340 655	91 076	97 020	58 645

(1) May include estimates.
(2) 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 8.1: Forest as a share of land area, 2009

(%)



(1) 2010; includes data for surface area instead of land area for some EU Member States; excluding French overseas departments and territories.

Source: Eurostat (online data code: for_area) and the Food and Agriculture Organisation of the United Nations (FAOSTAT: Resources)

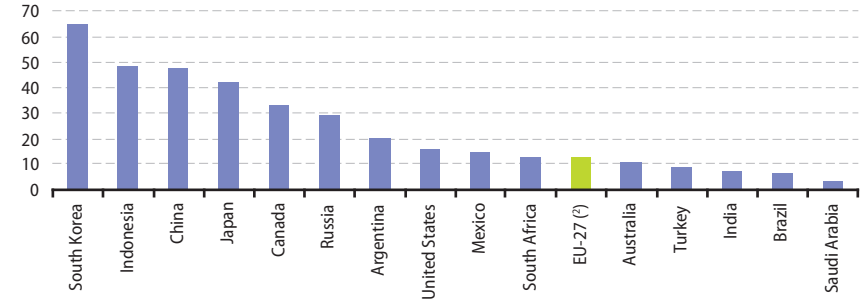
Table 8.2: Fish catches and aquaculture production, 2000-2010
(tonnes)

	Total catches			Aquaculture production		
	2000	2005	2010	2000	2005	2010
EU-27 (1)	6 789 271	5 641 307	5 067 891	1 398 507	1 260 590	1 299 635
Argentina	921 800	929 937	811 749	1 784	2 430	2 665
Australia	204 248	250 853	173 545	31 746	42 787	69 581
Brazil	666 846	750 261	785 369	172 450	257 784	480 129
Canada	1 032 686	1 145 624	965 254	127 665	154 587	160 924
China	*14 823 866*	*14 850 730*	15 665 587	*28 460 190*	*37 615 311*	47 829 610
India	3 726 427	3 691 364	4 694 970	1 942 531	2 973 126	4 653 093
Indonesia	4 124 328	4 703 927	5 384 418	993 727	2 124 093	6 277 924
Japan	5 193 558	4 419 008	*4 141 312*	1 291 735	1 254 143	1 151 080
Mexico	1 349 770	1 325 771	1 525 665	53 918	133 131	126 240
Russia	4 027 370	3 207 824	4 075 541	77 132	114 997	120 998
Saudi Arabia	49 080	60 421	65 142	6 004	14 375	26 374
South Africa	664 095	824 285	636 927	2 819	5 895	5 148
South Korea	1 838 018	1 661 370	1 745 971	667 883	1 057 725	1 377 233
Turkey	503 352	426 496	485 939	79 031	119 567	167 721
United States	4 760 000	4 961 267	4 378 684	456 830	513 794	495 499

(1) Data for 2009 instead of 2010.

Source: Eurostat (online data codes: tag00075 and tag00076) and the Food and Agriculture Organisation of the United Nations (FishStatJ)

Figure 8.2: Production (fish catch and aquaculture) per inhabitant, 2010 (1)
(kg per inhabitant)

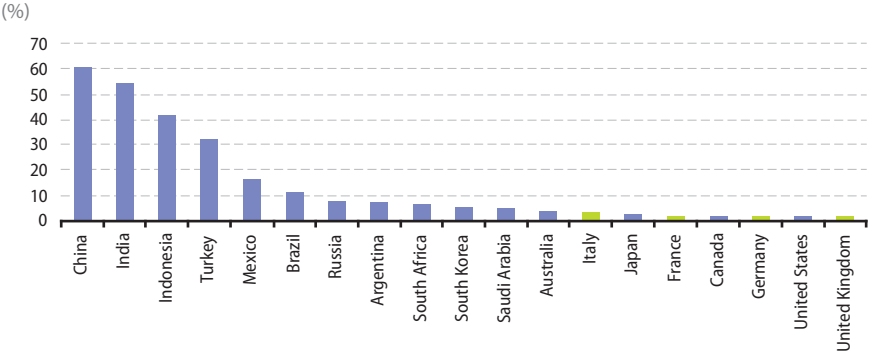


(1) Includes estimates.
(2) 2009.

Source: Eurostat (online data codes: tag00075 and tag00076), the Food and Agriculture Organisation of the United Nations (FishStatJ and FAOSTAT: Population) and the United Nations Department of Economic and Social Affairs (Demographic statistics)

Less than one tenth of the labour force were active in agriculture, hunting, fishing and forestry in most G20 members in 2010, although this share rose to more than two fifths in Indonesia, more than one half in India, and reached three fifths in China. Among the four EU Member States that are members of the G20, the share of the labour force active in agriculture, hunting, fishing and forestry ranged from 1.5 % in the United Kingdom to 3.3 % in Italy — according to data from the United Nations' Food and Agricultural Organisation.

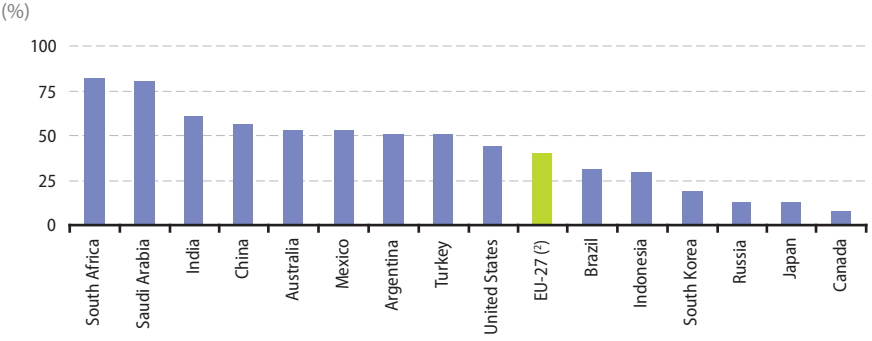
Figure 8.3: Share of economically active population in agriculture, 2010 (1)



(1) The economically active population in agriculture is the population engaged in or seeking work in agriculture, hunting, fishing or forestry; all values presented here are based on estimates of the FAO.

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

Figure 8.4: Agricultural area as share of land area, 2009 (1)



(1) Estimates.
(2) 2007, includes data for surface area instead of land area for some EU Member States.

Source: Eurostat (online data codes: demo_r_d3area and ef_lu_ovcropaa) and the Food and Agriculture Organisation of the United Nations (FAOSTAT: Resources)

The agricultural area of the EU-27 was 172.5 million hectares in 2007, approximately 10 % more than the forest area: the share of land area used for agriculture (shown in Figure 8.4) can be compared with the similar analysis for forests (see Figure 8.1). Around two fifths of the land area in the EU-27 in 2009 was used for agriculture, around half the share that was used in South Africa and Saudi Arabia. Among the G20 members the most extensive agricultural areas were recorded for China, Australia and the United States, all with more than 400 million hectares.

Around one tenth of the agricultural land in the EU-27 was equipped for irrigation in 2007. 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. Among the G20 members the highest proportion of agricultural area equipped for irrigation was recorded in Japan, followed by South Korea and India. The EU-27, South Korea and Russia all recorded a fall in their share of agricultural area equipped for irrigation between 1999 and 2009 (2007 for the EU-27), whereas the largest increases in percentage point terms were in Japan and India.

The organic area includes land fully converted to organic farming and areas under conversion; organic farming places the highest emphasis on environmental and wildlife protection and animal welfare considerations. The organic area reached 3.1 % of the total agricultural area in the EU-27 (2007 data), a share comparable with the share recorded in 2009 for Argentina and Australia among the G20 members.

Table 8.3: Agricultural area, 1999 and 2009

	Agricultural area (1 000 hectares)		Agricultural area (% of land area)		Area equipped for irrigation (% of agricultural area)		Organic area (% of agricultural area)
	1999	2009	1999	2009	1999	2009	2009
EU-27 (1)	172 794	172 485	*40.1*	*40.1*	10.6	9.8	3.1
Argentina	*128 680*	*140 500*	*47.0*	*51.3*	*1.2*	*1.2*	*3.1*
Australia	453 729	409 029	59.1	53.2	0.5	*0.6*	2.9
Brazil	*260 759*	*264 500*	*30.8*	*31.3*	*1.2*	*1.7*	:
Canada	*67 723*	*67 600*	*7.4*	*7.4*	*1.1*	*1.3*	*1.0*
China	*532 267*	*524 321*	*57.1*	*56.2*	*10.1*	*12.3*	:
India	180 950	179 963	60.9	*60.5*	*32.6*	*37.1*	0.7
Indonesia	*43 923*	*53 600*	*24.2*	*29.6*	*12.0*	*12.5*	*0.1*
Japan	5 271	4 609	*14.5*	*12.6*	50.4	54.4	0.2
Mexico	*106 300*	*102 833*	*54.7*	52.9	*5.9*	*6.1*	*0.3*
Russia	*216 790*	*215 561*	*13.2*	*13.2*	*2.1*	*2.0*	:
Saudi Arabia	*173 785*	*173 435*	*80.8*	*80.7*	*1.0*	*1.0*	*0.0*
South Africa	99 640	*99 228*	82.0	*81.7*	1.5	*1.5*	*0.1*
South Korea	1 954	*1 854*	19.8	*19.1*	44.9	*43.5*	:
Turkey	*40 302*	38 911	*52.4*	*50.6*	*11.2*	*13.4*	*1.3*
United States	*413 887*	*403 451*	*45.2*	*44.1*	*5.5*	*5.7*	:

(1) Data for 2003 instead of 1999; data for 2007 instead of 2009; includes data for surface area instead of land area for some EU Member States; area equipped for irrigation, excluding Germany and Estonia.

Source: Eurostat (online data codes: demo_r_d3area, ef_lu_ovcropaa, ef_ov_lusum and ef_mporganic) and the Food and Agriculture Organisation of the United Nations (FAOSTAT: Resources)

The production of a range of different vegetables across the G20 members for 2010 is presented in Table 8.4. Four G20 members together produced more than three quarters of the production of cereals among the G20 members in 2010, with production in China approaching 500 million tonnes – see Figure 8.5. More than half of the total meat production in Argentina and Australia

Table 8.4: Production of selected vegetables, 2010

(1 000 tonnes)

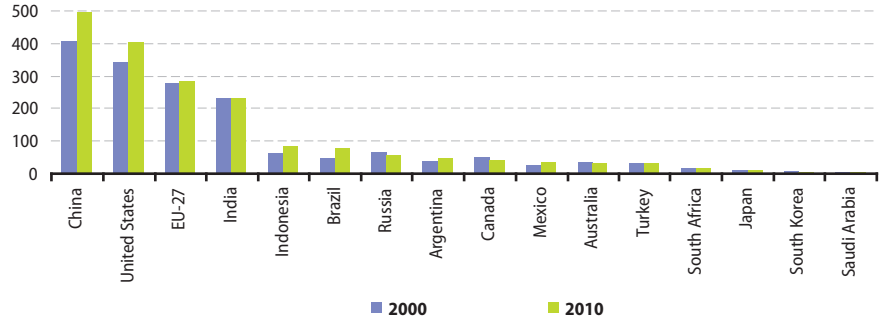
	Asparagus	Green beans	Carrots and turnips	Cucumbers and gherkins	Egg-plant (aubergines)	Lettuce and chicory	Onions	Peas	Spinach	Tomatoes
EU-27 (1)	271	1 006	5 068	2 484	754	3 360	6 137	658	550	15 711
Argentina	*9*	*4*	*224*	:	:	:	:	*26*	:	*698*
Australia	*7*	*28*	267	*12*	:	*166*	:	*42*	*9*	472
Brazil	:	:	:	:	:	:	:	:	:	3 691
Canada	6	47	414	52	:	80	:	43	6	493
China	*6 969*	*13 034*	*15 899*	*40 710*	*24 502*	*12 575*	*838*	*8 982*	*16 025*	*41 880*
India	:	*582*	*485*	*152*	10 563	*999*	:	3 029	:	11 980
Indonesia	:	*885*	408	547	482	:	:	:	152	892
Japan	*30*	45	*620*	588	330	538	*544*	26	269	691
Mexico	75	*104*	346	477	62	341	*82*	*53*	14	2 998
Russia	:	:	1 303	1 162	:	:	:	56	:	*2 000*
Saudi Arabia	:	:	*47*	*381*	*56*	:	:	:	:	*490*
South Africa	1	24	142	21	:	38	:	12	:	544
South Korea	:	:	102	306	*5*	*122*	417	:	88	325
Turkey	0	588	533	1 739	847	358	165	90	218	10 052
United States	36	53	1 324	883	*64*	3 955	:	325	355	12 902

(1) Excluding Ireland; data for most EU Member States from 2011, some data from 2010 or earlier years; beans and peas, excluding the United Kingdom; gherkins, excluding Belgium; chicory, excluding Germany; onions, excluding Sweden; shallots, excluding several EU Member States; no recent data for turnips.

Source: Eurostat (online data code: apro_cpp_fruveg) and the Food and Agriculture Organisation of the United Nations (FAOSTAT: Production)

Figure 8.5: Production of cereals, 2000 and 2010 (1)

(million tonnes)



(1) May include estimates.

Source: Eurostat (online data code: apro_cpp_crop) and the Food and Agriculture Organisation of the United Nations (FAOSTAT: Production)

was cattle meat, while similar levels of specialisation were recorded in China, South Korea and the EU-27 for pig meat, and in Saudi Arabia, Turkey, Indonesia, Brazil, South Africa and India for poultry meat. The EU-27 had the largest production of cows' milk among G20 members in 2010 and the third highest ratio of production per inhabitant (see Figure 8.6).

Table 8.5: Meat and milk production, 2010

(1 000 tonnes)

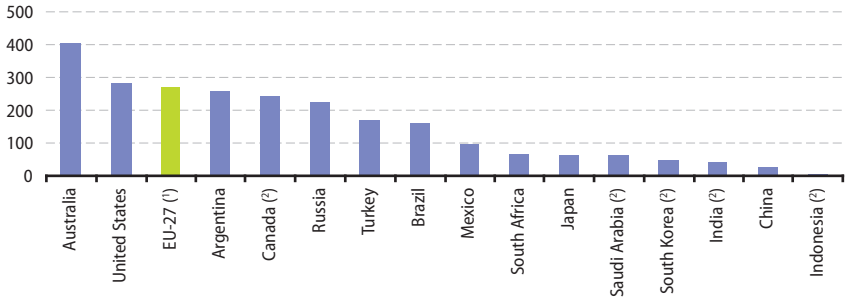
	Cattle meat	Pig meat	Poultry meat (1)	Sheep and goat meat (1)	Cows milk
EU-27 (2)	7 844	22 388	12 385	790	136 273
Argentina	2 630	281	1 643	55	10 502
Australia	2 108	336	923	581	9 023
Brazil	6 977	3 078	11 142	111	31 668
Canada	1 272	1 926	1 216	16	*8 243*
China	*6 236*	51 677	16 987	3 943	36 036
India	1 087	333	2 338	876	*50 300*
Indonesia	*421*	637	1 678	131	*913*
Japan	513	1 291	1 401	0	7 720
Mexico	1 745	1 175	2 722	99	10 677
Russia	1 711	2 308	2 580	188	31 895
Saudi Arabia	*31*	:	576	82	*1 670*
South Africa	884	*338*	1 478	175	3 233
South Korea	*308*	*1 097*	571	2	*2 103*
Turkey	*322*	*0*	1 459	296	12 480
United States	12 047	10 186	19 584	76	87 461

(1) May include estimates.
(2) Meat production, 2011; cows milk concerns collection and excludes data for Malta.

