eurostat
Pocketbooks

The European Union and the BRIC countries

2012 edition

eurostat
EUROPEAN COMMISSION

The European Union and the BRIC countries

More information on the European Union is available on the Internet
(http://europa.eu).

Cataloguing data can be found at the end of this publication.

Printed in Belgium

Printed on elemental chlorine-free bleached paper (ECF)

Table of contents

Introduction

Eurostat, and Brazil, Russia, India and China — the BRIC countries

This publication presents the results of a desk study done in order to find best comparable information which allows an overview of EU-27 and the countries of Brazil, Russia, India and China. In Eurostat, relations with other developed countries outside of the EU take place mainly via bilateral agreements or in international fora such as the UN and OECD. Eurostat has a Memorandum of Understanding (MoU) with the Brazilian Institute of Geography and Statistics (IBGE) signed in 2010, and the National Bureau of Statistics of the People's Republic of China signed in 2011. The MoU with the Indian Central Statistics Office was signed in February 2012 while a follow-up to the 2002 MoU with the Federal States Statistics Service of Russia (Rosstat) is currently being drafted.

The EU and the BRICs

The EU has strategic partnerships with all BRIC countries and although it does not recognise the BRICs as a group it negotiates through bilateral discussions with each. Even though the BRIC countries have certain aspects in common, such as large populations, large land coverage and rapid economic growth and while trade amongst all entities is vigorous, there are equally large differences, economically, socially and politically, between these four countries and the EU.

The first EU-**Brazil** Summit was held in Lisbon in July 2007. Central topics of the new partnership include effective multilateralism, climate change, sustainable energy, the fight against poverty, the Mercosur's integration process and Latin America's stability and prosperity. Trade is another important subject of dialogue, as Brazil is the most important market for the EU in Latin America.

The ongoing cooperation with **Russia** is based on 4 specific policy areas. These "common spaces", cover Economic issues and the Environment; Freedom, Security & Justice; External Security; and Research & Education, including cultural aspects. The EU and Russia concluded a Partnership and Co-operation Agreement in 1994. Negotiations on a New EU-Russia Agreement were launched in June 2008. The New

Agreement should update and replace the existing Partnership and Cooperation Agreement, providing a comprehensive framework for EU-Russia relations.

The EU and the **Republic of India** benefit from a long-standing relationship going back to the early 1960s. The Joint Political Statement of 1993 and the 1994 Co-operation Agreement, which is the current legislative framework for cooperation, opened the door to a broad political dialogue, which evolves through annual Summits, regular ministerial and expert level meetings. In 2004 India became one of the EU's "Strategic Partners". Since 2005, the Joint Action Plan is helping to realise the full potential of this partnership in key areas of interest for India and the EU.

EU relations with **China** were established in 1975 and are governed by the 1985 EU-China Trade and Cooperation Agreement. The EU is China's biggest trading partner, while China is the EU's largest source of imports and second largest two-way trading partner. To reflect the depth and breadth of their Strategic Partnership, the EU and China decided in 2010 to upgrade their bilateral relations on foreign affairs, security matters and global challenges such as climate change, the recovery of the global economy, etc. Annual summits and regular political, trade and economic dialogues are held, including over 50 sectoral dialogues and agreements, ranging from environmental protection to industrial policy, education or culture.

What does Eurostat do?

Eurostat is the European Union's statistical office, based in Luxembourg. Its purpose is to provide the European Union with statistics for Europe that enable comparisons between countries and regions.

Eurostat's main role is to process and publish comparable statistical information at European level with the goal of having a common statistical 'language' that embraces concepts, methods, structures and technical standards.

Eurostat does not collect data at national level. This is done in the EU Member States by their statistical authorities. They verify and analyse national data and send them to Eurostat. Eurostat's role is to consolidate the data and ensure they are comparable, using harmonized methodology. Eurostat is actually the only provider of statistics at European level and

the data published are harmonised as far as possible.

The European Statistical System (ESS) is a partnership between Eurostat, national statistical institutes (NSIs) and other national authorities responsible for developing, producing and disseminating statistics. The ESS functions as a network in which Eurostat's role is to lead the way in harmonising statistics, in close cooperation with national statistical authorities.

One of the main tools for promoting harmonised European statistics is the European statistics code of practice (*). This has a dual purpose: to raise the quality of official statistics produced and published, through the promotion of the best international statistical principles, methods and practices; while at the same time, improving trust and confidence in statistical authorities through institutional and organisational changes. The code mirrors international standards, such as the fundamental principles of official statistics adopted in 1994 by the United Nations Statistical Commission (**). The 15 principles of the European code of practice address the institutional environment, statistical processes and statistical outputs.

Structure of the publication

Apart from the introductory section, the publication is structured in 10 themes covering demography; economy; health; education; labour market; trade in goods; agriculture, forestry and fisheries; energy and environment; transport and communications; and science and technology.

The statistical data presented in these chapters have been chosen in an attempt to include comparable data that are available both for the majority of the BRIC countries and the European Union, based on the same reference periods where possible and using the same measurement units. Although most figures use international statistical concepts and definitions, there may be certain discrepancies in the methods used to compile the data; the reader should therefore be particularly attentive to footnotes under the tables/figures and the methodological information supplied at the end of each individual chapter.

(*) European statistics code of practice, Eurostat leaflet: http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/publication?p_product_code=KS-32-11-955
(**) http://unstats.un.org/unsd/dnss/gp/fundprinciples.aspx

Data sources

In order to provide a comparative view of the situation amongst the BRIC countries and the EU, use has often been made of data collected by international organisations such as the UN and its agencies, the OECD and others. Data has also been taken from national yearbooks. The statistical data for the EU-27 stem largely from Eurostat's statistical reference database (Eurobase) and were essentially extracted between December 2011 and February 2012. External trade data for the EU-27 have mainly been taken from Eurostat's Foreign Trade database (Comext) and reflect data availability as of the beginning of February 2012. Trade data for the BRIC countries have been extracted from the UN's Comtrade database.

If a particular reference year was not available at the time of the extraction, efforts were made to fill tables or graphs with the most recent year's data. These exceptions are footnoted.

Both Eurobase and Comext databases are updated regularly; therefore, there may be differences between data appearing in this publication and data that is subsequently downloaded.

Readers are invited to explore the national databases of each BRIC country:

Brazil: http://seriesestatisticas.ibge.gov.br/

Russia: http://www.gks.ru/wps/wcm/connect/rosstat/rosstat-site.eng/

India: http://mospi.nic.in/Mospi_New/site/India_Statistics.aspx?status=1&menu_id=14

China: http://www.stats.gov.cn/english/statisticaldata/

Obtaining fresh data from Eurostat

The most up to date figures for the EU-27 and the individual Member States can be obtained free of charge from Eurobase, Eurostat's reference database which is available through the Eurostat website. There is a code beneath each table or graph that indicates from where the relevant data can be retrieved either through Eurobase's search engine or from the search field of the Eurostat website (www.ec.europa.eu/eurostat - home page, upper right corner). The latter search mode will also indicate other publications where this data has been used and give links to the relevant metadata. In the PDF version of this publication, the reader is led directly to the freshest data by clicking on the hyper-links beneath the tables and graphs.

Symbols and abbreviations

EUR	euro
ha	hectare
head	unit of measure for counting the number of animals
kg	kilogram (1 000 grams), a unit of weight
km	kilometre (1 000 metres), a unit of distance
km²	square kilometre, a unit of area
kWh	kilowatt hour
m³	cubic metre
Mtoe	million of tonnes of oil equivalent
toe	tonne of oil equivalent
tonnes	tonne = 1 000 kg
:	Data not available, confidential or unreliable

Demography

1

Introduction

Population change and the structure of the population are gaining importance in the political, economic, social and cultural context of demographic behaviour. Demographic trends in population growth, fertility, mortality and migration are closely followed by policymakers and can be studied from different disciplinary perspectives. A country's population directly affects the potential size of its economy and its capacity to function as an engine of global economic growth and development. In such a multidisciplinary approach, demography statistics are at the basis of a large number of topics.

As the population of the EU grew beyond 500 million inhabitants in 2010, its structure continues to change. Recent demographic developments show that the EU's population is increasing, while its age structure is becoming older as post-war baby-boom generations reach retirement age. Furthermore, people are living longer, as life expectancy continues to increase. While fertility is increasing slowly, it remains well below a level that would keep the size of the population constant in the absence of migration. In the coming decades, the EU will face challenges associated with an ageing society, impacting on a range of areas such as labour markets, pensions, healthcare, housing and social services.

Together, the four BRIC countries comprise more than 3.3 billion people and cover more than a quarter of the world's land area over three continents. However, the demographic outlook for the BRIC countries differs considerably from one country to another: India shows a declining fertility but still a continued population growth; Brazil features a low mortality and fertility rate with a slowing population growth, while Russia has already registered a number of years with sub-replacement-rate fertility and a declining population. China's one-child policy has resulted in a higher per-child education investment, resulting in a well-educated work force. Although the one-child policy is now gradually being abandoned, it will have multiple effects in the future.

The demographic developments in the BRICs will vary greatly over the next decades and will considerably impact economic growth prospects. Especially relevant is the population of working-age: while the elderly cohort is expanding significantly, the workforce needed to support that cohort is

shrinking. The decline of the population of working-age is expected to be particularly felt in Russia and China.

This chapter gives information on

- Land area and the population
- Age structure of the population
- Largest cities and their respective populations
- Population projections up to 2050
- Population change: natural change and net migration
- Crude marriage and divorce rates.

Table 1.1: Land and population, 2010

	Land Area (1 000 km²)	Population (thousand)	Density (inhab. per km²)
EU-27	4 304	501 104	116.4
Brazil	8 514	190 756	22.4
Russia	17 098	141 915	8.3
India	3 287	1 210 193	382.0
China	9 600	1 354 146	141.1

Note: EU-27 and India, provisional data for population.

Source: EU-27, Eurostat (online data codes: demo_pjan and demo_r_d3dens); Brazil, IBGE; Russia, Russian Federal State Statistics Service; India Census 2011; China Statistical Yearbook 2010.

Figure 1.1: Population age structure by major age groups, 2010
(% of the total population)
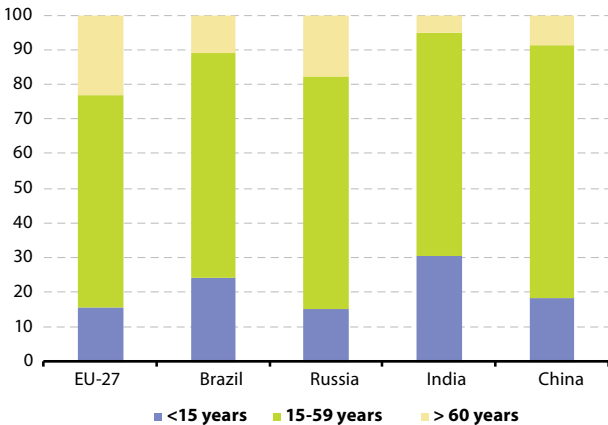
Note: Russia and China, 2009 instead of 2010.

Source: EU-27 and Russia, Eurostat (online data code: demo_pjanind); Brazil, IBGE Censo 2010; India, OECD; China, Statistical Yearbook 2010.

© UN/FAO for the administrative boundaries
Cartography: Eurostat — GISCO, 01/2012

Outermost regions of the
European Union
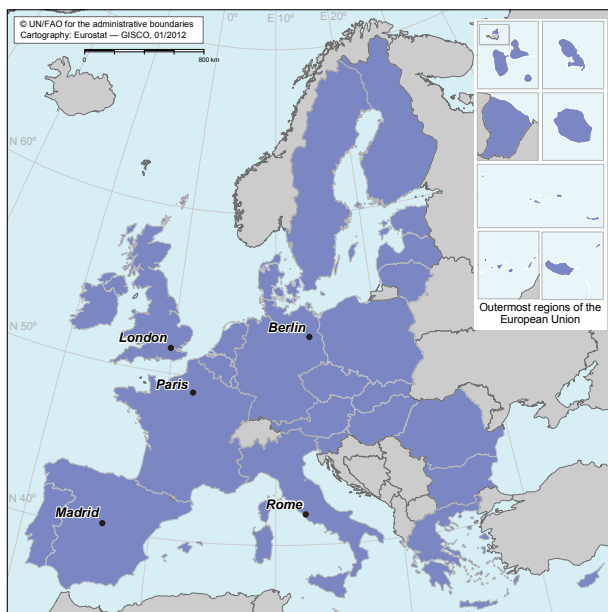
EU-27 — Largest cities
(population in 1 000)

Cities	Population
London	7 688
Berlin	3 432
Madrid	3 213
Rome	2 719
Paris	2 181

Source: Eurostat (online data code: tgs00079).

Brazil — Largest cities,
(population in 1 000)

Cities	Population
São Paulo	11 300
Rio de Janeiro	6 300
Salvador da Bahia	2 700
Brasília	2 600
Belo Horizonte	**2 400**

Source: World Gazetteer.
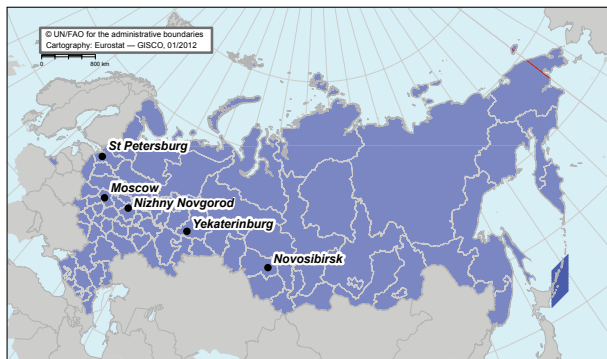
Russia — Largest cities
(population in 1 000)

Cities	Population
Moscow	11 514
St Petersburg	4 849
Novosibirsk	1 473
Yekaterinburg	1 383
Nizhny Novgorod	1 251

Source: World Gazetteer.

© UN/FAO for the administrative boundaries
Cartography: Eurostat — GISCO, 01/2012

*The pictorial representation does not purport
to be the political map of India*

0   800 km

Pakistan
Administered
Kashmir

Delhi

Kolkata

Mumbai

Chennai

Bangalore

N 20°

N 10°

E 80°   E 90°
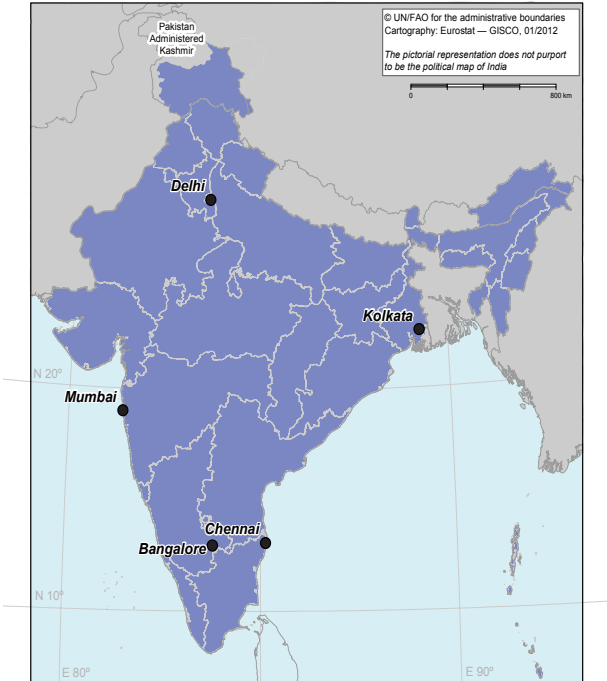
India — Largest cities
(population in 1 000)

Cities	Population
Mumbai	12 487
Delhi	11 008
Bangalore	8 426
Chennai	4 681
Kolkata	4 487

Source: Census of India - 2011 data.

China — Largest cities
(population in 1 000)

Cities	Population
Beijing	16 330
Shanghai	13 910
Guangzhou	12 760
Shenzhen	10 360
Hong Kong	7 102

Source: World Gazetteer.

Table 1.2: Ratio of Women
(per 100 men)

	2000	2010
EU-27	105.4	104.8
Brazil	103.2	104.2
Russia	113.8	116.2
India	93.3	94.0
China	93.7	94.4

Note: EU-27, 2010 provisional value.

Source: EU-27 and Russia, Eurostat (online data code: demo_pjan); Brazil, IBGE;
Census of India, 2011; China Statistical Yearbook 2010.

Table 1.3: Population 1960 – 2050 (incl. projections)
(1 000)

	1960	1970	1990	2010	2030	2050
EU-27	402 607	435 474	470 388	501 104	522 342	524 053
Brazil	72 759	96 078	149 650	190 756	220 492	215 287
Russia	119 906	130 392	148 244	141 915	136 429	109 187
India	447 844	553 874	873 785	1 210 193	1 523 482	1 531 400
China	658 270	814 623	1 145 195	1 354 146	1 393 076	1 395 200

Source: Population up to 2010: Eurostat (online data code: demo_pjan); Brazil,
IBGE; Russia in Figures, 2010; India Census 2011; China Statistical Yearbook 2010;
Projected population: Eurostat (online data code: proj_10c2150p); BRIC, World
Population Prospects — the 2010 revision (UN).

Figure 1.2: Total population change — crude rates
(per 1 000 inhabitants)
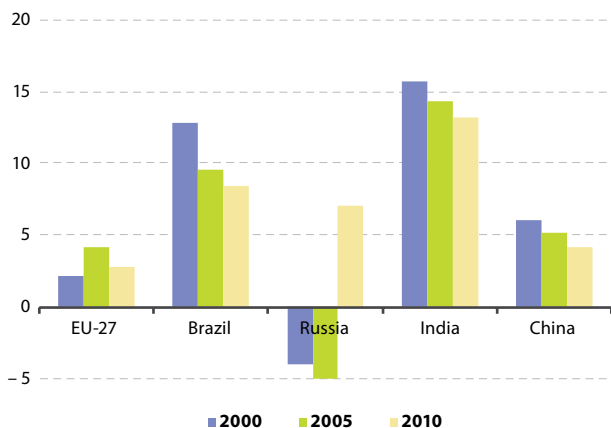
■ **2000**　■ **2005**　■ **2010**

Source: EU-27 and Russia, Eurostat (online data code: demo_gind); Brazil, India and China, World Population Prospects, the 2010 Revision (UN).

Table 1.4: Population change — crude rates
(per 1 000 inhabitants)

	Natural change			**Net migration**		
	2000	**2005**	**2010**	**2000**	**2005**	**2010**
EU-27	0.6	0.6	1.0	1.5	3.6	1.7
Brazil	13.4	10.0	8.6	− 0.6	− 0.5	− 0.2
Russia	− 6.5	− 5.9	− 1.7	2.5	0.9	8.7
India	16.1	14.8	13.4	− 0.4	− 0.5	− 0.2
China	6.4	5.4	4.4	− 0.4	− 0.3	− 0.3

Source: EU-27 and Russia, Eurostat (online data code: demo_gind); Brazil, India and China, World Population Prospects, the 2010 Revision (UN).

Table 1.5: Crude marriage rate
(per 1 000 inhabitants)

	2005	2006	2007	2008	2009	2010
EU-27	4.9	:	4.9	4.7	4.5	:
Brazil	4.5	4.7	6.6	6.8	6.6	:
Russia	7.5	7.8	8.9	8.3	8.5	8.5
India	:	:	:	:	:	:
China	6.3	7.2	7.5	8.3	9.1	9.0

Source: EU-27 and Russia, Eurostat (online data code: demo_nind); Brazil, India and China, United Nations, Department of Economic and Social Affairs, Population Division (2009), World Marriage Data.

Table 1.6: Crude divorce rate
(per 1 000 inhabitants)

	2005	2006	2007	2008	2009	2010
EU-27	2.1	2.1	2.1	2.0	:	:
Brazil	0.8	0.9	1.4	1.5	1.4	:
Russia	4.2	4.5	4.8	5.0	4.9	4.5
India	:	:	:	:	:	:
China	1.4	1.5	1.6	1.7	1.9	2.0

Source: EU-27 and Russia (online data code: demo_nind); Brazil, India and China, United Nations, Department of Economic and Social Affairs, Population Division (2009), World Marriage Data.

Definitions and methodological information

Population change is the difference between the sizes of population measured on 1 January of two consecutive years.

Population change consists of two components:

- **natural change,** calculated as the difference between live births and deaths; and

- **net migration** (including statistical adjustment), calculated as the difference between the total change in the population and natural change; the statistics on net migration are therefore affected by all the statistical inaccuracies in the two components of this equation, especially population change. From one country to another 'net migration including statistical adjustment' may cover, besides the difference between inward and outward migration, other changes observed in the population figures between 1 January in two consecutive years which cannot be attributed to births, deaths, immigration or emigration.

A positive population change is referred to as population growth. A negative population change is referred to as population decline. A positive natural change, also known as natural increase, occurs when live births outnumber deaths. A negative natural change, also known as natural decrease, occurs when live births are less numerous than deaths.

Crude rate: the crude rate is calculated as the ratio of the number of events to the average population in a given year. For easier presentation, it is multiplied by 1 000; the result is therefore expressed per 1 000 inhabitants.

Crude marriage rate is the ratio of the number of marriages during the year to the average population in that year. The value is expressed per 1 000 inhabitants.

Crude divorce rate is the ratio of the number of divorces during the year to the average population in that year. The value is expressed per 1 000 inhabitants.

Other data sources:

IBGE – Instituto Brasileiro de Geografia e Estatistica:
http://www.ibge.gov.br/english/#sub_indicadores

China Statistical Yearbook 2010:
http://www.stats.gov.cn/tjsj/ndsj/2010/indexeh.htm

Census of India: http://www.censusindia.net/

World Population Prospects, the 2010 revision:
http://esa.un.org/wpp/Excel-Data/population.htm

United Nations Population division/DESA, World Marriage
Data: http://www.un.org/esa/population/publications/
WMD2008/WP_WMD_2008/Data.html

Economy

2

Introduction

Global economic interdependencies have increased considerably over recent decades. All countries benefit from this process, which brings about economic prosperity. In order to manage this process of increasing economic and financial interdependencies, the European Union maintains economic dialogues with many countries and institutions in the world.

The world economy has considerably increased over the last decade, and a substantial part may be attributed to the growth registered in the BRIC countries. The BRIC economies continue to grow and domestic demand has reached unprecedented levels. The 2008 financial crisis only temporarily resulted in a slowdown. Yet, the structures of the economies of the four BRIC countries are quite different: Brazil specialises in agriculture, Russia in commodities, India in services and China in manufacturing. Its unifying criteria are high economic growth, a certain economic backwardness and large size.

The notion of the BRICs captures well the shift of economic power away from mature, developed countries, particularly western Europe and Japan, to 'emerging countries'. The recent financial crisis has only accelerated this shift. Although all BRIC countries are members of the G20, created in 2003, only Russia has joined the forum of the governments of the world's so-called largest economies in 1997, making it the "Group of Eight" (G8).

The following pages show information on

- Development of the Gross Domestic Product (GDP)
- GDP per capita, in Purchasing Power Parities (PPP)
- Gross Value Added (GVA) of the main sectors of the economy
- Gross fixed capital formation, as percentage of GDP
- Inflation, expressed as the development of the harmonized index of consumer prices
- Producer prices index
- Share prices index

Figure 2.1: GDP at current prices
(million EUR)
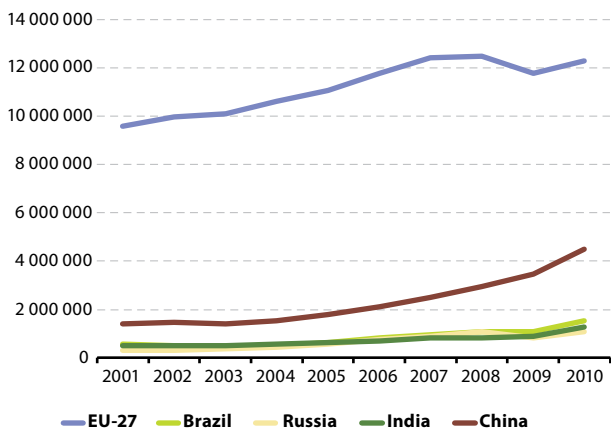
Note: for BRIC, the data was calculated using the average Euro exchange rates (online data code: ert_bil_eur_a) to the national currency.