Source: Eurostat (online data codes: tag00044, tag00042, tag00043, tag00045 and tag00037) and the Food and Agriculture Organisation of the United Nations (FAOSTAT: Production)

Figure 8.6: Milk production per inhabitant, 2010

(kg per inhabitant)



(1) Milk collection; excluding Malta.
(2) Estimates.

Source: Eurostat (online data code: tag00037) and the Food and Agriculture Organisation of the United Nations (FAOSTAT: Production and population).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9 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 9.1. By contrast, the United States reported the second lowest ratio of international trade (average of exports and imports) of goods and services to GDP (15.9 %) in 2011 among the G20 members, higher only than that in Brazil (12.1 %). While trade in goods dominates international trade, trade in services has grown strongly: trade in services was equivalent to 7.0 % or more of GDP in India and Saudi Arabia and reached 8.7 % of GDP in South Korea.

Relative to GDP, Saudi Arabia recorded by far the largest international trade surplus (goods and services combined) in 2011 among the G20 members, its surplus in goods outweighing its services deficit by an amount equivalent to 30.9 % of GDP; Russia (8.7 %) and China (4.0 %, 2010 data) recorded the next largest surpluses. At the other end of the scale, Turkey's goods deficit was nearly five times as large as its services surplus, resulting in an overall deficit equivalent to 9.2 % of GDP, larger (in relative terms) than the deficits recorded for India (5.3 %, 2010 data) and the United States (3.7 %). For goods, the EU-27 recorded a trade deficit that was 1.1 % of its GDP, slightly larger than the 0.9 % of GDP trade surplus recorded for services.

Figure 9.1: Trade integration, 2011 (1)

(% of GDP)

(1) EU-27, extra-EU flows; EA-17, extra-euro area flows; other countries, flows with the rest of the world; estimates and provisional data.
(2) 2010.

Source: Eurostat (online data code: tec00123), the International Monetary Fund (International Financial Statistics), the OECD (Gross domestic product), the United Nations Statistics Division (National Accounts Main Aggregates Database) and national statistics offices

Table 9.1: Trade in goods and services, 2011 (1)

(% of GDP)

	Goods			Services		
	Credits	Debits	Balance	Credits	Debits	Balance
EU-27	12.3	13.4	-1.1	4.6	3.7	0.9
EA-17	18.8	18.8	0.0	5.8	5.2	0.6
Argentina	18.9	15.8	3.0	3.2	3.7	-0.5
Australia (2)	16.7	15.3	1.4	3.8	4.0	-0.2
Brazil	10.3	9.1	1.2	1.6	3.1	-1.5
Canada	26.7	26.5	0.1	4.4	5.8	-1.4
China (2)	27.6	23.1	4.4	3.0	3.4	-0.4
India (2)	13.1	18.8	-5.7	7.2	6.8	0.4
Indonesia	23.8	19.6	4.2	2.4	3.8	-1.4
Japan	13.4	13.8	-0.4	2.5	2.9	-0.4
Mexico	30.4	30.5	-0.1	1.3	2.6	-1.2
Russia	28.1	17.4	10.7	2.9	4.8	-1.9
Saudi Arabia	63.2	20.8	42.4	2.0	13.5	-11.5
South Africa	25.2	24.6	0.6	3.6	4.8	-1.2
South Korea	49.5	46.7	2.8	8.5	8.9	-0.4
Turkey	18.5	30.1	-11.6	5.1	2.7	2.4
United States	10.0	14.9	-4.9	4.0	2.9	1.2

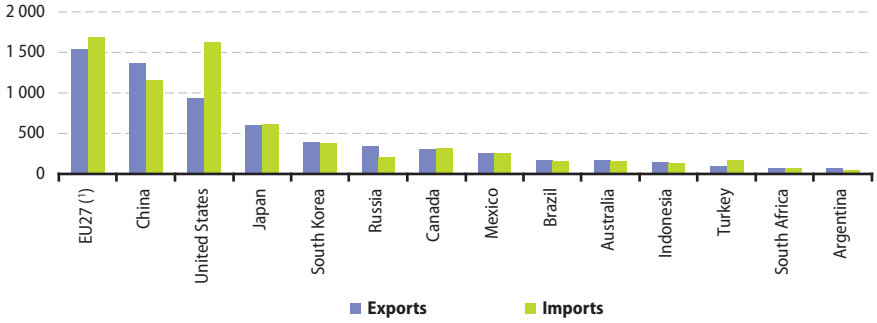
(1) EU-27, extra-EU flows; EA-17, extra-euro area flows; other countries, flows with the rest of the world.
(2) 2010.

Source: Eurostat (online data code: tec00023, tec00044 and tec00045), the International Monetary Fund (International Financial Statistics), the OECD (Gross domestic product), the United Nations Statistics Division (National Accounts Main Aggregates Database) and national statistics offices

In 2007 China overtook the United States to become the second largest exporter of goods among the G20 members, behind the EU-27. Despite the strong growth in Chinese exports, the EU-27's exports of goods in 2011 remained higher – see Figure 9.2. By contrast, Chinese imports of goods were notably lower than imports into either the EU-27 or the United States. Together, the EU-27, China and the United States accounted for 40.0 % of global exports of goods in 2011 and 42.8 % of global imports.

Figure 9.2: Trade in goods, 2011

(EUR billion)



(1) Extra-EU flows.

Source: Eurostat (online data code: ext_lt_introle) and the United Nations (Comtrade)

Table 9.2: EU-27 trade in goods by partner, 2011

(EUR million)

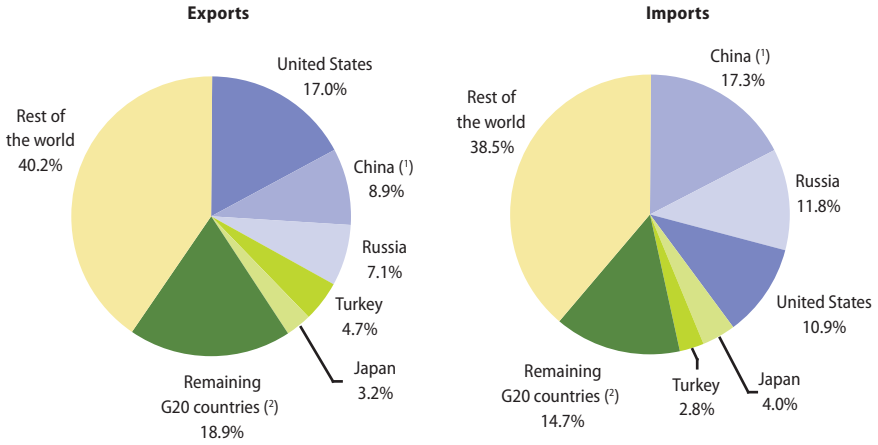
	2001			2011		
	EU-27 exports to partner	EU-27 imports from partner	Balance	EU-27 exports to partner	EU-27 imports from partner	Balance
Argentina	5 099	5 761	-662	8 319	10 673	-2 354
Australia	15 660	9 583	6 078	30 808	11 782	19 026
Brazil	18 570	19 602	-1 032	35 728	37 855	-2 127
Canada	22 391	18 574	3 817	29 618	22 868	6 750
China	30 665	82 000	-51 335	136 230	292 235	-156 004
India	12 950	13 462	-513	40 425	39 394	1 032
Indonesia	4 579	11 610	-7 031	7 348	16 171	-8 824
Japan	45 521	81 134	-35 613	48 961	67 479	-18 518
Mexico	15 336	7 727	7 609	23 816	16 277	7 539
Russia	31 602	65 874	-34 272	108 422	199 287	-90 866
Saudi Arabia	13 507	13 165	342	26 399	28 125	-1 727
South Africa	12 584	16 354	-3 771	25 636	17 773	7 863
South Korea	15 840	23 265	-7 426	32 456	36 115	-3 659
Turkey	21 869	22 085	-215	72 665	47 596	25 069
United States	245 594	203 298	42 297	260 693	184 323	76 370
World (extra-EU-27)	884 707	979 143	-94 436	1 531 929	1 687 732	-155 803

Source: Eurostat (online data code: ext_lt_maineu)

The EU-27 ran a trade deficit for goods equal to EUR 155.8 billion in 2011; this was the second largest deficit among the G20 members, behind that recorded for the United States (EUR 563.8 billion). Table 9.2 shows the flows and balance of trade in goods for the EU-27 with the other G20 members. In 2011 the EU-27 had relatively large trade deficits with China and Russia, while its largest surplus was with the United States. Between 2001 and 2011 the EU-27's goods trade balance with India, South Africa and Turkey developed from a deficit into a surplus, whereas this situation was reversed with Saudi Arabia.

The two parts of Figure 9.3 analyse the importance of the other G20 members for the EU-27's trade in goods. Close to three fifths of all EU-27 exports of goods in 2011 were destined for G20 members, most notably the United States (17.0 % share), China (8.9 %) and Russia (7.1 %); 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 of the EU-27's imports of goods, with China (17.3 %), Russia (11.8 %) and the United States (10.9 %) the main countries of origin; Norway (5.5 %) and Switzerland (5.4 %) provided similar shares of the EU-27's imports.

Figure 9.3: Main G20 trading partners for EU-27 exports and imports of goods, 2011
(% share of extra-EU-27 flows)

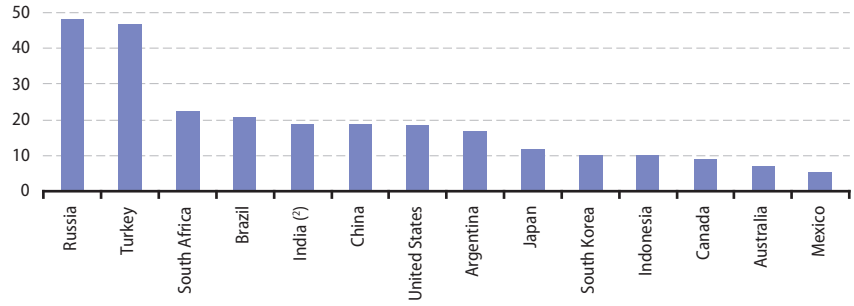


(1) Excluding Hong Kong.
(2) Including Hong Kong.
Source: Eurostat (online data code: ext_lt_maineu)

Figures 9.4 and 9.5 show the reverse situation, namely the importance of the EU-27 as a trading partner for the other G20 members in terms of the trade in goods. Nearly half of all goods exported from Russia and Turkey were destined for the EU-27 in 2011, whereas this was the case for less than one tenth of goods exported from Canada, Australia or Mexico. The EU-27 was the source of more than one fifth of all goods imported into Russia, Turkey, South Africa, Saudi Arabia (2010 data) and Brazil, while the EU-27 supplied less than one tenth of all goods imported into Japan, South Korea and Indonesia.

Figure 9.4: Share of EU-27 as destination for all goods exported, 2011 (1)

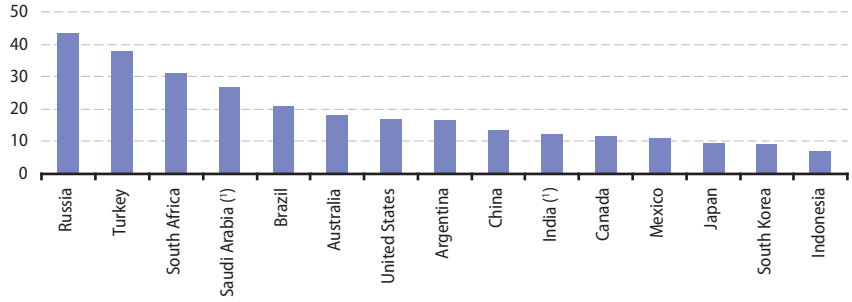
(%)



(1) Saudi Arabia, not available.
(2) 2010.
Source: the United Nations (Comtrade)

Figure 9.5: Share of EU-27 as origin of all goods imported, 2011

(%)



(1) 2010.
Source: the United Nations (Comtrade)

The EU-27 is the world's largest exporter and importer of services with a surplus of EUR 92.4 billion in 2010 and provisional data show that this rose to EUR 109.1 billion in 2011. Although the United States recorded somewhat lower levels of exports and imports of services than the EU-27, its trade surplus for services was higher in 2010, valued at EUR 107.4 billion. Among the other G20 countries, only India and Turkey reported trade surpluses for services, while the largest deficits were registered for Saudi Arabia, Brazil and Russia. Comparing trade flows for 2010 with those for 2000, India, China, Russia and Brazil all reported that exports and imports of services had more than more than doubled (in current price terms).

A relatively high share of the EU-27's trade in services was with the United States in 2010 and 2011 – although exports and imports were broadly in line with each other – resulting in a relatively small deficit in 2010 and small surplus in 2011. With the other G20 members listed in Table 9.4 (note that data is not available for those G20 members that are not shown) the EU-27 had trade surpluses in services; between 2010 and 2011 the surpluses with Brazil, Canada, China, Japan and Russia increased, while the surplus with India contracted but remained positive.

Table 9.3: Trade in services, 2000, 2005 and 2010

(EUR billion)

	Exports			Imports		
	2000	2005	2010	2000	2005	2010
EU-27 (1)	322.9	406.1	546.9	300.3	354.4	454.5
Argentina	5.3	5.3	10.0	10.0	6.1	10.6
Australia	21.5	24.9	35.9	20.5	24.5	38.7
Brazil	10.3	12.9	24.0	18.0	19.6	47.2
Canada	43.5	44.8	52.2	47.7	52.8	68.9
China	32.9	59.8	129.1	39.0	67.4	145.8
India	17.6	32.0	93.8	15.8	26.2	62.4
Indonesia	:	10.4	12.6	:	17.7	19.7
Japan	74.8	88.7	106.6	126.2	107.8	118.8
Mexico	14.9	13.0	11.6	18.8	17.2	19.3
Russia	10.4	20.1	33.4	17.6	31.2	55.5
Saudi Arabia	5.2	9.2	8.1	27.3	26.6	57.9
South Africa (2)	5.5	9.1	8.7	6.3	9.8	11.4
South Korea	34.1	40.0	62.4	36.4	48.0	70.9
Turkey	22.1	21.5	26.0	9.8	9.2	14.8
United States	319.5	296.0	410.5	241.4	242.2	303.1

(1) Extra-EU flows.
(2) Data for 2008 instead of 2010.

Source: Eurostat (online data code: bop_its_ybk) and the United Nations (Service Trade)

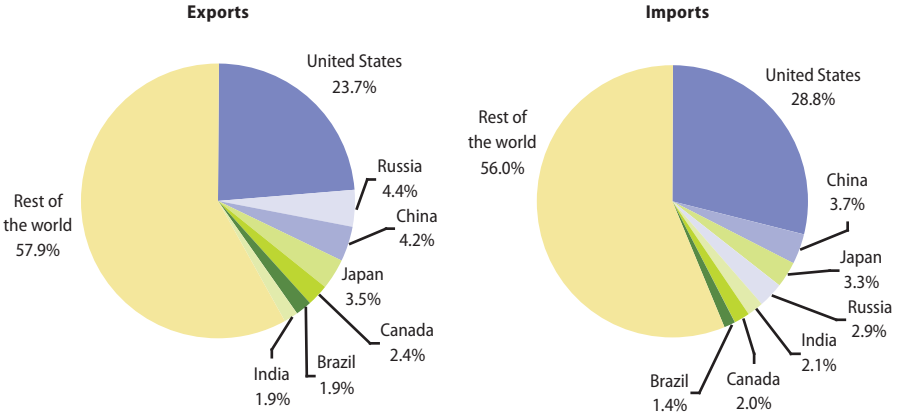
The analysis of the EU-27's trading partners shown in Figure 9.6 for services can be compared with a similar analysis for goods (see Figure 9.3). The importance of the United States as a trading partner for the EU-27 for services is notably higher than it was for goods, whereas the reverse was true for China and Russia. Among countries outside of the G20, Switzerland was an important partner for trade in services as it was the destination for 13.0 % of the EU-27's exports of services and the origin of 11.4 % of the EU-27's imports of services, in both cases a larger share than Russia, China and Japan combined.