Source: EU-27, Eurostat (online data code: nama_gdp_c); BRIC, United Nations Statistics Division.

Figure 2.2: GDP at constant prices, indexed series (2001=100) based on national currencies
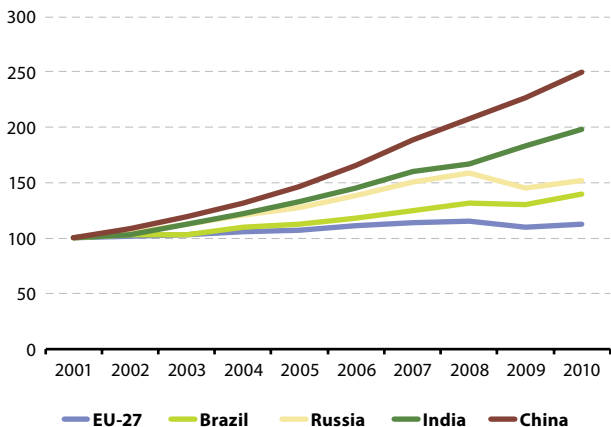
Source: EU-27, Eurostat (online data code: nama_gdp_k); BRIC, United Nations Statistics Division.

Figure 2.3: GDP per capita
(US dollars, current prices and PPPs)

■ **2000** ■ **2005** ■ **2009**
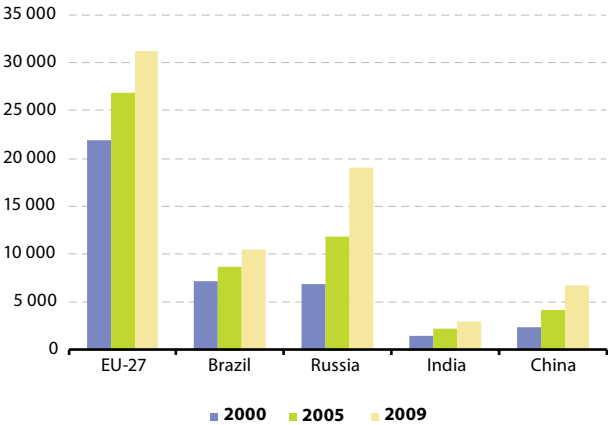
Source: OECD.

Table 2.1: GDP growth rate (compared to previous year)
(%)

	2005	2006	2007	2008	2009	2010
EU-27	2.0	3.3	3.2	0.3	− 4.3	1.9
Brazil	3.2	3.9	6.1	5.1	− 0.6	7.4
Russia	6.3	8.2	8.5	5.2	− 7.8	4.0
India	9.3	9.2	9.8	4.9	9.1	8.8
China	11.3	12.7	14.2	9.6	9.2	10.4

Source: EU-27, Eurostat (online data code: tsieb020); BRIC, World Development Indicators.

Figure 2.4: Gross value added, 2010
(% of total)

■ **Agriculture and fishing** (¹) ■ **Industry** (²) ■ **Services**
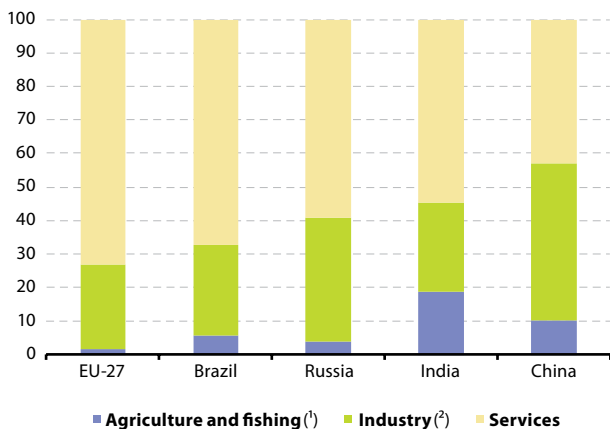
(¹) For BRIC, includes forestry, hunting, and fishing, as well as cultivation of crops and livestock production.
(²) For BRIC, industry corresponds to ISIC divisions 10-45 and includes manufacturing (ISIC divisions 15-37). It comprises value added in mining, manufacturing, construction, electricity, water, and gas.

Source: EU-27, Eurostat (online data code: nama_nace10_c); BRIC, The World Bank.

Table 2.2: Gross fixed capital formation
(% of GDP)

	2000	2005	2009	2010
EU-27	20.6	19.9	19.0	18.6
Brazil	16.8	15.9	16.9	18.4
Russia	34.1	40.1	46.0	45.4
India	22.7	30.3	30.8	29.5
China (except Hong Kong)	16.9	17.8	22.0	21.9

Source: EU-27, Eurostat (online data code: nama_gdp_c); BRIC, The World Bank.

Figure 2.5: Index of Consumer Prices, all items base 2005=100
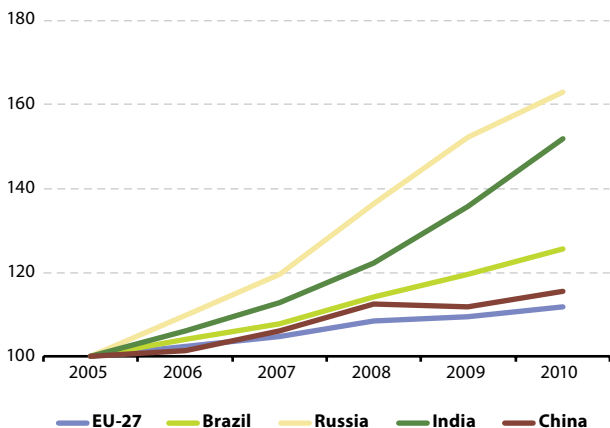
Source: EU-27, Eurostat (online data code: prc_hicp_aind); BRIC, The World Bank.

Figure 2.6: Producer prices index (2005=100)
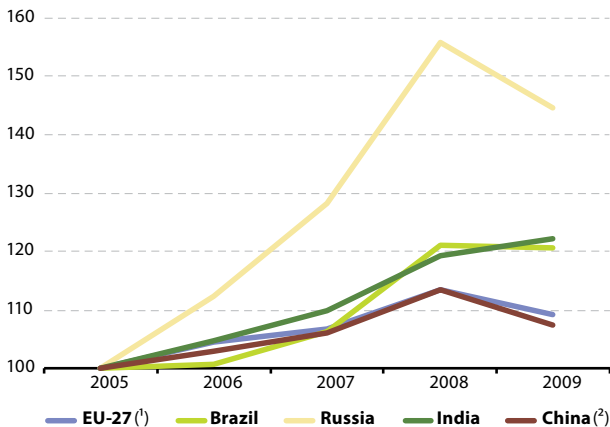
(¹) Industry producer prices.
(²) Manufactured goods only.

Source: EU-27, Eurostat (online data code: sts_inpp_a); Brazil, Russia, India, Principal Global Indicators (PGI); China Statistical Yearbook 2010.

Table 2.3: Share prices, index (2005=100)

	2007	2008	2009	2010	2011
EU-27	124.3	93.2	71.8	82.7	80.5
Brazil	193.2	200.7	191.6	244.2	223.3
Russia	241.1	197.7	142.4	198.4	222.5
India	216.3	207.7	194.3	252.3	250.4
China (except Hong Kong)	369.1	266.8	239.7	247.9	233.7

Source: EU-27, Eurostat (online data code: tec00037); BRIC, Principal Global Indicators (PGI).

Definitions and methodological information

Gross domestic product (GDP) is a basic measure of a country's overall economic health. It is a measure of economic activity, defined as the value of all goods and services produced, less the value of any goods or services used in their creation. Per capita (Latin: "per head") when used in conjunction with GDP, indicates the average per person in a group, usually the entire population of a country, region, or the European Union.

GDP at current prices is GDP at prices of the current reporting period.

GDP growth rate (% change on previous year). The calculation of the annual growth rate of GDP volume is intended to allow comparisons of the dynamics of economic development both over time and between economies of different sizes. For measuring the growth rate of GDP in terms of volumes, the GDP at current prices is valued in the prices of the previous year. Then those computed volume changes are imposed on the level of a reference year; this is called a chain-linked series. Accordingly, price movements will not inflate the growth rate.

Gross Value Added (GVA) is the net result of output valued at basic prices less intermediate consumption valued at purchasers' prices. Output consists of the products created during the accounting period. Intermediate consumption consists of the value of the goods and services consumed as inputs by a process of production, excluding fixed assets whose consumption is recorded as consumption of fixed capital. The goods and services may be either transformed or used up by the production process. GVA is also available broken down by industries according to NACE Rev. 1.1. GVA is calculated before consumption of fixed capital.

Gross Fixed Capital Formation (GFCF) consists of resident producers' acquisitions, less disposals, of fixed assets during a given period plus certain additions to the value of non-produced assets realised by the productive activity of producer or institutional units. Fixed assets are tangible or intangible assets produced as outputs from processes of production that are themselves used repeatedly, or continuously, in processes of production for more than one year. Disposals of fixed assets are treated as negative acquisitions.

Consumer prices indices **(CPIs)** are economic indicators that measure inflation. They show the change in the prices

of consumer goods and services acquired by households over time. For the European Union the index used in this publication is the Harmonised Indices of Consumer Prices (HICP). The HICP is compiled with common methods and definitions in the countries in which it is produced.

Producer prices index is a measure of the change in the prices of goods and services either as they leave their place of production or as they enter the production process. A measure of the change in the prices received by domestic producers for their outputs or of the change in the prices paid by domestic producers for their intermediate inputs.

Share price indices aim to reflect movements in share prices in the market which they represent. The number of stocks used in the national indices varies, as well as their weightings and the formula used (Laspeyres price index, Paasche price index).

Other definition sources:

International Monetary Fund (IMF)
http://www.imf.org/external/data.htm#guide

Other data sources:

United Nations Statistics Division
http://unstats.un.org/unsd/snaama/selbasicFast.asp

Principal Global Indicators (PGI)
http://www.principalglobalindicators.org/default.aspx

The World Bank – http://data.worldbank.org/indicator

Organisation for Economic Cooperation and Development (OECD) – http://www.oecd-ilibrary.org/economics/oecd-factbook-2011-2012_factbook-2011-en

3

Introduction

Good health contributes both to a better quality of life and is essential to human welfare and to sustained economic and social development. It is then not surprising that health is a high priority for the citizens of most countries, who expect to have a long and healthy life, to be protected against illnesses and accidents and to receive appropriate health care.

There are three main global trends that affect health: economic trends (with effects on inequalities and the burden of financing public health), population trends (size and growth, migration, fertility, ageing and dependency) and social trends (urbanisation, housing, education; employment). Hence, many policy areas are of particular relevance in ensuring a high level of health protection.

Particularly relevant to the EU and the BRIC countries, safety at work aims at ensuring protection against workplace risks, work accidents and occupational diseases. Environmental and health policies also need to work in tandem to achieve a high level of health protection.

Health care systems sometimes differ substantially between countries. Joint data collections, including those of the World Health Organization (WHO), from which certain data were taken, allow for improved international comparability.

The following pages offer comparable information on

- Life expectancy

- Infant mortality

- The number of healthy life years one may expect to have

- Main causes of death

- Health expenditure as percentage of GDP, and

- The number of available hospital beds per 10 000 inhabitants.

Table 3.1: Life expectancy at birth by gender
(years)

	2000 (¹)			2009 (²)		
	Total	**Males**	**Females**	**Total**	**Males**	**Females**
EU-27	78	75	81	79	76	82
Brazil	70	67	74	73	70	77
Russia	65	58	72	69	63	75
India	61	60	62	65	63	66
China	71	70	73	74	72	76

(¹) EU-27, 2002.
(²) EU-27, 2008.

Source: EU-27, Eurostat (online data code: demo_mlexpec); BRIC, World Health Organization (WHO).

Figure 3.1: Infant mortality rate
(per 1 000 live births)
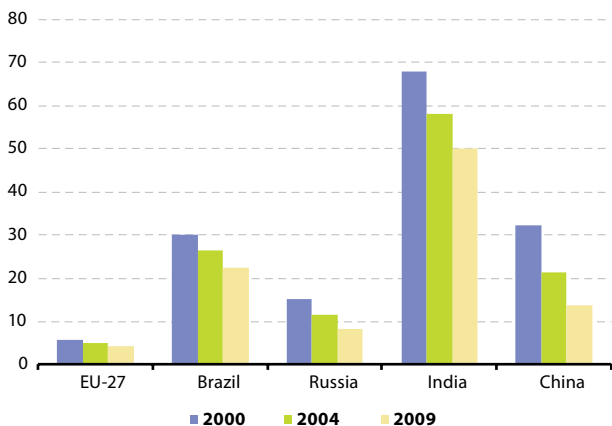
Source: EU-27 and Russia, Eurostat (online data code: demo_minfind); Brazil, IBGE; India, Ministry of Statistics and Programme Implementation and National Health Profile (NHP); China Statistical Yearbook 2010.

Table 3.2: Healthy life years at birth, 2007
(years)

	Male	**Female**
EU-27	61.6	62.3
Brazil	62.0	66.0
Russia	55.0	65.0
India	56.0	57.0
China	65.0	68.0

Source: EU-27, Eurostat (online data code: tsdph100); BRIC, World Health
Organization (WHO).

Table 3.3: Main causes of death in 2008, total
(standardised death rates, per 100 000 inhabitants)

	Infectious and parasitic diseases	Malignant neoplasms	Diseases of the circulatory system	Diseases of the respiratory system	Diseases of the digestive system	Perinatal conditions	Unintentional injury	Intentional injury
EU-27 (^{1})	9.4	174.5	230.2	45.3	32.2	3.7	24.5	10.2
Brazil	34.5	114.7	237.2	44.3	40.0	19.0	41.6	34.5
Russia	49.1	129.8	568.4	20.5	45.5	10.6	116.3	42.5
India	232.2	75.0	316.5	153.6	55.3	50.5	74.5	24.5
China	23.8	145.1	287.3	109.3	20.1	16.0	55.6	13.9

(^{1}) provisional values.

Source: EU-27, Eurostat (online data code: hlth_cd_asdr); BRIC, World Health
Organization (WHO).

Table 3.4: Main causes of death in 2008, male
(standardised death rates, per 100 000 inhabitants)

	Infectious and parasitic diseases	Malignant neoplasms	Diseases of the circulatory system	Diseases of the respiratory system	Diseases of the digestive system	Perinatal conditions	Unintentional injury	Intentional injury
EU-27 (¹)	12.0	231.1	283.2	64.6	41.8	4.1	36.2	16.4
Brazil	42.4	138.3	279.2	56.5	54.7	21.3	64.7	62.1
Russia	67.9	196.2	775.1	41.5	65.9	12.1	194.8	73.9
India	232.9	78.9	366.1	181.2	71.3	48.0	91.6	31.9
China	29.2	185.2	311.2	123.8	24.2	12.9	71.1	15.6

(¹) provisional values.
Source: EU-27, Eurostat (online data code: hlth_cd_asdr); BRIC, World Health Organization (WHO).

Table 3.5: Main causes of death in 2008, female
(standardised death rates, per 100 000 inhabitants)

	Infectious and parasitic diseases	Malignant neoplasms	Diseases of the circulatory system	Diseases of the respiratory system	Diseases of the digestive system	Maternal conditions	Perinatal conditions	Unintentional injury	Intentional injury
EU-27 (¹)	7.3	133.4	186.6	33.0	23.6	0.1	3.2	13.6	4.4
Brazil	27.4	96.3	202.1	34.8	26.9	1.8	16.7	19.8	7.7
Russia	32.8	91.8	429.4	9.1	29.6	0.8	9.1	48.8	15.1
India	230.2	72.0	268.7	128.5	39.4	10.9	53.3	56.7	16.9
China	18.7	107.0	263.0	96.3	16.0	1.0	19.8	38.9	12.2

(¹) provisional values.

Source: EU-27, Eurostat (online data code: hlth_cd_asdr); BRIC, World Health Organization (WHO).

Table 3.6: Total expenditure on health
(% of GDP)

	2000	2006	2009
EU-27 (¹)	:	6.7	7.5
Brazil	7.2	7.5	9.0
Russia	5.4	5.3	5.4
India	4.3	3.6	4.2
China	4.6	4.6	4.6

(¹) Data based on National Accounts data; limited comparability.

Source: EU-27, Eurostat (online data code: gov_a_exp); BRIC, World Health Organization (WHO).

Figure 3.2: Hospital beds, 2009
(per 10 000 inhabitants)
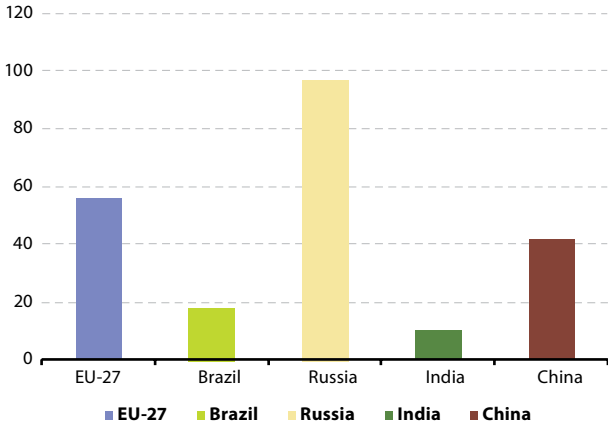
Note: for the BRIC countries, latest year available, between 2000-2009.

Source: EU-27, Eurostat (online data code: hlth_rs_bds); BRIC, World Health Organization (WHO).

Definitions and methodological information

Life expectancy at a certain age is the mean additional number of years that a person of that 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, i.e. the death rates observed for the current period).

Life expectancy is expressed as the number of years persons of different ages may expect to live, starting from age zero. **Life expectancy at birth** is the mean number of years a newborn child can expect to live if subjected throughout his or her life to the current mortality conditions, the probabilities of dying at each age.

Infant mortality rate is defined as the ratio of the number of deaths of children under one year of age to the number of live births in the reference year; the value is expressed per 1 000 live births.

Healthy life years is defined as the number of years that a person is expected to continue to live in a healthy condition.

The **cause of death** is defined as the disease or injury which started the train (sequence) of morbid (disease-related) events which led directly to death, or the circumstances of the accident or violence which produced the fatal injury. This definition is derived from the international classification of diseases (ICD) of the World Health Organization. Although international definitions are harmonized, the statistics may not be fully comparable among countries as classifications may vary when the cause of death is multiple or difficult to evaluate, and because of different notification procedures.

The causes of death are based on standardised death rates. The standardised death rate is 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 is that death rates can be measured independently of the age structure of populations in different times and countries (sex ratios usually are more stable). Standardised death rates are calculated on the basis of a 'standard European population' defined by the World Health Organization (WHO).

Expenditure on health as % of GDP: Percentage of total general government expenditure that is spent on health. Health expenditure data are based on National Health Accounts (NHA), which synthesize financing and spending flows recorded in the operation of a health system. However, not all countries produce full NHA.

Hospital bed numbers provide information on healthcare capacities, in other words on the maximum number of patients who can be treated by hospitals. Hospital beds are those which are regularly maintained and staffed and immediately available for the care of admitted patients. They cover beds accommodating patients who are formally admitted (or hospitalised) to an institution for treatment and/or care and who stay for a minimum of one night. These include: beds in all hospitals, including general hospitals, mental health and substance abuse hospitals, and other specialty hospitals, irrespective of whether the bed is occupied or not. The statistics presented exclude surgical tables, recovery trolleys, emergency stretchers, beds for same-day care, cots for healthy infants, beds in wards which were closed for any reason, provisional and temporary beds, or beds in nursing and residential care facilities.

Other definition sources:

WHO — World Health Organization
http://www.who.int/whosis/indicators/en/

Other data sources:

IBGE — Instituto Brasileiro de Geografia e Estatistica
http://www.ibge.gov.br/english/

China Statistical Yearbook, 2010
http://www.stats.gov.cn/tjsj/ndsj/2010/indexeh.htm

India — National Health Profile of India - 2010
http://www.cbhidghs.nic.in/writereaddata/mainlinkFile/File1131.pdf

Education

4

Introduction

Considered as a foundation of society, education is important for an individual's success in life as it provides skills that prepare physically, mentally and socially for the world of work in later life. The main purpose of education is hence the preparation and qualification for work in the economy as well as the integration into society. The overall aim of education is therefore not limited to the raising of "book-smart" generations but also to "street-smart" ones.

In the EU, the opportunities for living, studying and working in other countries make a major contribution to cross-cultural understanding, personal development and the realisation of the EU's full economic potential. It is recognised that high-quality pre-primary, primary, secondary, higher and vocational education and training are fundamental to Europe's success. With each EU Member State responsible for its own education and training systems, Union-level policies are designed to support national actions and help address common challenges.

In the BRIC economies, the availability of a higher educated labour force appears to be crucial for further economic development. Although the BRICs have other strengths (relatively cheap labour, large internal markets, high levels of industrialisation, and, in the case of Russia, large reserves of natural resources), sustained growth in the medium and long term will, to a certain extent, depend on whether the countries can develop and use their human capital for the organisation and innovation required in modern societies.

Russia is in a comparatively favourable position, with a large stock of highly educated people available for its current and future labour force. China is expanding its higher education system very rapidly. India, and to a certain extent also Brazil, have a tendency to move towards information-based advanced service economies which need fewer highly educated technical and service personnel.

This chapter contains statistical data on:

- Public expenditure on education and on tertiary education

- The gross enrolment ratio in secondary and tertiary education

- The pupil-teacher ratio in primary and secondary education

- School life expectancy

- Students from the BRIC countries participating in EU-27 tertiary education

- Graduates in tertiary education, by field of studies.

Figure 4.1: Public expenditure on education
(% of GDP)
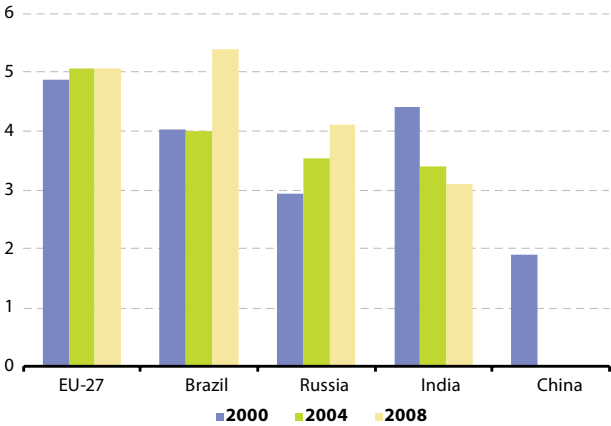
Note: EU-27, estimate; China, 1999 instead of 2000; India, 2006 instead of 2008.

Source: EU-27, Eurostat (online data code: educ_figdp); BRIC, UNESCO.

Figure 4.2: Public expenditure on tertiary education
(% of GDP)
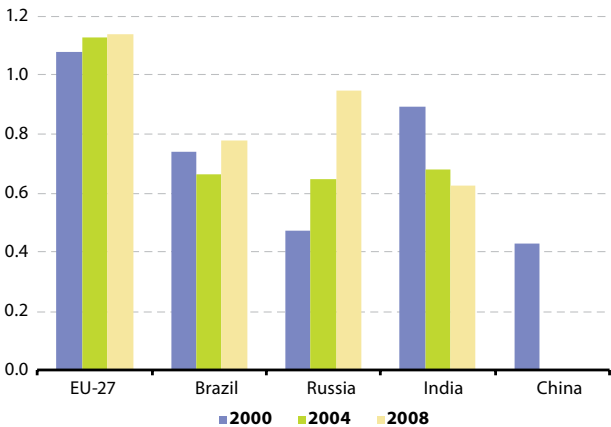
Note: EU-27, estimate and 2001 instead of 2000; India, 2006 instead of 2008; China, 1999 instead of 2000.

Source: EU-27, Eurostat (online data code: educ_figdp); BRIC, UNESCO.