Table 9.4: EU-27 trade in services with selected G20 partner countries, 2010 and 2011
(EUR billion)

	2010			2011		
	EU-27 exports to partner	EU-27 imports from partner	Balance	EU-27 exports to partner	EU-27 imports from partner	Balance
Brazil	10.0	5.8	4.3	*11.0*	*6.4*	*4.6*
Canada	13.4	9.4	4.0	*14.1*	*9.3*	*4.7*
China	23.3	16.6	6.6	*24.6*	*17.3*	*7.3*
India	11.0	8.7	2.3	*10.9*	*9.7*	*1.2*
Japan	19.7	15.1	4.6	*20.4*	*15.3*	*5.1*
Russia	23.3	13.7	9.6	*25.4*	*13.6*	*11.8*
United States	132.3	133.2	-0.9	*137.4*	*135.3*	*2.1*
World (extra-EU-27)	546.9	454.5	92.4	*579.5*	*470.4*	*109.1*

Source: Eurostat (online data code: bop_its_ybk)

Figure 9.6: Selected G20 trading partners for EU-27 exports and imports of services, 2011
(% share of extra-EU-27 flows)



Source: Eurostat (online data code: bop_its_ybk)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10 Transport

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. The transport statistics presented in this publication focus 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

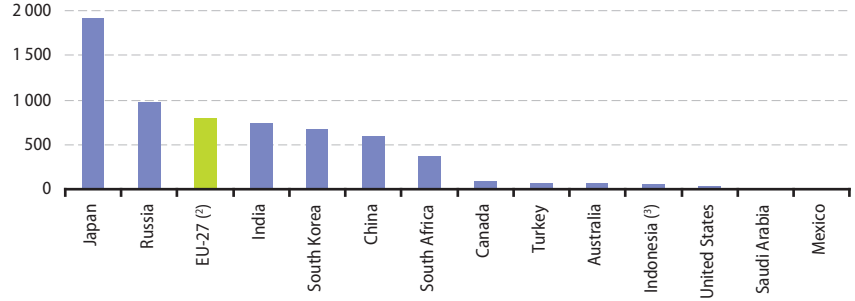
Concerning the use of rail transport (see Figure 10.1 and Table 10.1), the G20 members can be split into several groups depending on the extent to which this mode is used for passenger and/or freight transport. Saudi Arabia, Indonesia and to a lesser extent Turkey had a relatively low use of rail transport in general. In Australia, Canada and the United States, as well as in Mexico to a lesser extent, rail transport was focused mainly on freight transport while passenger transport was dominant in India, Japan and South Korea. A relatively high use of rail transport for both freight and passengers was observed in China, Russia, South Africa and the EU-27.

Comparing 2005 with 2010, large percentage increases in passenger rail services were recorded in Mexico, China and India. Rail freight transport in 2010 was lower than it had been in 2005 in the EU-27 and several other G20 members, reflecting the impact of the financial and economic crisis, while in India and Saudi Arabia its was relatively higher.

The world's maritime fleet (see Table 10.2) increased from 822 million DWT in 2002 to 1 534 million DWT in 2012, equivalent to average growth of 6.4 % per year. During this period the maritime fleets of South Africa, Brazil, Russia and Australia contracted while most other G20 members recorded an expansion, notably in Canada, Argentina, China and South Korea. The EU-27's maritime fleet grew by 4.5 % per year during this ten-year period and remained the largest among the G20 members in 2012. It should be noted that there are several countries outside of the G20 that accounted for a large share of the world maritime fleet in 2012, notably Panama (21.4 %), Liberia (12.4 %) and the Marshall Islands (8.0 %) – all associated with flags of convenience.

Figure 10.1: Rail passenger transport, 2010 (1)

(passenger-km per inhabitant)



(1) Data for some countries may be limited to International Union of Railways (UIC) members; Argentina and Brazil, not available.
(2) 2009, excluding Luxembourg and the Netherlands.
(3) 2008.

Source: Eurostat (online data code: rail_pa_total) and the World Bank (World Development Indicators and Global Development Finance)

Table 10.1: Rail transport indicators, 2005 and 2010 (1)

	Rail passenger transport (passenger-km) (2)			Rail freight transport (tonne-km) (3)		
	million		per inhabitant	million		per inhabitant
	2005	2010	2010	2005	2010	2010
EU-27	357 527	388 037	803	399 896	389 680	777
Argentina	6 979	:	:	12 628	12 025	298
Australia	1 290	1 500	67	46 164	64 172	2 878
Brazil	:	:	:	221 211	267 700	1 373
Canada	2 790	2 875	84	338 661	322 741	9 457
China	583 320	791 158	591	1 934 612	2 451 185	1 832
India	575 702	903 465	738	407 398	600 548	490
Indonesia	25 535	14 344	61	4 698	4 390	19
Japan	239 246	244 235	1 916	21 900	20 432	160
Mexico	73	178	2	54 387	71 136	643
Russia	164 262	139 028	981	1 801 601	2 011 308	14 189
Saudi Arabia	393	337	12	1 192	1 748	64
South Africa	:	18 865	377	108 513	113 342	2 267
South Korea	31 004	33 027	676	10 108	9 452	193
Turkey	5 036	5 491	75	8 939	11 030	152
United States	8 869	9 518	31	2 717 513	2 468 738	7 980

(1) Data for some countries may be limited to International Union of Railways (UIC) members.
(2) EU-27: data for 2005 excluding Bulgaria and the Netherlands; EU-27: data for 2009 instead of 2010 excluding Luxembourg and the Netherlands; Indonesia: data for 2008 instead of 2010.
(3) EU-27: data for 2005 excluding Belgium and Bulgaria; EU-27: data for 2010 excluding Luxembourg; Argentina: data for 2006 instead of 2005; Indonesia and Mexico: data for 2008 instead of 2010.

Source: Eurostat (online data codes: rail_pa_total and rail_go_typeall) and the World Bank (World Development Indicators and Global Development Finance)

The EU plays an important part in international maritime freight transport and this can be seen from Table 10.3. Just over one fifth of the goods loaded and unloaded worldwide in 2010 were handled in EU-27 ports. The weight of maritime freight coming into the EU-27 was around 1.6 times the weight of outward freight, reflecting in part the different types of goods entering and leaving the EU-27 by sea.

Table 10.2: Maritime fleet and ports, 2002, 2010 and 2012

	Maritime fleet size (deadweight tonnage, 1 000 DWT) (1)		Largest port (2010)	
			Name of port and quantity of goods handled (1 000 tonnes)	
	2002	2012		
EU-27	197 032	307 204	Rotterdam	395 763
Argentina	312	818	San Lorenzo-Puerto San Martín	42 694
Australia	2 319	1 815	Port Hedland	198 997
Brazil	5 959	3 360	Tubarão	132 031
Canada	1 309	3 532	Vancouver	118 379
China	24 048	58 195	Shanghai	534 371
India	10 645	16 141	Jawaharlal Nehru (Nhava Sheva)	64 320
Indonesia	:	13 512	Tanjung Priok	39 997
Japan	17 913	23 572	Nagoya	185 703
Mexico	1 180	2 071	Lázaro Cárdenas	29 451
Russia	9 564	7 413	Novorossiysk	81 603
Saudi Arabia	1 386	2 333	Jeddah	49 164
South Africa	359	101	Richards Bay	85 148
South Korea (2)	9 425	19 157	Busan	262 963
Turkey	9 270	9 535	İzmit (Kocaeli)	37 735
United States	11 699	11 997	South Louisiana	214 337
World	822 011	1 534 019	Shanghai	534 371

(1) Deadweight tonnage is the weight measure of a vessel's carrying capacity. It includes cargo, fuel and stores.
(2) Largest port based on revenue tons (1 revenue ton is equal to 1 tonne or 1 cubic metre).

Source: Eurostat (online data code: mar_mg_aa_pwhd), the United Nations Conference on Trade and Development (Maritime transport indicators) and the American association of port authorities (World port rankings)

Table 10.3: Maritime freight transport handled, 2006 to 2010

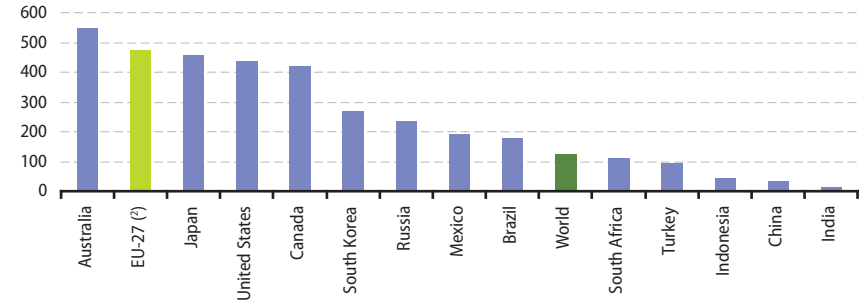
	Weight of goods handled (million tonnes)					(tonnes per inhabitant)
	2006	2007	2008	2009	2010	2010
EU-27						
Total	3 836	3 938	3 919	3 446	3 641	7.3
Inwards	2 437	2 503	2 500	2 135	2 250	4.5
Outwards	1 399	1 434	1 419	1 311	1 391	2.8
World						
Loaded and unloaded	15 579	16 174	16 516	15 690	16 786	2.4

Source: Eurostat (online data code: mar_go_aa) and the United Nations Conference on Trade and Development (Review of maritime transport, 2011)

Among the G20 members, reliance on cars for passenger transport was highest in 2009 in Australia, the EU-27, Japan, the United States and Canada – all of which had more than 400 cars for every 1 000 inhabitants; the lowest ratios were recorded in Indonesia, China and India.

Figure 10.2: Number of passenger cars relative to population, 2009 (1)

(number per 1 000 inhabitants)



(1) Argentina and Saudi Arabia, not available.
(2) Estimate.

Source: Eurostat (online data code: tsdpc340) and the World Bank (World Development Indicators and Global Development Finance)

Table 10.4: Road transport indicators, 2004 and 2009

	Passenger cars (number per 1 000 inhabitants)		Road freight transport (tonne-km) (1)		
			million		per inhabitant
	2004	2009	2004	2009	2009
EU-27	*448*	*473*	1 692 670	1 755 375	3 501
Argentina	:	:	:	:	:
Australia	528	550	162 300	189 847	8 831
Brazil	136	178	:	:	:
Canada	448	420	:	129 600	3 890
China	12	34	784 090	3 718 882	2 793
India	9	12	:	:	:
Indonesia	21	45	:	:	:
Japan	441	454	327 632	334 667	2 624
Mexico	131	191	199 800	211 600	1 889
Russia	168	233	194 000	180 135	1 270
Saudi Arabia	442	:	:	:	:
South Africa	92	110	:	:	:
South Korea	221	267	12 545	12 545	257
Turkey	77	95	156 853	176 455	2 456
United States	466	439	2 116 532	:	:
World	110	125	:	:	:

(1) EU-27, data for 2010 instead of 2009, 2010 data excluding Malta, 2004 data excluding Bulgaria, Romania and Malta; Australia and Canada, data for 2008 instead of 2009; Russia, data for 2005 instead of 2004.

Source: Eurostat (online data codes: tsdpc340 and road_go_ta_tott) and the World Bank (World Development Indicators and Global Development Finance)

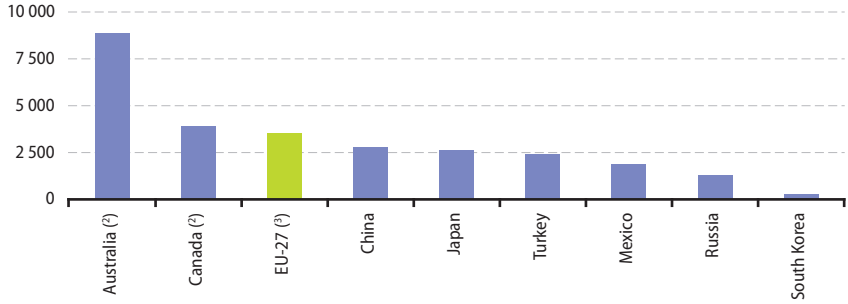
Worldwide, the ratio of passenger cars to population increased from 110 cars per 1 000 inhabitants in 2004 to 125 per 1 000 inhabitants in 2009. This general upward trend was observed in all G20 members except for Canada and the United States where the ratio fell by 28 and by 27 passenger cars per 1 000 persons (-6.2 % and -5.8 % respectively) over the five-year period under consideration. In percentage terms, the fastest growth in the ratio of passenger cars to population was recorded in China and India; ratios for both of these countries more than doubled, reflecting, in part, their low rates in 2004. The number of passenger cars per 1 000 inhabitants increased between 2004 and 2009 by 65 passenger cars in Russia; the next largest absolute increases were recorded in Mexico (an extra 60 passenger cars per 1 000 persons), South Korea (46) and Brazil (42).

The amount 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, 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 2004 with 2009, the most notable development was the increase in the amount of Chinese road freight: this figure almost quintupled (see Table 10.4), increasing at an annual average rate of 36.5 %.

The data available in Tables 10.1 and 10.4 allow a comparison of the relative importance of road and rail freight transport among several G20 members. The quantity of freight (tonne-kilometres) transported by road in Japan and Turkey was approximately 16 times as high as that transported by rail; in the EU-27 the level of road freight transport was about 4.5 times as high as rail freight transport, while in Russia and Canada the volume of rail freight transport exceeded that for road freight.

Figure 10.3: Road freight transport, 2009 (1)

(tonne-km per inhabitant)



(1) Argentina, Brazil, India, Indonesia, Saudi Arabia, South Africa and the United States, not available.
(2) 2008.
(3) 2010; excluding Malta.