Figure 4.3: Gross enrolment ratio, secondary education. All programmes
(%)
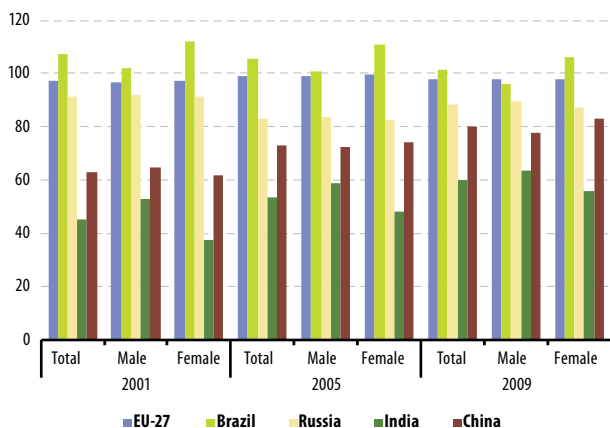
Notes: GER is the number of pupils enrolled in a given level of education regardless of age expressed as a percentage of the population in the theoretical age group for that level of education.
Russia, 2003 instead of 2001; China, 2006 instead of 2005; Brazil and India, 2008 instead of 2009.

Source: UNESCO.

Figure 4.4: Gross enrolment ratio, tertiary education
(%)
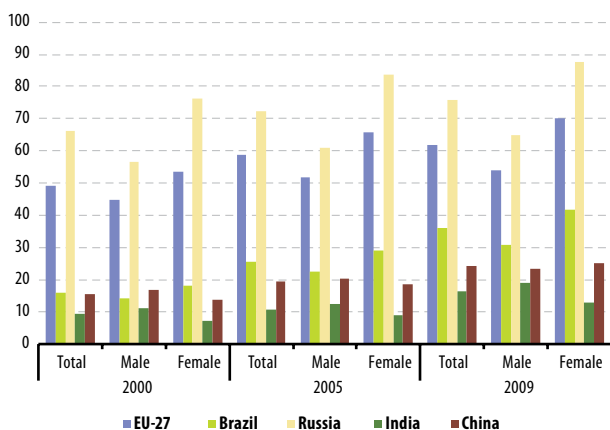
Notes: GER is the number of pupils enrolled in a given level of education regardless of age expressed as a percentage of the population in the theoretical age group for that level of education.
Russia and China, 2003 instead of 2000.

Source: UNESCO.

Table 4.5: Pupil-teacher ratio in primary education
(number of pupils)

■ **2000** ■ **2005** ■ **2009**
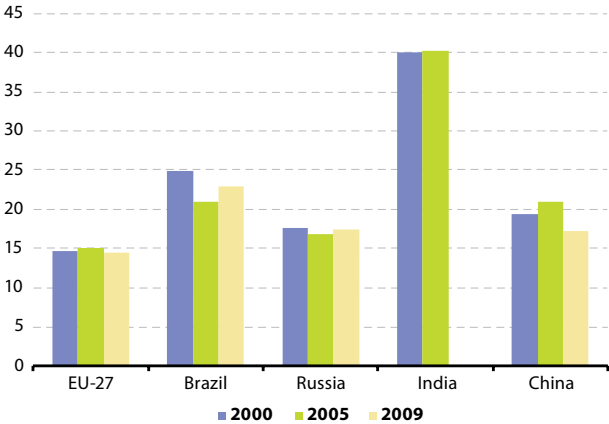
Note: China, 2001 instead of 2000; India, 2004 instead of 2005; China 2003 instead of 2005; Brazil and Russia, 2008 instead of 2009.

Source: EU-27, Eurostat (online data code: educ_iste); BRIC, UNESCO.

Figure 4.6: Pupil-teacher ratio in secondary education
(number of pupils)

■ **2000** ■ **2005** ■ **2009**
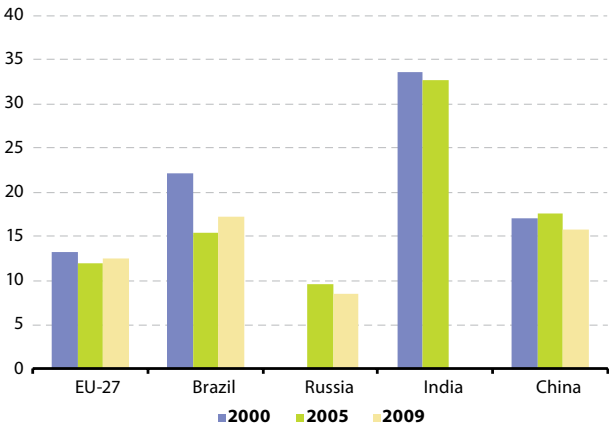
Note: India, 2004 instead of 2005; China, 2006 instead of 2005; Brazil and Russia, 2008 instead of 2009.

Source: EU-27, Eurostat (online data code: educ_iste); BRIC, UNESCO.

Table 4.1: School life expectancy
(years)

	2003	2007	2009
EU-27	17.20	17.20	17.20
Brazil	14.03	14.23	14.02
Russia	13.30	13.90	14.26
India	9.12	10.37	:
China	10.50	11.19	11.58

Note: EU-27, ISCED 0-6; Brazil, 2005 instead of 2007 and 2008 instead of 2009.

Source: EU-27, Eurostat (online data code: educ_igen); BRIC, UNESCO.

Figure 4.7: Foreign students in EU-27 tertiary education, by country of citizenship
(% of total foreign students)
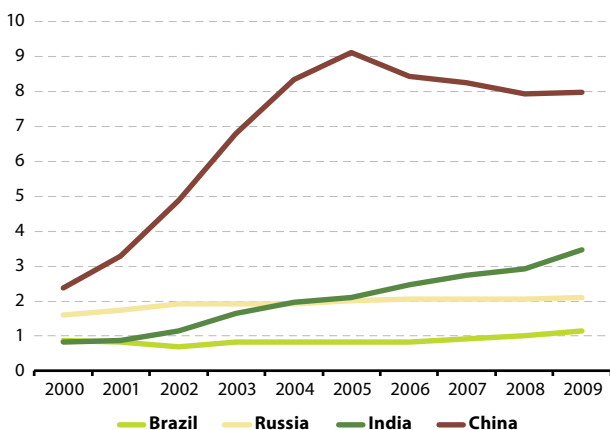
Source: Eurostat (online data code: educ_enrl8).

Figure 4.8: EU-27 graduates (tertiary), by field of studies, 2009
(as % of all fields)

Other, 6%
Humanities and art, 12%
Education, 10%
Social science, business and law, 35%
Science, mathematics and computing, 9%
Engineering, manufacturing and construction, 13%
Health and welfare, 15%
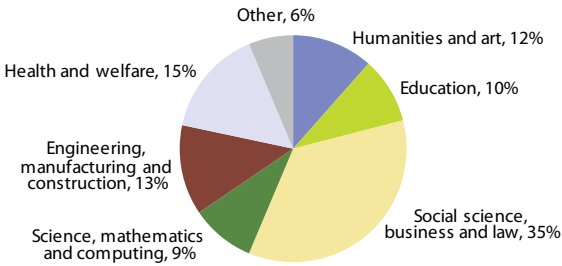
Source: Eurostat (online data code: educ_itertc).

Figure 4.9: BRAZIL graduates (tertiary), by field of studies, 2009
(as % of all fields)

Other 6%
Humanities and art, 2%
Education, 16%
Social science, business and law, 25%
Science([1]), 23%
Engineering, manufacturing and construction, 19%
Health and welfare, 9%
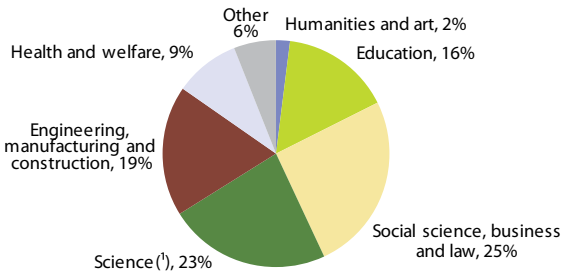
([1]) Includes mathematics and computing.

Source: UNESCO.

Figure 4.10: RUSSIA graduates (tertiary), by field of studies, 2009
(as % of all fields)

Other, 8%
Humanities and art, 4%
Education, 9%
Social science, business and law, 46%
Science([1]), 6%
Engineering, manufacturing and construction, 22%
Health and welfare, 5%
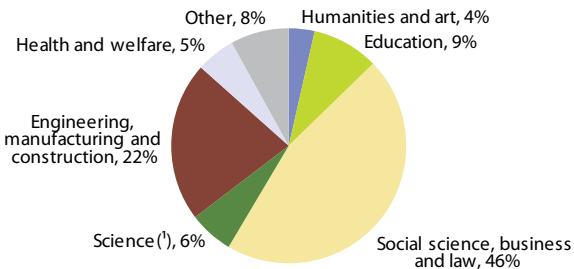
([1]) Includes mathematics and computing.

Source: UNESCO.

Definitions and methodological information

The main source of data is the joint UIS (UNESCO Institute of Statistics)/OECD/Eurostat (UOE) questionnaires on education statistics, which constitute the core database on education.

Public expenditure on education generally refers to:

- direct expenditure on educational institutions: bearing directly the current and capital expenses of educational institutions;

- transfers to private households and firms: supporting students and their families with scholarships and public loans, as well as transferring public subsidies for educational activities to private firms or nonprofit organizations.

Both types of transactions constitute total public expenditure on education.

Public expenditure on education as % of GDP: public expenditure on education as percent of GDP puts the expenditure on education in relation to the GDP. If GDP grows faster than the public expenditure on education (as, for instance, in the case of fast growing economies), public expenditure on education as a percentage of GDP will decrease even though the total public expenditure on education may be increasing.

Public expenditure (ISCED 5-6) as % of GDP: see definitions above, but limited to expenditure related to tertiary education. Tertiary education refers to higher education (post-secondary) and corresponds to level 5 and 6 of the International Standard Classification of Education (ISCED), developed by UNESCO.

Education refers to any act or experience that has a formative effect on an individual's mind, character, or physical ability. In its technical sense, education is the formal process by which society, through schools, colleges, universities and other institutions, deliberately transmits its cultural heritage and its accumulated knowledge, values and skills to the next generation.

Primary education — Depending on the country, this begins between 4 and 7 years of age and generally lasts five to six years. Programmes are designed to give pupils a sound basic education in reading, writing and mathematics along with an

elementary understanding of other subjects. Corresponds to ISCED 1.

Secondary education — Composed of lower secondary education (ISCED 2 – generally continuing the basic programmes of the primary level), and upper secondary education (ISCED 3 – more specialised education typically beginning at age 15 or 16 years and/or the end of compulsory education).

Tertiary education — provided by universities and other higher education institutions; corresponds to the level of education following secondary schooling. Corresponds to ISCED 5 and 6.

Gross enrolment ratio is the total enrolment in a specific level of education, regardless of age, expressed as a percentage of the eligible official school-age population corresponding to the same level of education in a given school year. For the tertiary level, the population used is that of the five-year age group following on from the secondary school leaving.

A gross enrolment ratio of more than 100% can occur due to the inclusion of over-aged or under-aged pupils/students because of early or late entrants, and grade repetition. The gross enrolment ratio can also exceed 100% due to an underestimation of the population of the theoretical age group, double counting (or overestimation) of students, the fact that some programmes (in secondary education for example) have longer duration than main scheme used to define the theoretical age group, and the inclusion of adult education programmes.

The pupil-teacher ratio should not be confused with average class-size. It can be a difference between the number of hours of teaching provided by teachers and the number of hours of instruction prescribed for pupils. More than one teacher can be teaching in a class at the same time. Special education teachers can work with small groups or in one-to-one teaching, which does not affect the class size but does affect the pupil-teacher ratio.

School life expectancy. This indicator is calculated by adding the net enrolment percentages for each single year of age and age band. The net enrolment rates are calculated by dividing the number of students of a particular age or age group (ISCED 0 to 6) by the number of persons in the population in

the same age or age band. For students whose age is 'unknown' the net enrolment rate has been estimated by dividing these students by the total population aged 5-64 and multiplying by 60 (years).

Foreign students are defined as non-citizens of the country in which they study. Most countries have data on country of citizenship, which in most cases is a clear and well-defined demographic variable.

Graduates refer to head-counts – the individual is only counted once per reference year even if he or she has obtained multiple qualifications in multiple fields within a category of qualification.

Other data sources:

UNESCO:
http://www.uis.unesco.org/Education/Pages/default.aspx

Introduction

The European labour market has changed significantly in recent years. The female proportion of the labour force has increased and the gender gap is falling. Migration now also helps shape the labour market, with the accession of the new EU Member States and the right to free movement of workers bringing changes to the national and ethnic profile of the European labour market. Demographic changes associated with an ageing labour force have also been behind new labour market incentives to encourage older workers to remain in the labour force for longer.

In Brazil, a stable economic climate has been registered since the turn of the century. Brazil is characterized by a social inequality which is also reflected in the labour market: one segment of the economy may be considered modern being capital- and skilled labour-intensive. The other, more traditional, segment is labour-intensive, comprising mostly unskilled workers and has a large number of "informal" workers.

Income inequalities also characterize the Russian labour market, along with an ageing population and hence a shrinking share of working age population. Indeed, the challenge for Russia appears to be the rebalancing of its social policy towards more effective support for the working age population and to help parents to combine work and family life more effectively.

India's economy has grown fast over the last 20 years but the labour market has not evolved at the same pace. While more jobs in the manufacturing sector have been registered, there has been a downsizing of the public sector. The shift in India is away from agriculture, which remains important in absolute terms, towards services rather than manufacturing. Increasing inequality is feared as employment is increasingly geared towards the educated labour force rather than those with less formal education. In terms of labour market participation, gender differences remain high.

China has entered the globalising economy at full speed and experiences the entire range of related economic and social transformations. The country basically features three inequalities which are highly relevant for the labour market: the contrast between rural and urban populations, the difference between the south-east and the remainder of the

country, and between those in the official core of the economy and those working in 'informal' economic activities.

The following elements are presented:

- Activity and employment rates, by gender
- Employment rates by gender and age groups
- Unemployment rates, by gender
- Employment by main economic activity
- The Gini coefficient, expressing the inequality of incomes.

Figure 5.1: Activity rates by gender, latest year available
(%)
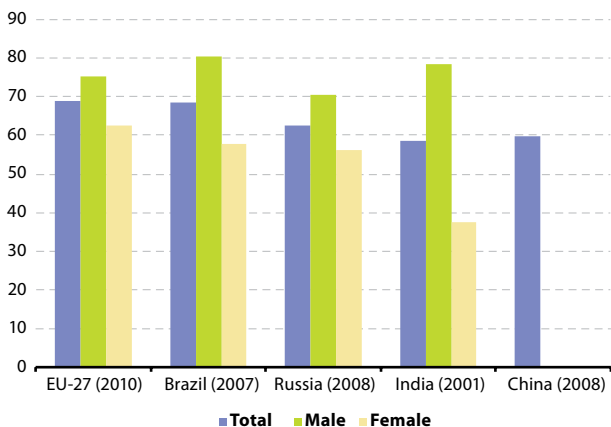
Note: EU-27, Brazil, India and Russia, age group 15+; China, total.

Source: EU-27, Eurostat (online data code: lfsa_argan); BRIC, ILO.

Figure 5.2: Employment rates, total
(%)

Note: EU-27, age 15–64; BRIC, age 15 and over.

Source: EU-27, Eurostat (online data code: lfsi_emp_a); BRIC, ILO.

Figure 5.3: Employment rates, 2010
(%)
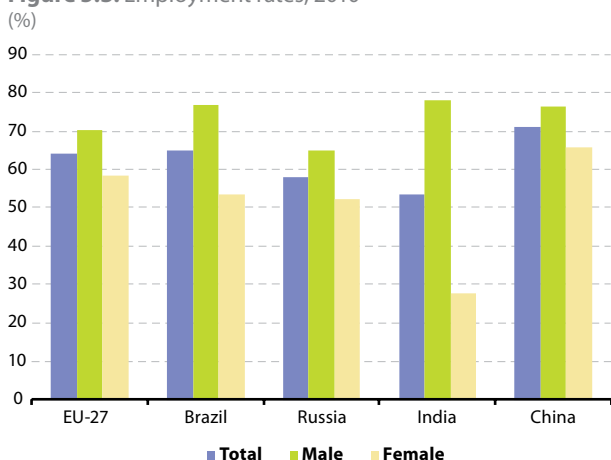
Note: EU-27, age 15–64; BRIC, age 15 and over.

Source: EU-27, Eurostat (online data code: lfsi_emp_a); BRIC, ILO.

Table 5.1: Employment rates by gender and age groups
(%)

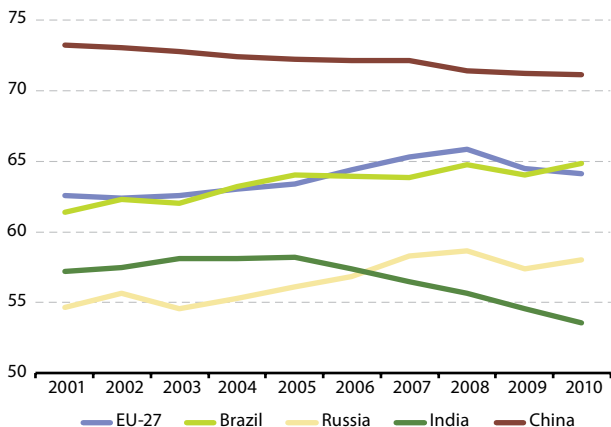|	Age	2001		2005		2009		2010	
		M	F	M	F	M	F	M	F
EU-27	15 +	60.5	43.3	59.9	44.3	59.3	45.9	58.7	45.6
	15–24	40.4	34.1	38.9	33.0	37.1	32.9	36.2	31.8
	25 +	64.4	44.9	63.8	46.2	63.3	47.9	62.6	47.8
Brazil	15 +	75.3	48.1	76.5	52.0	76.3	52.4	76.8	53.4
	15–24	62.2	39.7	64.5	43.1	62.4	42.2	62.6	43.2
	25 +	80.6	51.2	81.0	55.1	80.8	55.4	81.2	56.3
Russia	15 +	61.3	49.2	62.5	50.8	64.1	51.9	65.1	52.2
	15–24	37.7	30.0	35.8	29.3	40.0	33.1	40.4	32.4
	25 +	67.8	53.3	70.2	55.5	70.0	55.5	70.9	55.7
India	15 +	79.4	33.4	79.9	35.1	78.4	29.4	78.1	27.7
	15–24	58.4	24.4	58.4	25.1	51.7	19.1	49.1	17.2
	25 +	88.4	37.2	88.7	39.1	89.0	33.2	89.4	31.6
China	15 +	78.2	68.0	77.4	66.8	76.5	65.6	76.4	65.6
	15–24	55.7	64.6	55.3	61.0	54.6	58.7	54.4	58.8
	25 +	84.2	68.9	83.7	68.3	82.6	67.4	82.4	67.3

Source: EU-27, Eurostat (online data code: lfsa_ergan); BRIC, ILO.

Figure 5.4: Unemployment rates by gender (¹)
(%)

■EU-27 ■Brazil ■Russia ■India ■China
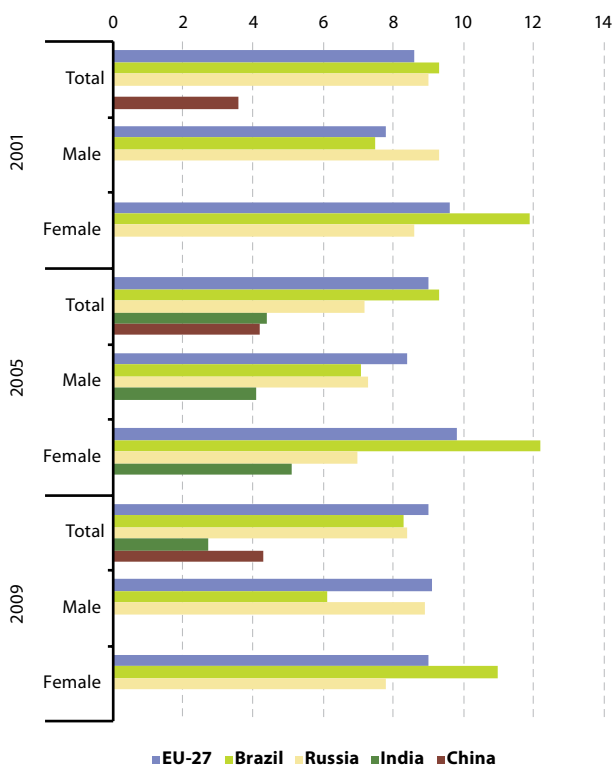
(¹) Age classes: EU-27, 15–74; Brazil, India, China, 15+; Russia, 15–72.

Source: EU-27, Eurostat (online data code: une_rt_a); Brazil, Russia, China, ILO; India, The World Bank.

Figure 5.5: Employment by economic activities, share in total, latest year available

(%)

■ **Agriculture** ■ **Industry** ■ **Services**
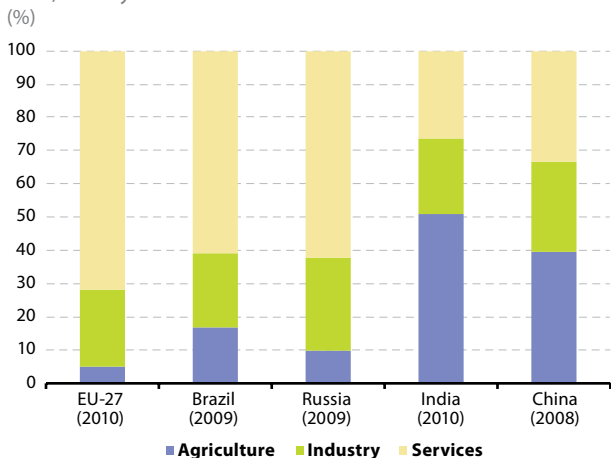
Source: EU-27, Eurostat (online data code: lfsi_grt_a); BRIC, ILO.

Figure 5.6: Gini coefficient
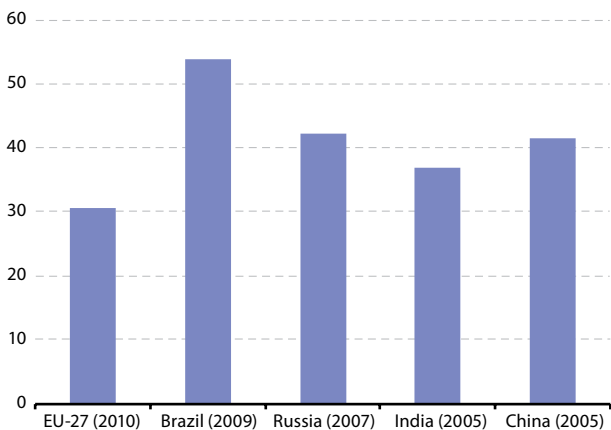
Source: EU-27, Eurostat (on line data code: ilc_di12); BRIC, The World Bank.

Definitions and methodological information

Labour market measurement units are overall comparable because most of the variables are defined in accordance with resolutions of the International Labour Organization (ILO) and other international organisations.

The **activity rate** is defined as the proportion of persons aged between 15 and 64 in the labour force in relation to the total population of the same age. Activity rates for men and for women are expressed as a percentage of the male population aged 15 to 64 and the female population aged 15 to 64 respectively, not as a share of the total (male and female) population aged 15 to 64. The labour force comprises employed and unemployed persons.

The **employment rate** is defined as the proportion of employed persons aged between 15 and 64 in the total population of the same age. Employment rates for men and women are expressed as a percentage of the male population aged 15 to 64 and the female population aged 15 to 64 respectively, not as a share of the total (male and female) population aged 15 to 64.

Unemployed persons are defined as those aged 15 to 74 who were without work during the reference week, were currently available for work and were either actively seeking work in the past four weeks or had already found a job to start within the next three months.

Employed persons are defined in the Labour Force Survey (LFS) as persons aged 15 and over who during the reference week did any work for pay, profit or family gain or were not at work but had a job or business from which they were temporarily absent because of, e.g., illness, holidays, industrial dispute and education or training.

The **unemployment rate** is the share of unemployed persons in the total number of active persons in the labour market (the labour force). Unemployment rates for men and women are expressed as a percentage of the male labour force aged 15 to 74 and the female labour force aged 15 to 74 respectively, not as a share of the total (male and female) labour force.

Employment by economic activity expresses the breakdown of employment according to the NACE classification.

The **Gini coefficient** is defined as the relationship of cumulative shares of the population arranged according to the

level of equivalised disposable income, to the cumulative share of the equivalised total disposable income received by them. A society that scores 0 on the Gini scale has perfect equality in income distribution. The higher the number over 0, the higher the inequality, and the score of 100 indicates total inequality where only one person corners all the income.