Source: Eurostat (online data code: road_go_ta_tott) and the World Bank (World Development Indicators and Global Development Finance)

Table 10.5: Number of air passengers carried, 2007 to 2010

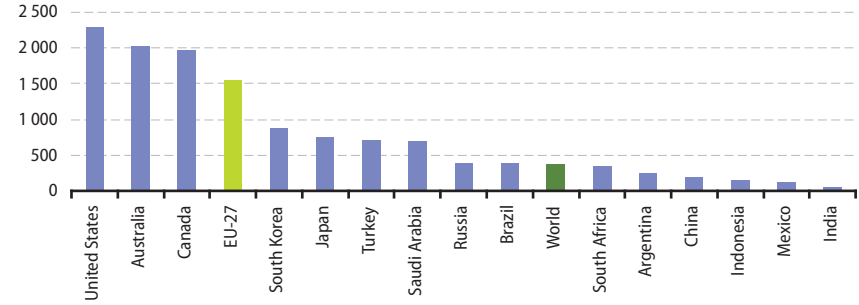
(million)

	2007	2008	2009	2010
EU-27	792.7	798.3	751.1	776.9
Argentina	7.0	6.1	5.7	10.0
Australia	48.7	51.5	50.0	45.3
Brazil	45.3	58.8	67.9	77.3
Canada	52.1	53.7	52.6	67.3
China	183.6	191.0	229.1	267.7
India	51.9	49.9	54.4	64.1
Indonesia	30.4	29.8	27.4	35.3
Japan	99.8	97.0	86.9	94.2
Mexico	21.0	18.8	15.7	13.6
Russia	33.2	37.9	34.4	56.8
Saudi Arabia	17.1	16.7	17.5	19.0
South Africa	12.9	13.1	12.5	16.8
South Korea	36.7	36.1	34.2	42.8
Turkey	22.9	25.5	31.3	51.6
United States	744.3	701.8	679.4	707.4
World	2 209.1	2 208.2	2 270.9	2 595.4

Source: Eurostat (online data code: avia_paoc) and the World Bank (World Development Indicators and Global Development Finance)

Figure 10.4: Number of air passengers carried, 2010

(per 1 000 inhabitants)



Source: Eurostat (online data code: avia_paoc) and the World Bank (World Development Indicators and Global Development Finance)

Worldwide, the number of air passengers carried in 2010 was around 2.6 billion, an increase of 14.3 % compared with 2009. In the EU-27 air passenger numbers in 2010 reached 777 million, an increase of 3.4 % compared with 2009, and equivalent to 29.9 % of the world total. The United States had 707 million passengers (27.3 % of the world total) and China 268 million (10.3 %). Several G20 members recorded a fall in their respective number of air passengers in 2008 and/or 2009, notably Mexico, Argentina and Japan – however, all of these, except Mexico, rebounded in 2010. Despite growth in 2010, the number of air passengers carried in Japan, the United States and the EU-27 in 2010 remained below its 2007 level. By contrast, the number of air passengers carried in Turkey more than doubled between 2007 and 2010.

Relative to the size of the population, the number of air passengers was highest in the United States, just ahead of Australia, Canada and the EU-27, all with more passengers carried than the overall size of their population (see Figure 10.4). By contrast, China, Indonesia, Mexico and India recorded the lowest number of air passengers relative to their overall population size.

In terms of passenger numbers, the busiest airport in the world was Hartsfield-Jackson Atlanta in the United States, with 88.0 million passengers, followed by Beijing airport in China with 73.9 million and Chicago O'Hare international airport in the United States with 67.0 million. London Heathrow in the United Kingdom was the busiest airport in the EU-27 with 65.7 million passengers, making it the fourth largest in the world.

Table 10.6: Largest airports for passengers, 2010

	Name	Passenger numbers (millions)
EU-27	London Heathrow	65.7
Argentina	Ministro Pistarini (Buenos Aires)	6.2
Australia	Sydney	35.7
Brazil	São Paulo-Guarulhos	26.8
Canada	Toronto Pearson	31.9
China	Beijing	73.9
India	Indira Gandhi (Delhi)	28.5
Indonesia	Soekarno-Hatta (Jakarta)	43.7
Japan	Haneda (Tokyo)	64.2
Mexico	Benito Juárez (Mexico City)	15.6
Russia	Moscow Domodedovo	22.3
Saudi Arabia	King Abdulaziz (Jeddah)	17.9
South Africa	OR Tambo (Johannesburg)	18.4
South Korea	Incheon (Seoul)	33.5
Turkey	Atatürk (Istabul)	32.1
United States	Hartsfield-Jackson (Atlanta)	88.0

Source: Eurostat (online data code: avia_paoa), national civil aviation authorities and information from websites of individual airports

11 Environment

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 the 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

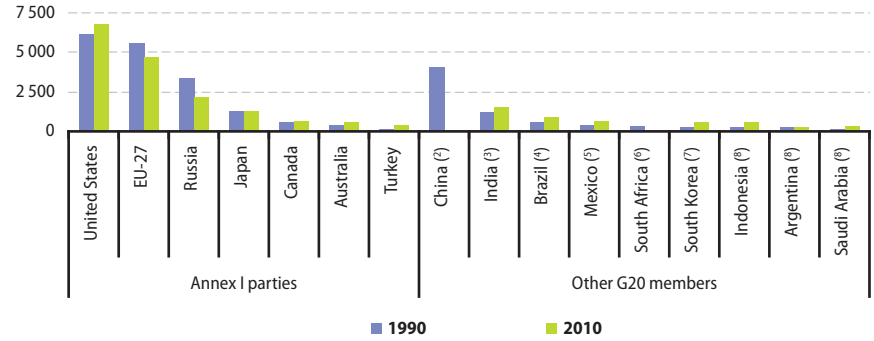
Data relating to greenhouse gas emissions are collected under the UN's Framework Convention on Climate Change (UNFCCC). The Kyoto Protocol is an international agreement linked to the UNFCCC: it was adopted in 1997 and entered into force in 2005. A total of 191 signatories subsequently ratified the Protocol; 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 11.2. The G20 members that are Annex I parties are listed separately in Figure 11.1 and Tables 11.1 and 11.2. 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 2008-2012 when compared with their 1990 levels. The EU-27 has subsequently committed to a 20 % reduction in greenhouse gas emissions by 2020.

Total greenhouse gas emissions by Annex I parties in 2010 were 17 305 million tonnes of carbon dioxide equivalents, 8.9 % lower than the level in the base year (1990 for most parties). Between 1990 and 2010 Russia's emissions fell more than 30 %, while the emissions of the EU-27 fell by 15 %. Turkey's emissions more than doubled, while increased emissions were also recorded for Australia (30 %), Canada (17 %) and the United States (10 %). 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 1994 and it is likely that Chinese greenhouse gas emissions have grown substantially since then.

Tables 11.1 and 11.2 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 relates 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 is not the case for some other G20 members where agriculture and waste often made large contributions to the level of greenhouse gas emissions.

Figure 11.1: Greenhouse gas emissions, 1990 and 2010 (1)

(million tonnes of CO_2-equivalents)



(1) Without land use, land use change and forestry. (2) Data for 1994 instead of 1990; 2010, not available. (3) Data for 1994 instead of 1990; data for 2000 instead of 2010. (4) Data for 2005 instead of 2010. (5) Data for 2006 instead of 2010. (6) 2010, not available. (7) Data for 2001 instead of 2010. (8) Data for 2000 instead of 2010.

Source: Eurostat (online data code: env_air_gge) and the United Nations Framework Convention on Climate Change (UNFCCC)

Table 11.1: Greenhouse gas emissions, analysis by sector, 2010 (1)

(million tonnes of CO_2-equivalents)

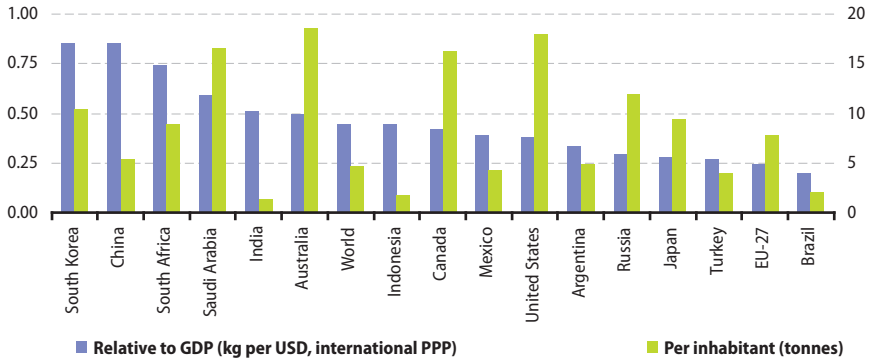
	Total (2)	Energy	Agriculture	Industrial processes	Waste	Solvents
EU-27	4 720.9	3 763.0	461.6	343.1	141.5	11.6
G20 members that are Annex I parties to the Kyoto Protocol						
Australia	542.7	417.4	79.5	31.7	14.1	:
Canada	691.7	561.7	55.5	51.8	22.5	0.2
Japan	1 258.0	1 145.6	25.5	65.9	20.9	0.1
Russia	2 201.9	1 819.0	136.8	172.8	72.7	0.6
Turkey	401.9	285.1	27.1	53.9	35.8	:
United States	6 802.2	5 933.5	428.4	303.4	132.5	4.4
Other G20 members						
Argentina (3)	282.0	132.0	124.9	11.1	14.0	:
Brazil (4)	862.8	328.8	415.8	77.2	41.1	:
China (5)	4 057.6	3 007.8	605.1	282.6	162.1	:
India (3)	1 523.8	1 027.0	355.6	88.6	52.6	:
Indonesia (3)	554.3	280.9	73.4	42.7	157.3	:
Mexico (6)	641.4	430.1	45.6	63.5	102.3	:
Saudi Arabia (3)	296.1	245.3	12.3	19.4	19.1	:
South Africa (5)	379.8	297.6	35.5	30.4	16.4	:
South Korea (7)	542.9	453.2	16.1	57.8	15.8	:

(1) Without land use, land use change and forestry. (2) Sum of available sectors. (3) 2000. (4) 2005. (5) 1994. (6) 2006. (7) 2001.

Source: the United Nations Framework Convention on Climate Change (UNFCCC)

The 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 11.2: Quantity of carbon dioxide emissions, 2008 (1)



(1) Quantity relative to GDP: left-hand axis; quantity per inhabitant: right-hand axis.

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

Table 11.2: Greenhouse gas emissions, analysis by gas, 2010 (1)

(million tonnes of CO_2-equivalents)

	Total	Carbon dioxide (CO_2)	Methane (CH_4)	Nitrous oxide (N_2O)	Hydro-fluoro-carbons (HFCs)	Per-fluoro-carbons (PFCs)	Sulphur hexa-fluoride (SF_6)
EU-27	4 720.9	3 891.3	400.7	334.5	84.5	3.4	6.5
G20 members that are Annex I parties to the Kyoto Protocol							
Australia	542.7	401.8	110.6	23.3	6.7	0.2	0.1
Canada	691.7	544.9	90.6	47.1	7.1	1.6	0.5
Japan	1 258.0	1 191.9	20.4	22.1	18.3	3.4	1.9
Russia	2 201.9	1 593.2	485.4	109.0	10.9	2.7	0.7
Turkey	401.9	326.5	57.5	13.0	4.0	0.0	0.9
United States	6 802.2	5 697.3	661.7	300.5	123.0	5.7	14.0
Other G20 members (2)							
Argentina	:	192.4	101.8	49.8	0.3	0.1	0.3
Brazil	:	393.2	492.2	236.0	5.0	5.6	1.2
China	:	7 031.9	1 333.1	467.2	100.3	10.6	30.5
India	:	1 742.7	584.0	212.9	2.8	1.1	4.6
Indonesia	:	406.0	208.9	123.3	0.0	0.1	0.9
Mexico	:	475.8	128.2	42.5	4.1	0.0	0.4
Saudi Arabia	:	433.6	48.2	6.5	0.2	0.0	2.0
South Africa	:	435.9	63.8	24.0	0.5	0.5	1.5
South Korea	:	509.2	32.1	13.5	3.2	2.5	4.6

(1) Without land use, land use change and forestry.
(2) 2005, except for carbon dioxide (2008).

Source: the United Nations Framework Convention on Climate Change (UNFCCC)

Figure 11.2 provides an analysis of emission intensities of this gas for 2008. Carbon dioxide emission intensities varied considerably between G20 members reflecting, among others, 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 impacts, notably acidification, eutrophication and ozone pollution. In the G20 members there was a massive reduction in the consumption of ozone depleting substances between 2000 and 2010 and also a large reduction in particulate matter (PM10: particles defined as having aerodynamic diameter of 10 µm or less) between 2000 and 2009 (see Table 11.3).

Table 11.3: Air pollution

	Consumption of ozone depleting substances (ODS tonnes) (1)		PM10 (micrograms per m^3)		Nitrogen oxides (NO_x) (2)		Sulphur dioxide (SO_2)	
	2000	2010	2000	2009	Latest year	(1 000 tonnes)	Latest year	(1 000 tonnes)
EU-27 (3)	10 899	-1 760	26.6	18.9	2010	9 162	2010	4 574
Argentina	3 383	781	68.1	60.0	2000	676	2000	88
Australia	485	-6	17.8	13.9	2007	2 651	2008	2 642
Brazil	11 379	1 204	31.6	19.5	1994	2 301		:
Canada	953	65	21.4	15.6	2002	43		:
China	90 878	21 388	87.9	60.2		:		:
India	18 696	1 934	91.6	57.1		:		:
Indonesia	5 451	433	119.8	68.1	1994	928		:
Japan	5 989	622	32.9	24.9	2007	1 874	2008	783
Mexico	6 056	1 599	43.5	32.6	2002	1 444	2002	2 613
Russia	25 744	1 042	27.4	15.6	2007	5 069	2008	625
Saudi Arabia	1 943	1 611	148.2	102.8		:		:
South Africa	815	393	30.3	26.4		:		:
South Korea	13 746	2 114	45.3	32.5	1990	851	1990	4 170
Turkey	1 592	606	53.0	36.7	2007	1 289	2008	1 072
United States	3 972	2 330	23.8	18.0	2007	13 941	2008	10 368

(1) Negative values indicate exports plus destruction exceeded actual production plus imports.
(2) Nitric oxide / nitrogen monoxide (NO) and nitrogen dioxide (NO_2).
(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_emis and tsdpc270), the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Environment Programme (Ozone Secretariat), the United Nations Statistics Division (Millennium Development Goals Database) and the World Bank (World Development Indicators and Global Development Finance)

G20 members accounted for approximately two thirds of all freshwater withdrawals worldwide; India, China, the United States and the EU-27 together accounted for more than half. Relative to population size the United States and Canada had the highest annual water withdrawals (see Figure 11.3), at more than double the world average of 573 m^3 per inhabitant which, in turn, was above the EU-27 average. Freshwater was principally used for industrial purposes

in Canada, Russia, the EU-27 and the United States and for agricultural purposes in the other G20 members. The share of domestic use in total freshwater withdrawals ranged from 7.4 % in India to 28.0 % in Brazil.

Table 11.4: Water

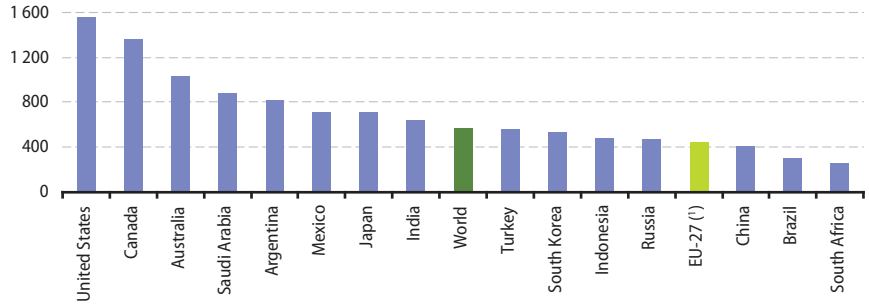
	Annual freshwater withdrawals, 2009				Population connected to wastewater system			
	(1 000 million m³)	Agriculture	Industry	Domestic	Collection		Treatment	
		Share of annual freshwater withdrawals (%)			Latest year	(%)	Latest year	(%)
EU-27 (1)	236.9	27.1	52.8	20.1	2007	77.7	2007	73.1
Argentina	32.6	66.1	12.2	21.7	2001	42.5	2001	42.5
Australia	22.6	73.8	10.6	15.6	2004	87.0		:
Brazil	58.1	54.6	17.5	28.0	2008	50.2	2006	26.0
Canada	46.0	11.8	68.7	19.6	1999	74.3	1999	71.7
China	554.1	64.6	23.2	12.2	2004	45.7	2004	32.5
India	761.0	90.4	2.2	7.4		:		:
Indonesia	113.3	81.9	6.5	11.6		:		:
Japan	90.0	63.1	17.6	19.3	2003	67.0	2003	67.0
Mexico	79.8	76.7	9.3	14.0	2005	67.6	2005	35.0
Russia	66.2	19.9	59.8	20.2		:		:
Saudi Arabia	23.7	88.0	3.0	9.0		:		:
South Africa	12.5	62.7	6.0	31.2	2007	60.0	2007	57.0
South Korea	25.5	62.0	12.0	26.0	2003	78.8	2003	78.8
Turkey	40.1	73.8	10.7	15.5	2008	73.0	2008	46.0
United States	478.4	40.2	46.1	13.7	1996	71.4		:
World	3 908.3	70.2	18.1	11.7		:		:

(1) Population connected to urban wastewater system; estimates made for the purpose of this publication based on latest available data (excluding Denmark and the United Kingdom for both collection and treatment, excluding Italy for collection and excluding Spain for treatment).

Source: Eurostat (online data code: env_watq4), the United Nations Environment Programme (Water Section) and the World Bank (World Development Indicators and Global Development Finance)

Figure 11.3: Freshwater withdrawals, 2009

(m³ per inhabitant)



(1) Estimate made for the purpose of this publication based on latest available data (excluding Italy, Luxembourg, Austria, Finland, Scotland and Northern Ireland).

Source: Eurostat (online data codes: env_watqsum, demo_gind and demo_r_d3avg), the United Nations Environment Programme (Water Section), the World Bank (World Development Indicators and Global Development Finance) and the United Nations Department of Economic and Social Affairs (World Population Prospects: the 2010 Revision)

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 G20 members with data available (see Table 11.5) Japan reported the most frequent use of incineration and Mexico the greatest use of landfill. In South Korea nearly half of the collected municipal waste was recycled, whereas in Turkey there was practically no recycling. The amount of municipal waste collected ranged from 271 kg per inhabitant in Brazil to 502 kg per inhabitant in the EU-27, with the United States above this range and China, Indonesia and India below it (see Figure 11.4).

Table 11.5: Municipal waste, 2010

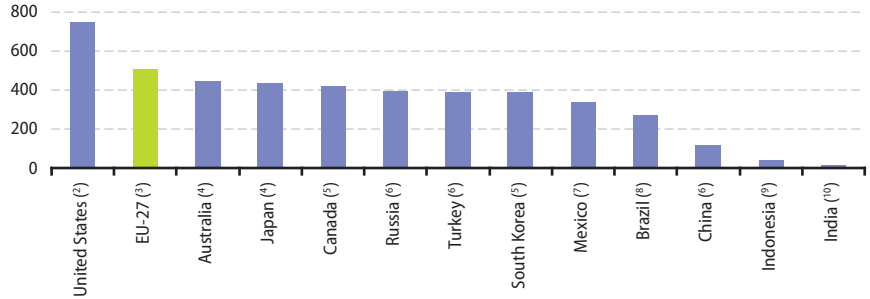
	Collected (million tonnes)	Treated			
		Landfilled	Incinerated	Recycled	Composted
		(% of total treatment)			
EU-27 (1)	252.1	38.2	22.1	24.9	14.7
Argentina	:	:	:	:	:
Australia (2)	8.9	69.7	:	30.3	:
Brazil (3)	51.4	:	:		:
Canada (4)	13.4	:	:	26.8	12.5
China (5)	157.3	56.6	12.9	:	1.1
India (6)	17.6	:	:	:	:
Indonesia (7)	9.6	:	:	:	:
Japan (2)	54.4	3.4	74.0	16.8	:
Mexico (8)	36.1	96.7	0.0	3.3	0.0
Russia (5)	56.2	:	:	:	:
Saudi Arabia	:	:	:	:	:
South Africa	:	:	:	:	:
South Korea (4)	18.3	36.4	14.4	49.2	0.0
Turkey (5)	28.0	84.8	0.0	0.0	1.1
United States (9)	222.9	54.3	13.6	23.8	8.4

(1) Municipal waste generated instead of collected. (2) 2003. (3) 2007. (4) 2004. (5) 2009. (6) 2001. (7) 2008. (8) 2006. (9) 2005.

Source: Eurostat (online data code: env_wasmun) and the United Nations Statistics Division (Environment statistics, Waste section)

Figure 11.4: Municipal waste collection, 2010 (1)

(kg per inhabitant)



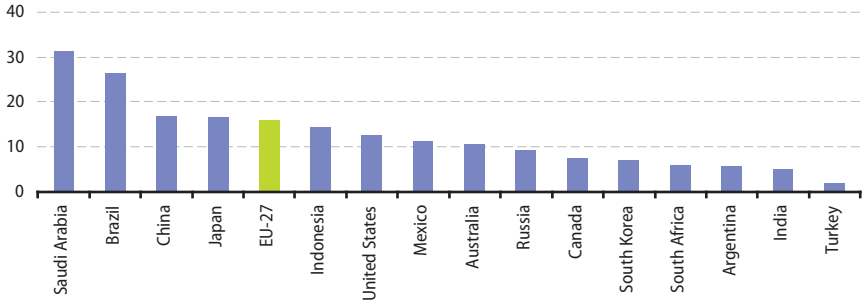
(1) Argentina, Saudi Arabia and South Africa, not available. (2) 2005. (3) Municipal waste generated instead of collected. (4) 2003. (5) 2004. (6) 2009. (7) 2006. (8) 2007. (9) 2008. (10) 2001.

Source: Eurostat (online data code: env_wasmun) and the United Nations Statistics Division (Environment statistics, Waste section)

Terrestrial and marine areas may be protected because of their ecological or cultural importance and they provide a habitat for plant and animal life. In the EU-27 around 16 % of the surface area is designated as a protected area as is 9 % of the marine area. Among the other G20 members the largest shares of surface area that were protected were in Saudi Arabia and Brazil, with Brazil having the largest protected area in absolute terms (2.2 million km² in 2010). 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 200 000 km².

Figure 11.5: Terrestrial protected areas, 2010 (1)

(% of surface area)

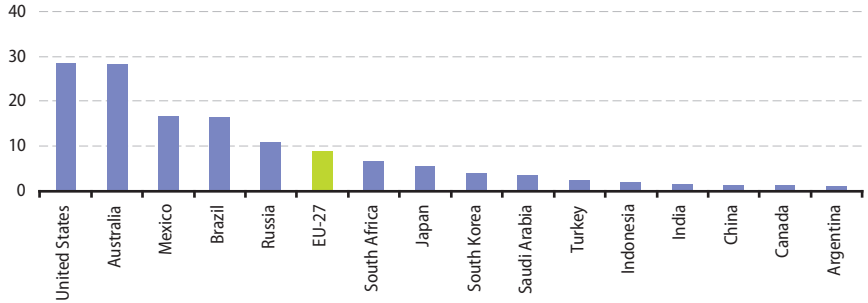


(1) Surface area includes land and inland waters.

Source: the International Union for Conservation of Nature and the United Nations Environment Programme World Conservation Monitoring Centre in the World Database on Protected Areas

Figure 11.6: Marine protected areas, 2010

(% of territorial waters)



Source: the International Union for Conservation of Nature and the United Nations Environment Programme World Conservation Monitoring Centre in the World Database on Protected Areas

12 Energy

A competitive, reliable and sustainable energy sector is 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 oil prices, interruptions to energy supplies, and increased attention to anthropogenic (human-induced) effects on climate change, in particular, increased greenhouse gas emissions.

Main findings

Primary production of energy in the EU-27 totalled 830.9 million tonnes of oil equivalent (toe) in 2010. This represented an increase in comparison with the production level for 2009 (813.7 million toe) in contrast to the generally downward trend of EU-27 production; primary production in the EU-27 has generally fallen in recent years as supplies of raw materials become exhausted and/or producers considered the exploitation of limited resources uneconomical. Worldwide primary production of energy reached 12 268 million toe in 2009. The members of the G20 accounted for approximately 72 % of the world's energy production, with China, the United States (2010 data) and Russia recording higher production than the EU-27.

Between 2000 and 2009 global primary production of energy increased 22.8 %. China's primary production almost doubled during this period, while output in Brazil and Indonesia increased by approximately one half; India also recorded growth above the world average as did Australia and South Korea between 2000 and 2010. Mexico, Japan and the EU-27 all recorded lower primary production of energy in 2010 than in 2000.

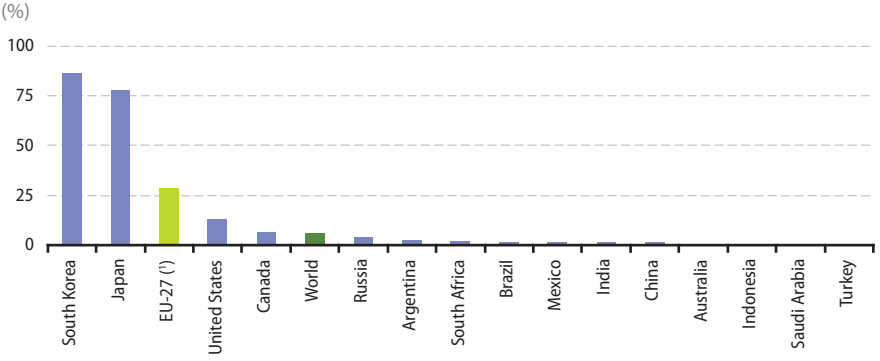
Table 12.1: Production of primary energy, 2000 and 2009

	Production (million toe)		Analysis by energy type (excluding heat), 2009 (%)				
	2000	2009	Coal and lignite	Crude oil	Natural gas	Nuclear energy	Renew-ables & waste
EU-27 (1)	940.6	830.9	19.6	11.7	18.8	28.5	21.4
Argentina	:	80.8	0.1	43.7	46.0	2.6	7.6
Australia (2)	233.6	324.0	76.2	8.2	13.3	0.0	2.4
Brazil	148.3	230.3	1.0	45.1	4.3	1.5	48.1
Canada (2)	372.7	395.8	8.1	40.1	34.7	6.0	11.1
China	1 064.0	2 084.9	73.8	9.1	3.4	0.9	12.8
India	366.4	502.5	48.6	7.7	7.7	1.0	35.1
Indonesia	236.3	351.8	47.4	13.7	19.1	0.0	19.9
Japan (2)	105.8	95.1	0.0	0.8	3.7	77.7	17.8
Mexico (2)	222.3	217.7	2.3	71.4	17.4	1.2	7.6
Russia	978.0	1 181.6	13.0	41.8	39.7	3.6	1.8
Saudi Arabia	:	528.4	0.0	88.4	11.6	0.0	0.0
South Africa	145.6	160.6	88.2	0.1	0.5	2.1	9.1
South Korea (2)	34.4	44.6	2.6	1.6	1.0	86.9	7.7
Turkey (2)	25.9	30.3	57.5	7.8	1.9	0.0	32.8
United States (2)	1 667.3	1 740.9	31.4	20.0	28.4	12.8	7.4
World	9 992.9	12 268.2	28.1	32.5	20.6	5.7	13.2

(1) Data for 2010 instead of 2009.
(2) Production total for 2010 instead of 2009.

Source: Eurostat (online data codes: ten00076, ten00077, ten00078, ten00079, ten00080 and ten00081), the OECD (Energy and transportation) and the International Energy Agency (Energy balances)

Figure 12.1: Contribution of nuclear energy to primary production, 2009



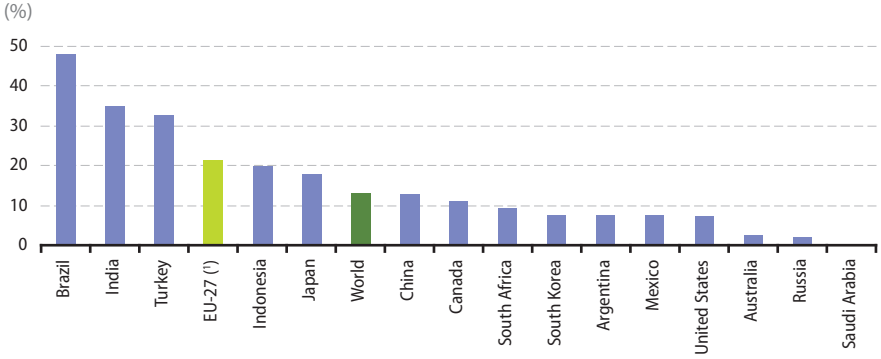
(1) 2010.

Source: Eurostat (online data codes: ten00076 and ten00080) and the International Energy Agency (Energy balances)

For many of the G20 members the mix of energy sources for primary production was dominated by just one type. In South Africa, Australia and China more than three quarters of primary production came from coal and lignite, 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, Indonesia, Russia and the United States had large shares of production spread across two or three types of fossil fuels, with none of them accounting for 50 % or more of total production. Production in the EU-27 was more varied than in any of the other G20 members with all five types of energy sources shown in Table 12.1 attaining 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 investment in 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 12.1. The EU-27 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 largest 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 12.2), a share that was exceeded in Brazil, India and Turkey (all above 30 %), as well as in the EU-27, Indonesia and Japan. 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 12.2: Contribution of renewables and waste to primary production, 2009



(1) 2010.

Source: Eurostat (online data codes: ten00076 and ten00081) and the International Energy Agency (Energy balances)

Worldwide gross consumption of energy was 12 140.9 million toe in 2009, of which the G20 members accounted for around four fifths, significantly higher than their collective share of production. After three years of falling consumption that broadly coincided with the global financial and economic crisis, the EU-27's gross inland consumption rose from 1 703.4 million toe in 2009 to 1 759.0 million toe in 2010. Between 2000 and 2009 global consumption increased by 21.0 % and China's gross inland consumption more than doubled. The United States and Japan were the only G20 members to record lower gross inland consumption in 2010 than in 2000.

Just over one quarter of worldwide gross consumption of energy in 2009 was coal and lignite, one third was crude oil and oil products, and one fifth was gas; combined these three fuels accounted for four fifths (80.9 %) of global energy consumption. Gross inland consumption was entirely satisfied by such fuels in Saudi Arabia and these three fuels provided more than 90 % of gross inland consumption in Australia and Russia – see Figure 12.3.

Japan and South Korea had the highest shares of nuclear energy in gross inland consumption, just over 15 %, but these shares were considerably lower than for primary production, indicating the high dependency of these two countries on imported fossil fuels, notably crude oil and oil products.