Other definition sources:

International Labour Organization (ILO): http://laborsta.ilo.org/definition_E.html

Statistical classification of economic activities (NACE): http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-07-015/EN/KS-RA-07-015-EN.PDF

Other data sources:

International Labour Organization (ILO): http://kilm.ilo.org/kilmnet/

World Bank: http://data.worldbank.org/topic/labor-and-social-protection

Trade in goods

6

Introduction

Trade creates economic ties and generates more welfare and thus contributes to peace and security. Nations that trade with each other will try to prevent conflicts that could jeopardize safety, prosperity and their population's well-being. The best example may well be the European Union.

The BRIC countries have long had an important role in their respective region, but their influence is gradually becoming global. The BRIC countries all belong to the so-called G-20 group (or "Group of Twenty"), representing the 20 most important economies worldwide. Various international sources estimate that collectively, the G-20 economies account for more than 80 percent of the global gross national product and 80 percent of world trade (including EU intra-trade).

The EU is Brazil's main trading partner, while Brazil represents the EU's main trading partner in Latin America. Brazil is an efficient agricultural producer and the single biggest exporter of agricultural products to the EU.

The EU is by far Russia's main trading partner but also the most important investor in Russia. Trade between the EU and Russia remains largely concentrated on the energy and minerals sectors.

India has undergone a process of economic reform and progressive integration with the global economy.

The EU and India expect to increase their trade and investment through the Free Trade Agreement negotiations that were launched in 2007 and are expected to be concluded in 2012.

China's trade expansion started at the end of the 1970s when the country initiated far-reaching economical reforms. Its position as a strong player in international trade is now remarkable and China has become one of the world's largest traders.

The following pages show information on

- The total value of imported and exported goods
- Imports and exports for the main product categories
- The 10 most imported and exported products
- The 10 main goods trading partners, separately for imports and exports.

Figure 6.1: Trade in goods: value of imports and exports
(EUR million)

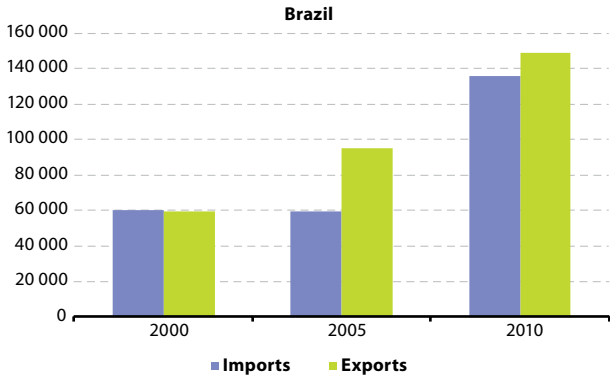

EU-27

Brazil

Russia
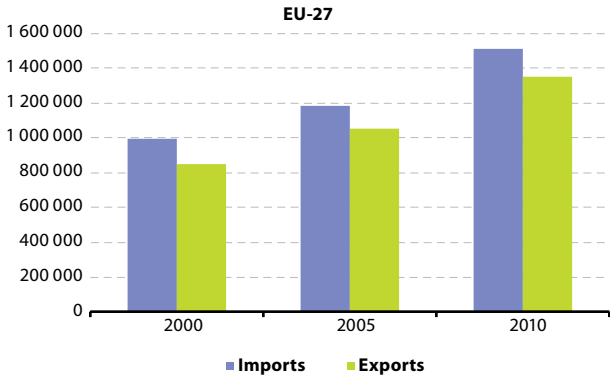
Figure 6.1: Trade in goods: value of imports and exports (continued)
(EUR million)

India

■ **Imports**   ■ **Exports**

China

■ **Imports**   ■ **Exports**
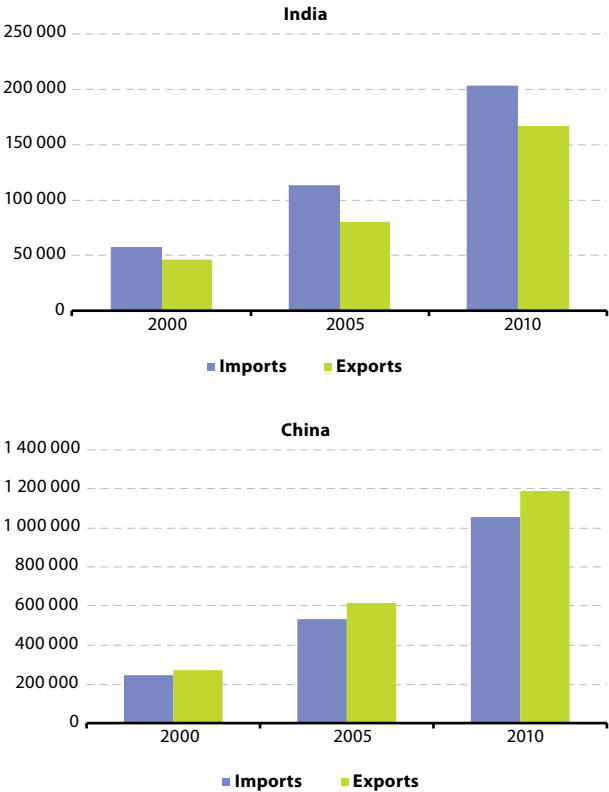
Source: EU-27, Eurostat – Comext (online data code: DS-018995); BRIC, Comtrade database.

Figure 6.2: EU-27: main product sections (SITC 1-digit level) and top 10 product divisions (SITC 2-digit level) traded worldwide, 2010
(share in % and value in EUR million)
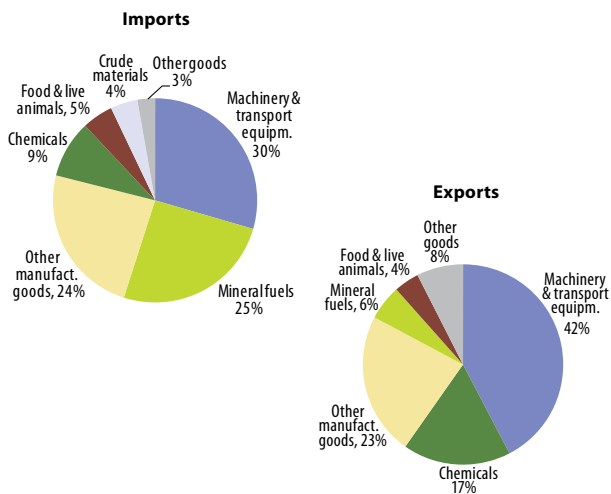
Imports

Exports

	Imports			Exports		
	Product (SITC 2-digits)	**Value (EUR million)**	**Share in total imports (%)**	**Product (SITC 2-digits)**	**Value (EUR million)**	**Share in total exports (%)**
1	Petroleum & petr. products	287 162	19.0	Road vehicles	128 099	9.5
2	Electrical machinery	104 166	6.9	Medicinal & pharmac. prod.	93 877	7.0
3	Telecomm. & sound equipm.	74 827	5.0	General industrial machinery	90 498	6.7
4	Office & data process. mach.	74 342	4.9	Electrical machinery	82 731	6.1
5	Gas, natural & manufactured	74 029	4.9	Petroleum & petr. products	70 586	5.2
6	Art. of apparel & clothing access.	66 981	4.4	Specialised machinery for ind.	70 311	5.2
7	Miscellaneous manuf. articles	55 635	3.7	Other transport equipment	60 979	4.5
8	Other transport equipment	54 351	3.6	Power-generating machinery	60 936	4.5
9	Medicinal & pharmac. prod.	48 008	3.2	Miscellaneous manuf. articles	46 932	3.5
10	Road vehicles	46 558	3.1	Organic chemicals	42 793	3.2

Source: Eurostat – Comext (online data code: DS-018995).

Figure 6.3: BRAZIL: main product sections (SITC 1-digit level) and top 10 product divisions (SITC 2-digit level) traded worldwide, 2010
(share in % and value in EUR million)

Imports

Exports

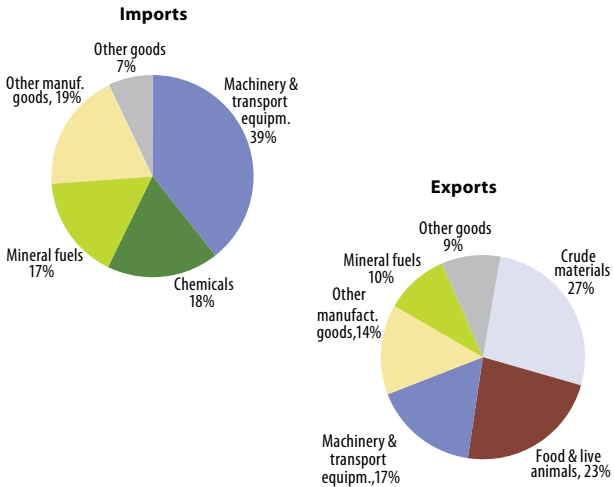| Imports			Exports		
Product (SITC 2-digits)	Value (EUR million)	Share in total imports (%)	Product (SITC 2-digits)	Value (EUR million)	Share in total exports (%)
1 Petroleum & petr. products	16 830	12.4	Metalliferous ores	24 903	16.7
2 Road vehicles	12 400	9.1	Petroleum & petr. products	14 704	9.9
3 Electrical machinery	9 672	7.1	Meat & meat preparations	10 049	6.7
4 General industrial machinery	8 516	6.3	Sugars	9 813	6.6
5 Organic chemicals	5 934	4.4	Road vehicles	8 744	5.9
6 Telecomm. & sound equipm.	5 903	4.3	Oil-seeds & oleaginous fruits	8 370	5.6
7 Medicinal & pharmac. prod.	5 160	3.8	Iron and steel	6 708	4.5
8 Power-generating machinery	4 807	3.5	Coffee, tea, cocoa, spices	4 810	3.2
9 Specialised machinery for ind.	4 457	3.3	Other transport equipment	3 845	2.6
10 Iron and steel	4 441	3.3	Feeding stuff for animals	3 800	2.6

Source: Comtrade database.

Figure 6.4: RUSSIA: main product sections (SITC 1-digit level) and top 10 product divisions (SITC 2-digit level) traded worldwide, 2010
(share in % and value in EUR million)

Imports

Other goods 18%
Crude materials 2%
Food & live animals 11%
Machinery & transport equipm. 36%
Chemicals 12%
Other manufact. goods, 21%

Exports

Food & live animals, 2%
Machinery & transport equipm., 3%
Crude materials, 3%
Chemicals, 4%
Other manufact. goods, 12%
Other goods, 12%
Mineral fuels, 64%

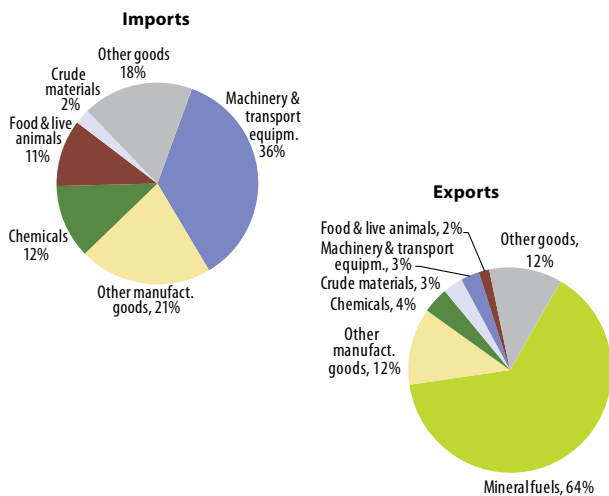|	Imports			Exports		
	Product (SITC 2-digits)	**Value (EUR million)**	**Share in total imports (%)**	**Product (SITC 2-digits)**	**Value (EUR million)**	**Share in total exports (%)**
1	Road vehicles	16 937	9.0	Petroleum & petr. products	150 193	49.8
2	General industrial machinery	10 533	5.6	Gas, natural & manufactured	36 032	11.9
3	Electrical machinery	9 546	5.1	Iron and steel	14 386	4.8
4	Telecomm. & sound equipm.	9 256	4.9	Non-ferrous metals	13 410	4.4
5	Medicinal & pharmac. prod.	8 571	4.6	Coal, coke and briquettes	7 324	2.4
6	Vegetables and fruit	6 903	3.7	Fertilisers	5 569	1.8
7	Specialised machinery for ind.	6 777	3.6	Cork and wood	3 872	1.3
8	Office & data-process. mach.	5 530	2.9	Non-metallic mineral manuf.	2 701	0.9
9	Iron and steel	5 444	2.9	Power-generating machinery	2 570	0.9
10	Manufactures of metals	5 086	2.7	Metallif. ores & metal scrap	2 512	0.8

Source: Comtrade database.