Table 12.2: Gross inland consumption, 2000 and 2009

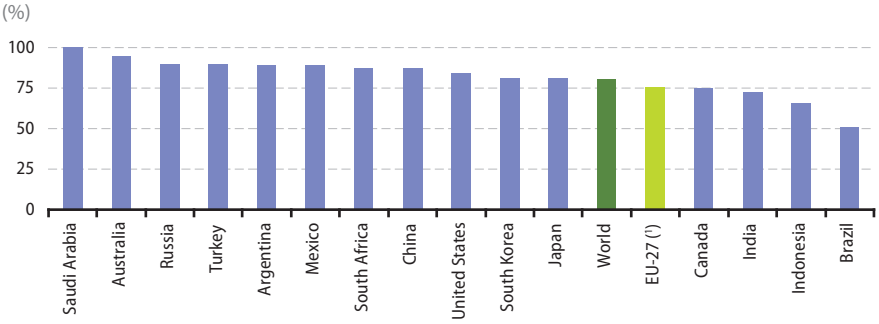
	Consumption (million toe)		Analysis by energy type, 2009 (%)					
	2000	2009	Coal and lignite	Crude oil and oil products	Gas	Nuclear energy	Renewables and waste	Electricity and heat (1)
EU-27 (2)	1 724.9	1 759.0	15.9	35.1	25.1	13.4	10.4	0.0
Argentina	:	74.3	1.7	35.6	52.1	2.9	7.0	0.7
Australia (3)	108.1	125.8	42.0	30.8	21.6	0.0	5.6	0.0
Brazil	189.2	240.2	4.6	39.7	7.1	1.4	45.8	1.5
Canada (3)	251.4	255.3	9.4	34.6	31.0	9.3	17.0	-1.1
China	1 094.9	2 257.1	67.2	16.8	3.3	0.8	11.9	0.0
India	457.2	675.8	42.2	23.6	7.2	0.7	26.1	0.1
Indonesia	155.7	202.0	15.1	33.1	17.4	0.0	34.4	0.0
Japan (3)	518.9	494.9	21.5	42.5	17.1	15.4	3.5	0.0
Mexico (3)	145.1	169.8	4.4	56.7	27.8	1.6	9.6	0.0
Russia	619.3	646.9	14.7	21.3	54.1	6.6	3.4	-0.2
Saudi Arabia	:	157.9	0.0	61.1	38.9	0.0	0.0	0.0
South Africa	114.4	144.0	68.3	17.0	2.6	2.3	10.0	-0.1
South Korea (3)	188.1	246.5	28.3	39.5	13.8	16.8	1.5	0.0
Turkey (3)	76.3	104.8	30.5	29.8	29.6	0.0	10.2	-0.1
United States (3)	2 273.3	2 235.0	22.4	37.0	24.7	10.0	5.7	0.1
World	10 031.8	12 140.9	27.2	32.8	20.9	5.8	13.3	0.0

(1) Gross inland consumption of electricity and heat is equal to electricity net imports.
(2) Data for 2010 instead of 2009.
(3) Consumption total for 2010 instead of 2009.

Source: Eurostat (online data codes: ten00086, nrg_101a, nrg_102a, nrg_103a, nrg_104a, nrg_105a, nrg_106a and nrg_1071a), the OECD (Energy and transportation) and the International Energy Agency (Energy balances)

Worldwide, renewables and waste accounted for 13.3 % of gross consumption (see Figure 12.4). As for primary production, Brazil, Indonesia and India recorded above average shares for renewables and waste in gross inland consumption, as did Canada, reflecting its large net exports of fossil fuels. By contrast, the EU-27, 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.

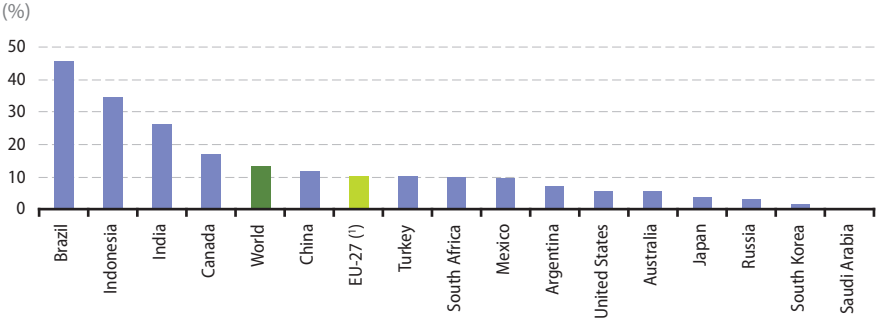
Figure 12.3: Share of coal, lignite, oil and gas in gross inland consumption, 2009



(1) 2010.

Source: Eurostat (online data codes: ten00086, nrg_101a, nrg_102a and nrg_103a) and the International Energy Agency (Energy balances)

Figure 12.4: Share of renewables and waste in gross inland consumption, 2009



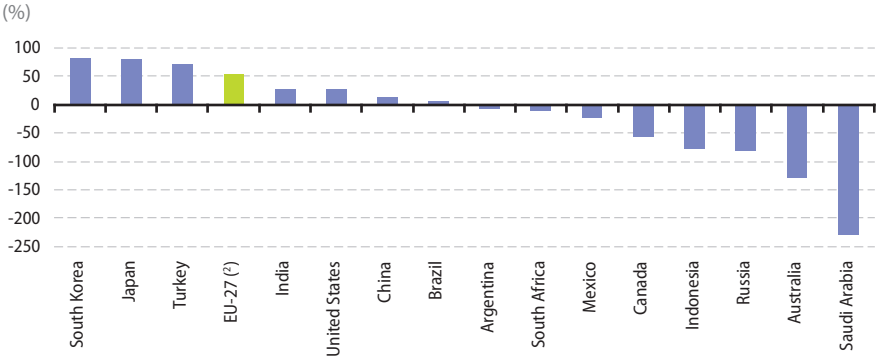
(1) 2010.

Source: Eurostat (online data codes: ten00086 and nrg_1071a) and the International Energy Agency (Energy balances)

The difference between the levels of production and consumption in Tables 12.1 and 12.2 is accounted for by stock changes, international bunkers and international trade: a shortfall of production is met by positive net imports (the balance of imports minus exports) and a production surplus accompanied by negative net imports (positive net exports).

The energy dependency indicator in Figure 12.5 reveals the extent to which gross inland consumption is met by net imports – countries with a negative dependency are net exporters. South Korea, Japan, Turkey and the EU-27 all had energy dependency ratios in excess of 50 % 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 and Brazil. 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 12.5: Energy dependency, 2009 (1)



(1) Net imports divided by the sum of gross inland energy consumption plus bunkers, expressed as a percentage.
(2) 2010.

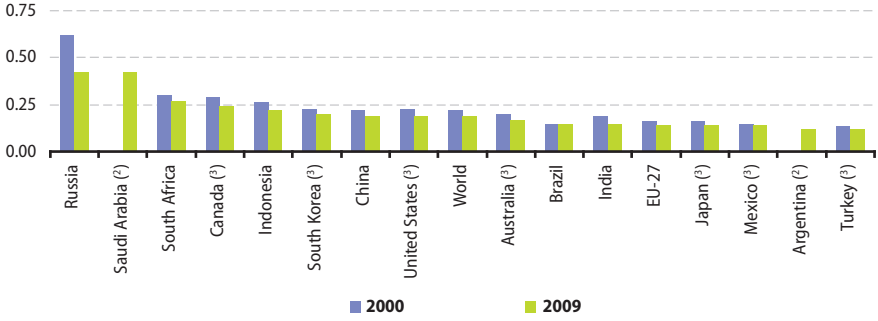
Source: Eurostat (online data code: tsdcc310) and the International Energy Agency (Energy balances)

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 12.6) 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 2000 and 2009 (2010 for some countries) for all G20 members for whom data are available – see Figure 12.6 – except for Brazil where the relatively low energy intensity remained stable. Between 2000 and 2009, substantial energy efficiencies were introduced in the Russian economy as its energy intensity fell by about one third; nevertheless, Russia, along with Saudi Arabia, had the highest energy intensity among the G20 members in 2009. After Russia, the largest falls in energy intensity were recorded by India, the United States and Canada. The most recent data (for 2009 or 2010) shows that the economies of Argentina and Turkey had the lowest energy intensities.

Figure 12.6: Energy intensity, 2000 and 2009 (1)

(toe per USD 1 000, international PPP)



(1) Ratio between the gross inland consumption of energy and the gross domestic product (GDP); the GDP figures are at 2000 constant prices expressed in United States dollars converted using international purchasing power parities.
(2) 2000, not available.
(3) Data for 2010 instead of 2009.

Source: the OECD (Factbook 2012) and the International Energy Agency (Key world energy statistics, 2011)

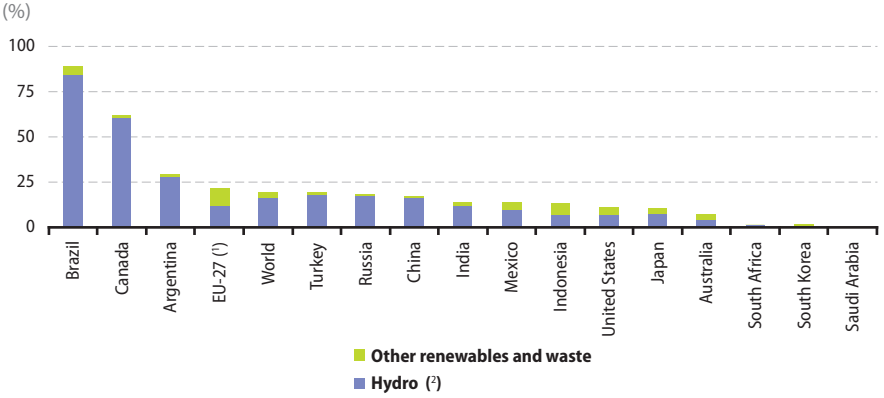
Table 12.3: Gross electricity generation, 2009

	Total	Analysis by source (%)						
	(GWh)	Coal and lignite	Oil	Gas	Nuclear	Hydro (1)	Other renew-ables & waste	Other
EU-27 (2)	3 345 618	25.7	2.6	22.6	27.4	11.9	9.6	0.2
Argentina	122 347	2.3	10.4	51.1	6.7	28.0	1.4	0.0
Australia	260 965	77.9	1.0	13.7	0.0	4.7	2.6	0.0
Brazil	466 468	2.1	3.1	2.9	2.8	83.8	5.2	0.1
Canada	603 234	15.2	1.4	6.2	15.0	60.3	1.9	0.0
China	3 695 928	78.8	0.4	1.4	1.9	16.7	0.8	0.0
India	899 389	68.6	2.9	12.4	2.1	11.9	2.2	0.0
Indonesia	155 470	41.8	22.8	22.1	0.0	7.3	6.0	0.0
Japan	1 047 919	26.7	8.7	27.2	26.7	7.8	2.9	0.0
Mexico	261 018	11.3	17.5	53.1	4.0	10.2	3.9	0.0
Russia	991 980	16.5	1.6	47.3	16.5	17.8	0.3	0.0
Saudi Arabia	217 082	0.0	55.2	44.8	0.0	0.0	0.0	0.0
South Africa	249 557	93.0	0.0	0.0	5.1	1.7	0.1	0.0
South Korea	454 504	46.0	4.4	15.5	32.5	1.2	0.4	0.0
Turkey	194 813	28.6	2.5	49.3	0.0	18.5	1.2	0.0
United States	4 188 214	45.2	1.2	22.7	19.8	7.1	4.0	0.0
World	20 132 212	40.3	5.1	21.4	13.4	16.5	3.2	0.1

(1) Includes production from pumped hydro.
(2) 2010.

Source: Eurostat (online data codes: ten00087 and nrg_105a) and the International Energy Agency (Electricity)

Figure 12.7: Share of renewables and waste in gross electricity generation, 2009



(1) 2010.
(2) Includes production from pumped hydro.

Source: Eurostat (online data codes: ten00087 and nrg_105a) and the International Energy Agency (Electricity)

Total gross electricity generation worldwide was 20.1 million gigawatt hours (GWh) in 2009, of which 84.5 % was generated by G20 members. A total of 3.3 million GWh of electricity was generated in the EU-27 in 2010, an increase of 4.3 % over the previous year. In absolute terms the United States and China had the highest levels of electricity generation among G20 members; relative to population size Canada, the United States and Australia had the highest levels of generation, while India and Indonesia had the lowest.

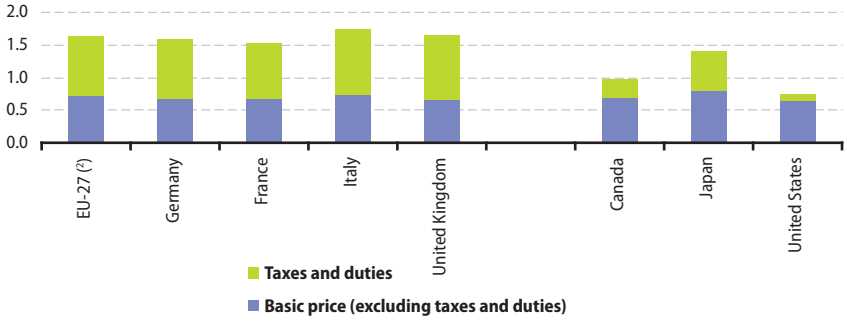
Coal and lignite-fired power stations generated two fifths of electricity worldwide; this share was boosted by a high use of these fuels in South Africa, China, Australia and India. Gas-fired power stations generated more than one fifth of the world's electricity with this fuel providing more than two fifths of the electricity generated in Mexico, Turkey, Russia and Saudi Arabia. While oil-fired power stations provided just 5.1 % of the world's electricity, this source was dominant in Saudi Arabia. Nuclear power contributed some 27.4 % of the electricity generated in the EU-27 in 2010, which was more than double the world's average (in 2009) and the second highest share among G20 members behind South Korea.

Hydro-electric power, other renewables and waste supplied 19.8 % of the world's electricity in 2009, with a slightly higher share recorded in the EU-27 in 2010 (21.5 %) – see Figure 12.7. Brazil, Canada and Argentina 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-27 having the highest share of electricity generation from renewable and waste sources other than hydro power.

Figure 12.8 provides information on retail petrol prices for the EU Member States that are G20 members, as well as three other G20 members. The final price paid by consumers in May 2012 was clearly lower in Canada and the United States than in the other countries shown and this was mainly due to much lower taxes and duties.

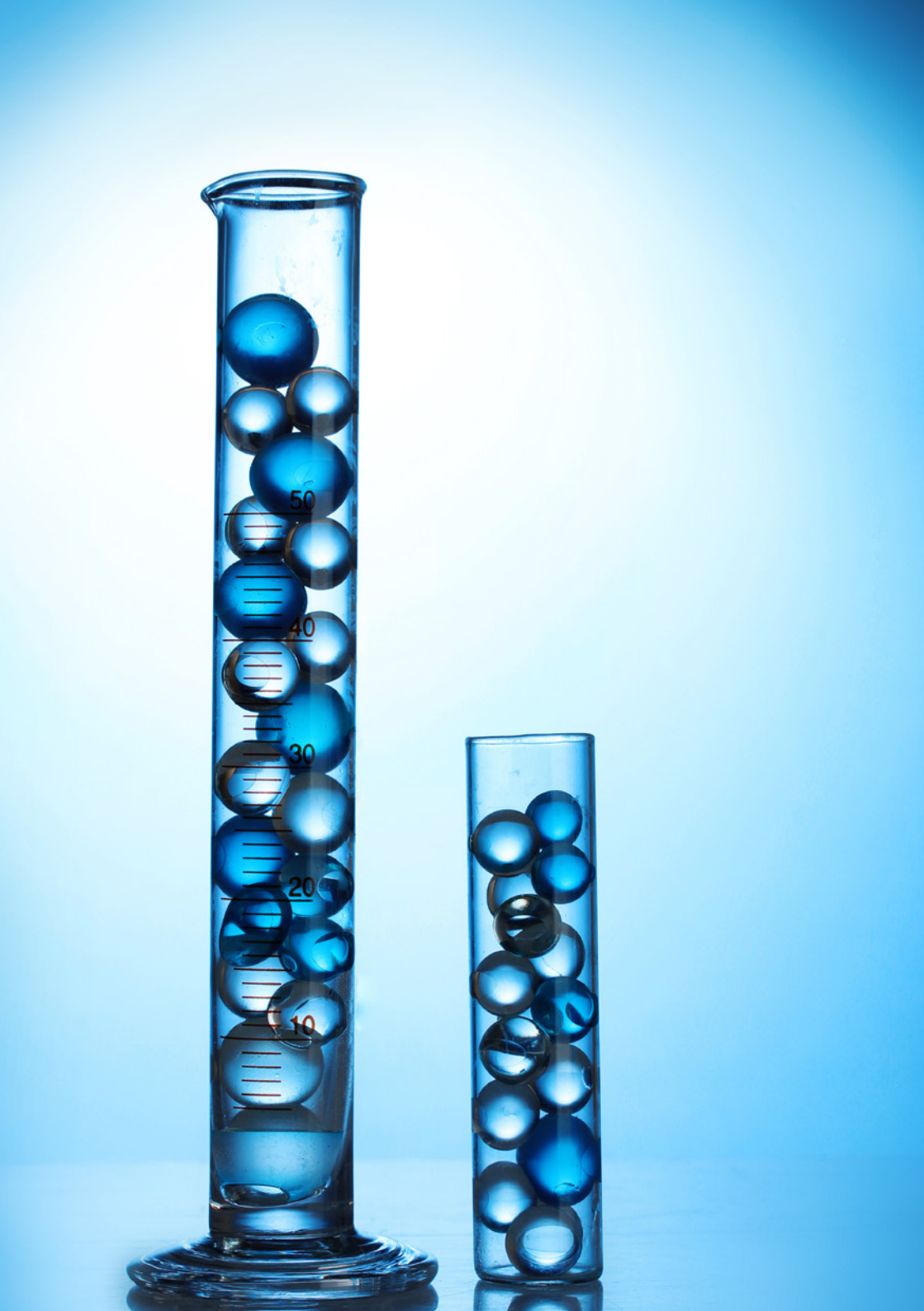
Figure 12.8: Retail petrol price for selected countries, May 2012 (1)

(EUR per litre)



(1) Unleaded premium (95 RON) for EU-27 and EU Member States; regular unleaded for Canada, Japan and the United States.
(2) Weighted average of prices for EU Member States; monthly values based on average of four weekly prices.

Source: European Commission (Market Observatory for Energy) and the International Energy Agency (Prices)


50
40
30
20
10

13 Science and technology

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 economic growth and job creation.

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.

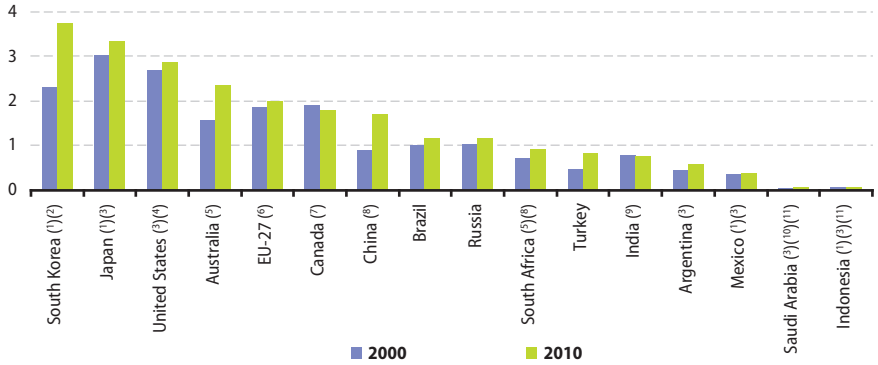
GERD in the EU-27 was provisionally estimated at around EUR 245.7 billion in 2010. The relation between the level of GERD and gross domestic product (GDP) is known as R & D intensity, and in 2010 this ratio stood at 2.00 % in the EU-27. According to the United Nations Educational, Scientific and Cultural 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 (2008 or 2009) for Japan, the United States and Australia shows that they also recorded relatively high R & D intensities. By contrast, 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 2010 than in 2000 in nearly all G20 members (see Figure 13.1) – with only a small decline in Canada. The largest increase (in percentage point terms) in R & D intensity between 2000 and 2010 was in South Korea, with relatively large increases also recorded in Australia and China.

The increase in R & D intensity in the EU-27 came mainly in recent years, as this indicator remained relatively unchanged between 2000 and 2007. Despite the financial and economic crisis there was an increase in 2008 and 2009 in the EU-27's R & D intensity: in 2008 this was due to a 4.5 % increase in GERD outstripping GDP growth (0.6 % in current prices), while the fall in GERD (-1.2 %) in 2009 was less than the sizeable contraction of GDP (-5.8 %) in that year. Figure 13.2 shows the upward development of R & D intensity over the last ten years in the five G20 members with the highest R & D intensities.

Figure 13.1: Gross domestic expenditure on research and development relative to GDP, 2000 and 2010

(% of GDP)

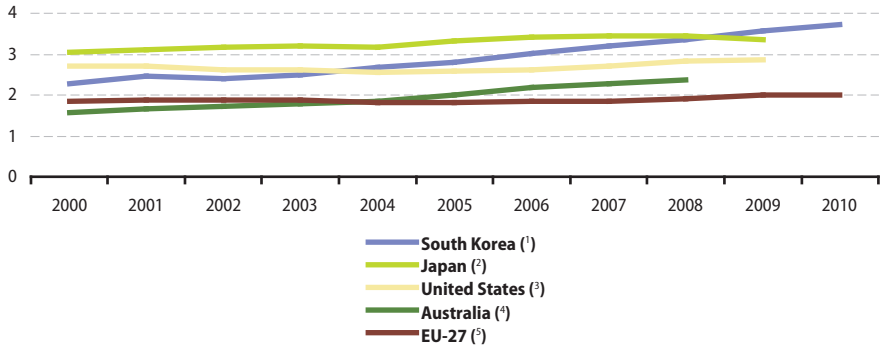


(1) Break in series. (2) 2000, incomplete (3) Data for 2009 instead of 2010. (4) Excluding most or all capital expenditure. (5) Data for 2008 instead of 2010. (6) Estimates. (7) 2010, provisional. (8) Data for 2001 instead of 2000, underestimate. (9) Data for 2007 instead of 2010, estimate. (10) Data for 2003 instead of 2000. (11) Partial data.

Source: Eurostat (online data code: rd_e_gerdtot) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Science & Technology)

Figure 13.2: Gross domestic expenditure on research and development relative to GDP, 2000-2010

(% of GDP)

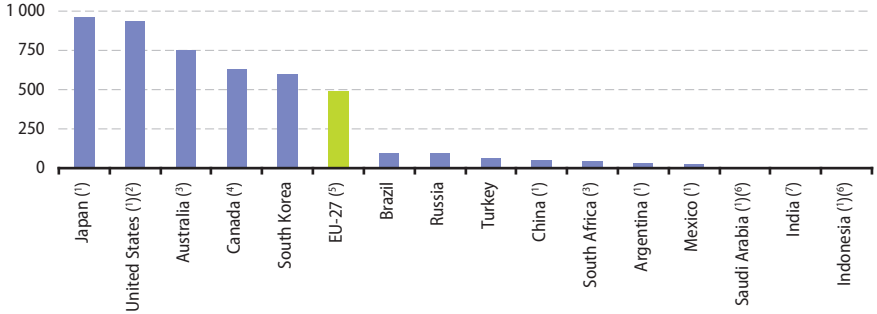


(1) 2000-2006, excluding social sciences and humanities. (2) 2008, break in series. (3) Excluding most or all capital expenditure. (4) Data available for even years only. (5) Estimates.

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 13.3, namely the level of GERD relative to population size. This indicator provides a very clear distinction between G20 members; note that the data for non-member countries are also sourced from UNESCO. Japan and the United States stand out with GERD per inhabitant close to EUR 1 000 in 2009. Australia, Canada, South Korea and the EU-27 completed the group of countries with relatively high GERD per inhabitant. None of the other G20 members recorded GERD in excess of EUR 100 per inhabitant and this indicator dropped below EUR 10 per inhabitant in Saudi Arabia, India and Indonesia.

Figure 13.3: Gross domestic expenditure on research and development per inhabitant, 2010
(EUR per inhabitant)



(1) 2009. (2) Excluding most or all capital expenditure. (3) 2008. (4) Provisional. (5) Estimate. (6) Partial data. (7) 2007, estimate.

Source: Eurostat (online data code: rd_e_gerdtot) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Science & Technology and Demographic & Socio-economic)

Table 13.1: Gross domestic expenditure on research and development (GERD), analysis by sector of performance, 2010

	Total GERD (% of GDP)	Analysis by sector of performance (% of GERD)			
		Business enterprise	Government	Higher education	Private non-profit
EU-27	*2.00*	*61.5*	*13.3*	*24.2*	*1.0*
Argentina (1)	0.60	22.3	44.7	31.3	1.7
Australia (2)	2.37	61.3	12.2	23.9	2.6
Brazil	1.19	:	:	:	:
Canada	*1.80*	*50.7*	10.5	*38.2*	*0.6*
China (1)	1.70	73.2	18.7	8.1	:
India (3)	*0.76*	33.9	61.7	4.4	:
Indonesia (1)(4)	0.08	:	:	*37.9*	:
Japan (1)	3.36	75.8	9.2	13.4	1.6
Mexico (1)	0.40	44.2	24.6	28.4	2.8
Russia	1.16	60.5	31.0	8.4	0.2
Saudi Arabia (1)(4)	0.08	:	:	:	:
South Africa (2)	0.93	58.6	20.3	19.9	1.1
South Korea	3.74	74.8	12.7	10.8	1.7
Turkey	0.84	42.5	11.4	46.0	:
United States (1)(5)	2.86	70.3	11.7	13.5	*4.4*

(1) 2009. (2) 2008. (3) 2007; data for the business enterprise sector includes the data for the private non-profit sector. (4) Partial data. (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)

More than three fifths (61.5 %) of all R & D in the EU-27 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 13.1) although the share was lower in Mexico, Turkey, India and Argentina. The government sector was the dominant performing sector in India (61.7 % of total R & D) and Argentina (44.7 %), otherwise 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 and Indonesia. Private non-profit organisations performed the smallest share of R & D in all G20 members (with data available), reaching its highest share (4.4 %) in the United States.

The relative shares of R & D performance were quite different from the mix in terms of the sources of funds (see Table 13.2). 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 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-27 (including intra-EU cross-border funds) and Canada.

Table 13.2: Analysis of gross domestic expenditure on research and development by source of funds, 2010

(%)

	Business enterprise	Government	Higher education	Private non-profit	Abroad
EU-27 (1)(2)	*54.1*	*34.9*	*1.0*	*1.6*	*8.4*
Argentina (1)	21.4	73.2	3.8	0.8	0.7
Australia (3)	62.0	34.5	0.1	1.8	1.6
Brazil	45.4	52.7	1.9	:	:
Canada (4)	*46.8*	*34.1*	*7.1*	*3.5*	*6.8*
China (1)	71.7	23.4	:	:	1.3
India (5)	33.9	66.1	0.0	:	:
Indonesia	:	:	:	:	:
Japan (1)	75.3	*17.7*	*5.9*	0.7	0.4
Mexico (1)	43.2	46.9	6.4	1.6	1.9
Russia	25.5	70.3	0.5	0.1	3.5
Saudi Arabia	:	:	:	:	:
South Africa (3)	42.6	45.1	0.1	0.7	11.4
South Korea	71.8	26.7	0.9	0.4	0.2
Turkey	45.1	30.8	19.6	3.7	0.8
United States (1)(6)	61.6	31.3	3.8	3.4	:

(1) 2009.
(2) Abroad includes cross-border funding between Member States within the EU-27.
(3) 2008.
(4) Government and higher education, 2008.
(5) 2007; data for the business enterprise sector includes the data for the private non-profit sector; overestimated.
(6) 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 2009 in the EU-27 was around 3.6 million; when converted into full-time equivalents the number of R & D personnel in 2010 was 2.5 million, of whom approximately one third were women. Among the other G20 members with data available (see Table 13.3) China had the next largest R & D workforce (3.2 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.

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 nearly two thirds of its R & D personnel in the business enterprise sector that was responsible for about half of its R & D expenditure.

Table 13.3: Research and development personnel, 2010

	Total (number)		Sectoral share in total based on full-time equivalents (%)			
	Head count	Full-time equivalents	Business enterprise	Government	Higher education	Private non-profit
EU-27 (1)	*3 643 115*	*2 486 743*	*51.5*	*14.1*	*33.3*	*1.2*
Argentina (2)	83 211	59 683	14.0	48.7	35.0	2.3
Australia (3)	:	137 138	39.4	12.4	44.7	3.5
Brazil	466 451	265 246	20.9	5.3	73.2	0.6
Canada (3)	:	242 686	65.5	8.0	25.7	0.8
China (2)	3 183 687	2 291 252	71.9	16.1	12.0	:
India	:	:	:	:	:	:
Indonesia	:	:	:	:	:	:
Japan (2)	1 152 787	878 418	70.2	7.2	21.1	1.5
Mexico (4)	:	83 642	48.9	20.3	28.3	2.5
Russia (5)	736 540	839 992	52.9	33.4	13.5	0.2
Saudi Arabia	:	:	:	:	:	:
South Africa (3)	58 895	30 802	40.6	22.0	36.3	1.2
South Korea	500 124	335 228	68.7	8.0	21.9	1.4
Turkey (6)	147 417	81 792	45.9	13.9	40.2	:
United States	:	:	:	:	:	:

(1) Head count, 2009; other data, 2010.
(2) 2009.
(3) 2008.
(4) Full-time eqivalents total, 2009; other data, 2007.
(5) Head count, underestimated.
(6) 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)

Table 13.4 provides a similar analysis to that in Table 13.3, 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 2009 in the EU-27 was around 2.3 million or 1.6 million (2010 data) in terms of full-time equivalents. The number of researchers in the United States (also in full-time equivalents) was about 10 % below that in the EU-27, while in China the number was around 25 % lower.

Combining the information in Tables 13.3 and 13.4 it can be seen that about half the R & D personnel in China were researchers, a share that reached three quarters in Japan and four fifths in South Korea and Turkey; in the EU-27 the share was 63 %. 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 South Africa, Australia and Mexico – while South Korea, Brazil and Japan were the only exceptions.

Table 13.4: Researchers, 2010

	Total (number)		Sectoral share in total based on full-time equivalents (%)			
	Head count	Full-time equivalents	Business enterprise	Government	Higher education	Private non-profit
EU-27 (1)	*2 318 518*	*1 564 770*	*45.3*	*12.7*	*40.9*	*1.1*
Argentina (2)	67 245	43 717	9.6	45.9	42.8	1.6
Australia (3)	:	92 379	30.0	9.0	57.7	3.3
Brazil	231 910	137 187	26.2	5.6	67.5	0.7
Canada (3)	:	148 983	60.6	6.0	33.1	0.3
China (2)	:	1 152 311	61.4	19.0	19.5	:
India	:	:	:	:	:	:
Indonesia (4)	*41 143*	*21 275*	:	:	*35.1*	:
Japan (2)	889 341	655 530	74.8	5.0	19.0	1.2
Mexico (2)	:	42 973	37.7	19.3	40.4	2.6
Russia (5)	368 915	442 071	47.8	32.8	19.1	0.3
Saudi Arabia (6)	1 271	:	:	:	:	:
South Africa (3)	39 955	19 384	31.8	15.7	51.3	1.1
South Korea	345 912	264 118	76.5	7.5	14.9	1.1
Turkey (7)	124 796	64 341	39.4	9.5	51.2	:
United States (8)	:	*1 412 639*	*80.0*	:	:	:

(1) Head count, 2009. (2) 2009. (3) 2008. (4) 2009; partial data. (5) Head count, underestimated. (6) Government only, partial data, 2009. (7) Data for higher education shows the number of graduates. (8) 2007.

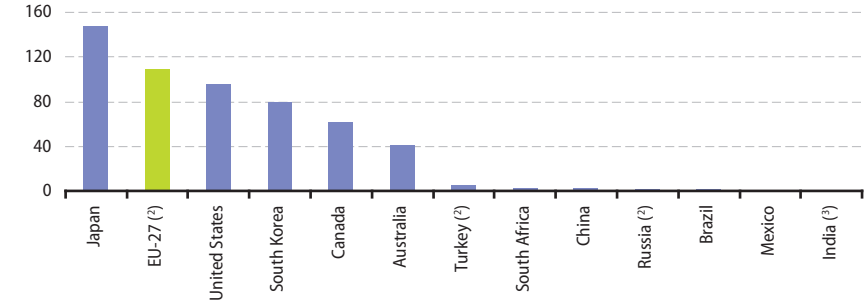
Source: Eurostat (online data code: rd_p_persocc) and the United Nations Educational, Scientific and Cultural Organisation (UIS: Science & Technology)

As well as offering protection, patents result in inventions becoming public and can be seen as an important source for providing technical information. The statistics for patent applications to the European Patent Office (EPO) (see Figure 13.4) 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-27.

The UN's World Intellectual Property Organisation provides estimates for global patent applications and estimates that around 2 million patent applications were made in 2010, of which 62 % were filed by residents. Japan's share of patent applications fell between 2000 and 2010 by 12.3 percentage points but Japan remained at the top of the ranking by country of origin with 23.3 % of all patent applications worldwide. Over the same period China's share of patent applications increased by 13.6 percentage points to move to fourth place with 15.5 % of all patent applications, behind the EU-27 (17.6 %), the United States (21.0 %) and Japan, while South Korea's share also increased substantially (up 2.8 percentage points).

Figure 13.4: Patent applications to the European patent office, 2008 (1)

(number per million inhabitants)

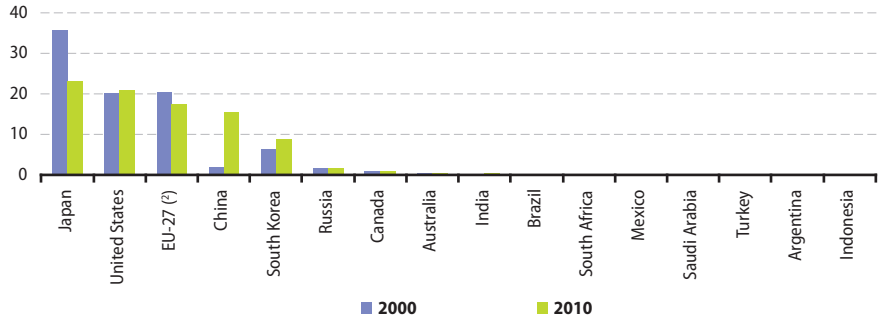


(1) Argentina, Indonesia and Saudi Arabia, not available.
(2) 2010, estimate.
(3) 2007.

Source: Eurostat (online data code: pat_ep_ntot)

Figure 13.5: Share of world patent applications, 2000 and 2010 (1)

(%)



(1) Estimates; country of origin based on the residence of the first-named applicant (or assignee).
(2) Sum of data for the 27 EU Member States.

Source: the World Intellectual Property Organisation

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 (http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Category:Glossary) of Eurostat's Statistics Explained website (http://epp.eurostat.ec.europa.eu/statistics_explained).

General concepts

AAGR: the annual average growth rate (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 beginning the two values.

Extra-EU: refers to transactions with all countries outside of the EU, in other words the rest of the world except for the EU (at the time of writing consisting of 27 EU Member States). The term is used in the context of international trade, balance of payments, foreign direct investment, migration, transport, tourism and similar 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 of the 27 Member States.

Intra-EU: refers to all transactions occurring within the EU.

Gross domestic product (GDP): see glossary for Chapter 1.

GDP (or gross national income (GNI)) converted with PPPs: the calculation of this indicator requires the conversion of GDP (or GNI) 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 United States dollars (as is done in this publication) or an artificial currency such as purchasing power standards (which is normally done for analysis within the EU).

Population: see glossary for Chapter 2.

Surface area: the surface or total area of a country comprises land area and inland water bodies.

Chapter 1: Economy and finance

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.

Constant price GDP: refers to the level of GDP 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.

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.

GNI converted with PPPs: see definition for GDP (or GNI) converted with PPPs (under general concepts above).

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 debt: often referred to as national debt or public debt is the sum of external obligations (debts) of the government and public sector agencies. The external obligations are the debt or outstanding (unpaid) financial liabilities arising from past borrowing.

Government expenditure and revenue: government revenue is the income a government receives, while government expenditure is the money it spends.

Current account: covers international transactions in goods, services, income, and current transfers.

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.

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.

Short-term official lending rates: the rates at which short-term borrowings are effected. Typical standardised names are the money market rate and treasury bill rate.

Chapter 2: Population

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.

Population density: the number of inhabitants per square kilometre (km^2) of land area.

(Total) age dependency ratio: population aged 0 to 14 and 65 or more as a percentage of the population aged 15 to 64.

Young-age dependency ratio: population aged 0 to 14 as a percentage of the population aged 15 to 64.

Old-age dependency ratio: population aged 65 or more as a percentage of the population aged 15 to 64.

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.

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.

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 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.

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.

Asylum applicants: a person having submitted an application for international protection or having been included in such an application as a family member during the reference period.

Chapter 3: Health

Infant mortality rate: is the mortality of live-born children aged less than one year.

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 (age-specific probabilities of dying, in other words, the death rates observed for the current period).

Healthy life years: also called disability-free life expectancy, are defined as the number of years that a person is expected to continue to live in a healthy condition. A healthy condition is defined as one without limitation in functioning and without disability.

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.

Chapter 4: Education and training

International Standard Classification of Education (ISCED): is an instrument for compiling internationally comparable education statistics. The version used in this publication is ISCED 1997.

ISCED education levels: There are seven levels of education in ISCED 1997.
Level 0 pre-primary education – for children aged at least three years.
Level 1 primary education – begins between five and seven years of age.
Level 2 lower secondary education – usually, the end of this level coincides with the end of compulsory education.
Level 3 upper secondary education – entrance age is typically 15 or 16 years.
Level 4 post-secondary non-tertiary education – 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 level 5 or programmes designed to prepare pupils for direct labour market entry.
Level 5 tertiary education (first stage) – 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) – reserved for tertiary studies that lead to an advanced research qualification (Ph.D. or doctorate).

ISCED fields of study: the ISCED 1997 classification comprises 25 fields of education in all (at the two-digit level), which can be further refined into the three-digit level. At the highest one-digit level the following nine broad groups of fields of education are distinguished: 0 – general programmes; 1 – education; 2 – humanities and arts; 3 – social sciences, business and law; 4 – science; 5 – engineering, manufacturing and construction; 6 – agriculture; 7 – health and welfare; 8 – services.

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.

Participation in early childhood education: for the EU-27 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.

Chapter 5: Labour market

Activity rate: the percentage of active persons in relation to the comparable total 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.

Unemployment rate: the number of unemployed persons as a percentage of the labour force.

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.

Adult unemployment rate: the percentage of the unemployed in the age group 25 years old and over compared with the total labour force (both employed and unemployed) in that age group.

Long-term unemployed: persons who have been unemployed for one year or more.

Minimum wage: the lowest wage that employers are legally obliged to pay their employees. The basic national minimum wage can be fixed at an hourly, weekly or monthly rate. The national minimum wage usually applies to all employees, or at least to a large majority of employees in the country. Some countries have exceptions, for example for younger workers, apprentices or workers with disabilities.

Mean wage: the indicator presented in this publication is based on gross nominal wages, including employee's social security contributions.

Chapter 6: Living conditions and social protection

Rural and urban areas: the data presented in this publication are generally based on national definitions of urban and rural areas. Common criteria are the population size or density of administrative centres or population centres; other criteria include the type of land use and/or the relative importance of agricultural workers in the labour force.

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.

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.

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.

Prevalence of under-nourishment: the proportion of the population whose food intake is insufficient to meet dietary energy requirements.

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).

Chapter 7: Industry, trade and services, tourism and the information society

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.

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.

Volume of retail sales index: also known as the index of the volume of (retail) sales, is a volume measure of the retail trade turnover index. In order to eliminate the price effect on turnover in the retail trade, a deflator of sales is used.

Value added: can be calculated as the 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-27, Brazil, Indonesia and Turkey), basic prices (Russia and South Africa) and producer prices (China and India).

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.

ISIC: is the United Nations International Standard Industrial Classification of All Economic Activities.

Specialisation: the most specialised country in an activity is the one where that activity's share of a total (for example, manufacturing) is highest. By contrast to concentration measures that typically highlight the largest countries in absolute terms, measures of specialisation

may identify smaller or medium-sized countries. Various measures may be used to identify specialisation, most commonly output measures such as value added as well as labour input (employment).

Tourist: also known as overnight visitor, a tourist is a visitor who stays at least one night in collective or private tourist accommodation in the defined geographical area visited.

Tourist accommodation establishments: refer to every type of establishment or dwelling where tourists can be lodged. It covers both collective tourist accommodation establishments (hotels and similar establishments, holiday dwellings, tourist campsites, marinas, health establishments, work and holiday camps, public means of transport and conference centres, and so on) and private tourist accommodation (for example, rented accommodation).

Telephone subscriptions – cellular: a mobile phone subscription refers to the use of public mobile telecommunication systems (also called mobiles or cellphones) using cellular technology. Active pre-paid cards are treated as subscriptions; people may have more than one subscription.

Internet use: refers to individuals aged 16-74 years old who have used the internet at least once and at any place within the 12 months prior to the survey.

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 a 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).

Chapter 8: Agriculture, forestry and fisheries

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.

Fish catch: (or simply catch) refers to catches of fishery products including fish, molluscs, crustaceans and other aquatic animals, residues and aquatic plants. These are taken for all purposes by all types and classes of fishing units that are operating in inland, fresh and brackish water areas, and in inshore, offshore and high-seas fishing areas. Production from aquaculture is excluded. Catch is normally expressed in live weight and derived by the application of conversion factors to the actual landed or product weight. As such, the catch statistics exclude quantities of fishery products which are caught but which, for a variety of reasons, are not landed.

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.

Economically active population: the economically active population comprises employed and unemployed persons.

Agricultural area: also known as utilised agricultural area, describes the area used for farming. It includes the land categories: arable land; permanent grassland; permanent crops; other agricultural land such as kitchen gardens (even if they only represent small areas of the total utilised agricultural area). The term does not include unused agricultural land, woodland and land occupied, for example, by buildings, farmyards, tracks or ponds.

Area: the surface or total area of a country comprises land area and inland water bodies.

Hectares (ha): equal to 100 ares or 10 000 m². One km² comprises 100 ha.

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 the highest emphasis on environmental and wildlife protection and, with regard to livestock production, on animal welfare considerations.

Crop production: refers to the amount of harvested production not including any losses to the harvest.

Meat production: covers the carcass weight of slaughtered animals, whose meat is declared fit for human consumption.

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.

Chapter 9: International trade

Trade integration: average of imports and exports (of goods and/or services) from the balance of payments divided by GDP, expressed as a percentage.

Credits: a credit is an inflow in relation to the provision of goods, services, income and current transfers and is similar to an export.

Debits: a debit is an outflow made for the acquisition of goods, services, income and current transfers and is similar to an import.

Chapter 10: Transport

Passenger cars: a road motor vehicle, other than a moped or a motor cycle, 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.

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.

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.

Deadweight tonnage: the weight measure of a vessel's carrying capacity; it includes cargo, fuel and stores.

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.

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.

Chapter 11: Environment

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_2), methane (CH_4) and nitrous oxide (N_2O); and the fluorinated gases hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6).

CO_2-equivalents: conversion of greenhouse gas emissions to carbon dioxide or CO_2-equivalents makes it possible to compare them and to determine their individual and total contributions to global warming.

Ozone depleting substances (ODS): substances contributing to ozone (O_3) depletion in the Earth's atmosphere; these substances are listed in the Montreal Protocol which is designed to phase out their production and consumption.

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.

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 all 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.

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.

Municipal waste collected: refers to waste collected by or on behalf of municipalities, as well as municipal waste collected by the private sector. It includes mixed waste, and fractions collected separately for recovery operations (through door-to-door collection and/or through voluntary deposits).

Municipal waste generated: consists to a large extent of waste generated by households, but may also include similar wastes generated by small businesses and public institutions and collected by the municipality; this part of municipal waste may vary from municipality to municipality and from country to country, depending on the local waste management system. For areas not covered by a municipal waste collection scheme the amount of waste generated is estimated.

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 generator of the waste) and in external sites.

Incinerating: is the controlled combustion of waste with or without energy recovery.

Recycling: is any reprocessing of waste material in a production process that diverts it from the waste stream, except reuse as fuel. Both reprocessing as the same type of product and for different purposes should be included. Recycling within industrial plants (at the place of generation) should be excluded.

Composting: is a biological process that submits biodegradable waste to anaerobic or aerobic decomposition and that results in a product that is recovered and can be used to increase soil fertility.

Protected area: an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means. Marine protected areas are any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment.

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.

Chapter 12: Energy

Production of primary 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, hydro power plants) or in the fabrication of biofuels. Transforming energy from one form into another is not primary production.

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; non-renewable waste may be industrial or municipal waste.

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 follows: primary production + recovered products + net imports + variations of stocks – bunkers.

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.

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).

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.

RON: the research octane number is a performance rating of a fuel indicating its resistance to detonation; higher ratings indicate higher resistance.

Chapter 13: Science and technology

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.

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.

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.

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.

Researchers: can be employed in the public or the private sector – including academia – to create new knowledge, products, processes and methods, as well as to manage the projects concerned.

Patent application: is an application to protect 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.

Abbreviations

Units of measurement

%	per cent
µm	micrometer
CO_2-equivalents	carbon dioxide equivalents
DWT	deadweight tonnes
EUR	euro
GWh	gigawatt-hour
kg	kilogram
km	kilometre
km^2	square kilometre
m^3	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
EU	European Union
EU-27	European Union of 27 Member States
G20	Group of Twenty
G7	Group of Seven

Other abbreviations

AAGR	annual average growth rate
CH_4	methane
CO_2	carbon dioxide
CPI	consumer price index
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
GFS	government finance statistics
GHG	greenhouse gases
GNI	gross national income
HFCs	hydrofluorocarbons
HICP	harmonised index of consumer prices
ICT	information and communication technology
ISCED	International Standard Classification of Education
ISIC	International Standard Industrial Classification of All Economic Activities
n.e.c.	not elsewhere classified
N_2O	nitrous oxide
NACE	statistical classification of economic activities within the European Community
NO	nitric oxide
NO_2	nitrogen dioxide
NO_x	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
RON	research octane number
SF_6	sulphur hexafluoride
SO_2	sulphur dioxide
UN	United Nations
UNFCC	United Nations' Framework Convention on Climate Change

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