Figure 6.5: INDIA: main product sections (SITC 1-digit level) and top 10 product divisions (SITC 2-digit level) traded worldwide, 2010
(share in % and value in EUR million)

Imports

Other goods 16%
Crude materials 5%
Chemicals 10%
Machinery & transport equipm., 19%
Other manuf. goods, 19%
Mineral fuels 31%

Exports

Other goods 3%
Crude materials, 7%
Food & live animals, 7%
Chemicals 11%
Machinery & transport equipm., 14%
Mineral fuels, 17%
Other manufact. goods 41%

Imports			Exports		
Product (SITC 2-digits)	Value (EUR million)	Share in total imports (%)	Product (SITC 2-digits)	Value (EUR million)	Share in total exports (%)
1	Petroleum & petr. products	53 572	26.4	Petroleum & petr. products	28 331	17.0
2	Gold, non-monetary	21 377	10.5	Non-metallic mineral manuf.	18 402	11.1
3	Non-metallic mineral manufact.	17 744	8.8	Textile yarn, fabrics	9 680	5.8
4	Telecomm. & sound equipm.	8 392	4.1	Miscellaneous manuf. articles	8 800	5.3
5	Organic chemicals	6 525	3.2	Art. of apparel & clothing access.	8 470	5.1
6	Iron and steel	5 815	2.9	Iron and steel	8 005	4.8
7	Coal, coke and briquettes	5 814	2.9	Road vehicles	6 597	4.0
8	Electrical machinery	5 605	2.8	Metallif. ores & metal scrap	6 393	3.8
9	General industrial machinery	5 520	2.7	Organic chemicals	5 835	3.5
10	Metallif. ores & metal scrap	5 438	2.7	Medicinal & pharmac. prod.	5 374	3.2

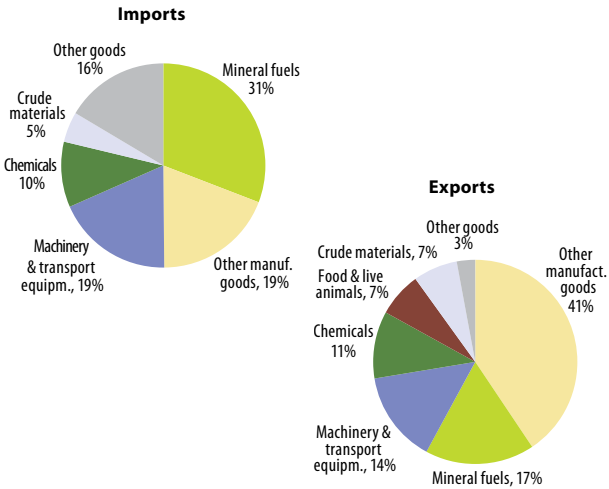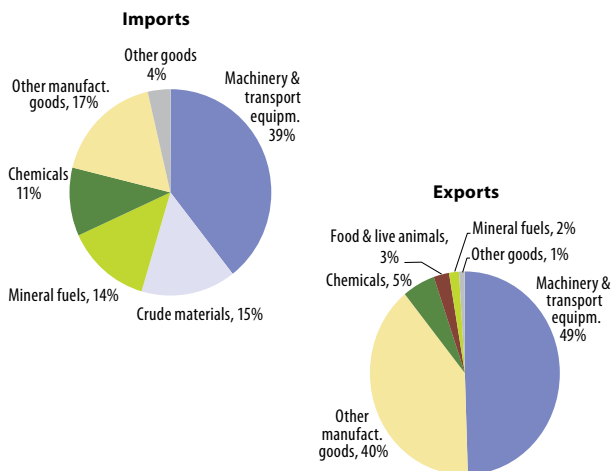*Source:* Comtrade database.

Figure 6.6: CHINA: main product sections (SITC 1-digit level) and top 10 product divisions (SITC 2-digit level) traded worldwide, 2010
(share in % and value in EUR million)

Imports

Other goods 4%
Other manufact. goods, 17%
Chemicals 11%
Mineral fuels, 14%
Crude materials, 15%
Machinery & transport equipm. 39%

Exports

Food & live animals, 3%
Chemicals, 5%
Mineral fuels, 2%
Other goods, 1%
Machinery & transport equipm. 49%
Other manufact. goods, 40%

Imports			Exports		
	Product (SITC 2-digits)	Value (EUR million)	Share in total imports (%)	Product (SITC 2-digits)	Value (EUR million)	Share in total exports (%)
1	Electrical machinery	198 042	18.8	Office & data-process. mach.	155 383	13.1
2	Petroleum & petr. products	123 784	11.8	Electrical machinery	143 324	12.0
3	Metallif. ores & metal scrap	99 466	9.4	Telecomm. & sound equipm.	136 099	11.4
4	Profess., & scient. instruments	56 678	5.4	Art. of apparel & clothing access.	97 926	8.2
5	Office & data-process. mach.	42 862	4.1	Miscellaneous manuf. articles	65 545	5.5
6	Non-ferrous metals	37 207	3.5	Textile yarn, fabrics	57 986	4.9
7	Road vehicles	37 165	3.5	General industrial machinery	48 597	4.1
8	Plastics in primary forms	36 711	3.5	Manufactures of metal	40 088	3.4
9	Organic chemicals	36 134	3.4	Road vehicles	33 428	2.8
10	General industrial machinery	33 916	3.2	Other transport equipment	32 617	2.7

Source: Comtrade database.

Table 6.1: Main trading partners 2010
(value in EUR million and share in total)

	EU-27					
	Imports			**Exports**		
	Country	**Value (EUR million)**	**Share in total imports (%)**	**Country**	**Value (EUR million)**	**Share in total exports (%)**
1	China	282 531	18.7	United States	242 322	18.0
2	United States	170 390	11.3	China	113 274	8.4
3	Russia	160 058	10.6	Switzerland	105 218	7.8
4	Switzerland	83 189	5.5	Russia	86 131	6.4
5	Norway	79 435	5.3	Turkey	61 253	4.5
6	Japan	65 781	4.4	Japan	43 856	3.2
7	Turkey	42 323	2.8	Norway	41 895	3.1
8	South Korea	39 234	2.6	India	34 797	2.6
9	India	33 228	2.2	Brazil	31 390	2.3
10	Brazil	32 543	2.2	South Korea	27 938	2.1

Source: Eurostat – Comext (online data code: DS-018995).

	Brazil					
	Imports			**Exports**		
	Country	**Value (EUR million)**	**Share in total imports (%)**	**Country**	**Value (EUR million)**	**Share in total exports (%)**
1	United States	20 518	15.1	China	23 197	15.6
2	China	19 262	14.2	United States	14 513	9.7
3	Argentina	10 881	8.0	Argentina	13 907	9.3
4	Germany	8 864	6.5	Netherlands	7 710	5.2
5	South Korea	6 350	4.7	Germany	6 095	4.1
6	Japan	5 258	3.9	Japan	5 373	3.6
7	Nigeria	4 465	3.3	United Kingdom	3 482	2.3
8	Italy	3 636	2.7	Chile	3 183	2.1
9	France	3 605	2.6	Italy	3 178	2.1
10	India	3 194	2.3	Russia	3 127	2.1

Source: Comtrade database.

Table 6.1: Main trading partners 2010 (continued)
(value in EUR million and share in total)

	Russia					
	Imports			**Exports**		
	Country	**Value (EUR million)**	**Share in total imports (%)**	Country	**Value (EUR million)**	**Share in total exports (%)**
1	China	29 443	15.7	Netherlands	40 705	13.5
2	Germany	20 146	10.7	Italy	20 593	6.8
3	Ukraine	10 591	5.6	Germany	18 936	6.3
4	United States	8 472	4.5	Ukraine	17 435	5.8
5	Japan	7 770	4.1	Turkey	15 371	5.1
6	France	7 637	4.1	China	15 333	5.1
7	Italy	7 573	4.0	Belarus	13 621	4.5
8	Belarus	7 404	3.9	Poland	11 267	3.7
9	South Korea	5 485	2.9	Japan	9 680	3.2
10	Poland	4 393	2.3	United States	9 404	3.1

Source: Comtrade database.

	India					
	Imports			**Exports**		
	Country	**Value (EUR million)**	**Share in total imports (%)**	Country	**Value (EUR million)**	**Share in total exports (%)**
1	China	24 903	12.3	United Arab Emir.	20 678	12.4
2	United Arab Emir.	17 822	8.8	United States	17 792	10.7
3	Switzerland	12 720	6.3	China	13 155	7.9
4	United States	11 656	5.8	Hong Kong	7 172	4.3
5	Saudi Arabia	11 399	5.6	Singapore	6 839	4.1
6	Germany	6 663	3.3	Netherlands	4 958	3.0
7	Australia	6 388	3.2	United Kingdom	4 855	2.9
8	Iran	6 035	3.0	Germany	4 518	2.7
9	Nigeria	5 933	2.9	Belgium	3 791	2.3
10	South Korea	5 754	2.8	France	3 698	2.2

Source: Comtrade database.

Table 6.1: Main trading partners 2010 (continued)
(value in EUR million and share in total)

	China					
	Imports			**Exports**		
	Country	**Value (EUR million)**	**Share in total imports (%)**	**Country**	**Value (EUR million)**	**Share in total exports (%)**
1	Japan	133 315	12.7	United States	214 061	18.0
2	South Korea	104 352	9.9	Hong Kong	164 669	13.8
3	China (¹)	80 612	7.7	Japan	91 306	7.7
4	United States	77 494	7.4	South Korea	51 872	4.4
5	Germany	56 009	5.3	Germany	51 329	4.3
6	Australia	46 093	4.4	Netherlands	37 493	3.2
7	Malaysia	38 040	3.6	India	30 862	2.6
8	Brazil	28 739	2.7	United kingdom	29 243	2.5
9	Thailand	25 038	2.4	Singapore	24 400	2.1
10	Saudi Arabia	24 764	2.4	Italy	23 489	2.0

(¹) China re-imports, for more details see the following link:
   http://unstats.un.org/unsd/tradekb/Knowledgebase/Why-Chinas-reimports-are-so-high

Source: Comtrade database.

Definitions and methodological information

Sources:
Eurostat — Comext
Eurostat's COMEXT database contains the official European Foreign Trade Statistics. It includes detailed statistics on the intra- and extra-EU trade in goods of all member states. Aggregated data for the EU-12, EU-15, EU-25, EU-27 is available. Traded goods are classified by the 8-digit European Harmonized System (CN8, Combined Nomenclature) as well as CPA (up to 4 digits) and SITC Rev. 4 (up to 5 digits). Data is available from 1988 and 1995 respectively for the EU-12 and EU-15 Member States and from 1999 for the 12 New Member States up to the present.

Comext database can be accessed via the "Easy Comext" HTML interface, available to all through Eurostat's website: http://ec.europa.eu/eurostat

Comtrade database — United Nations
Comtrade is the United Nations Commodity Trade Statistics Database. Countries provide the United Nations Statistics Division (UNSD) with their annual international trade statistics data detailed by commodities and partner countries.

All commodity values are converted from national currency into US dollars using exchange rates supplied by the reporter countries, or derived from monthly market rates and volume of trade. Commodities are reported in the current classification and revision (HS2002 in most cases) and are converted all the way down to the earliest classification, SITC revision 1. Therefore, if data is received in HS 2002 version, it is converted to HS1996, HS1988, SITC rev. 3, SITC rev. 2, SITC rev. 1 and BEC. The data are permanently stored in the UN COMTRADE database server.

Commodities are classified according to SITC (Rev.1 from 1962, Rev.2 from 1976 and Rev.3 from 1988), the Harmonized System (HS) (from 1988 with revisions in 1996, 2002 and 2007) and Broad Economic Categories (BEC).

For more information: http://comtrade.un.org/db/

Methodological information

Methodology for external trade statistics (Comext): In the methodology applied for statistics on the trading of goods, extra-EU (trade between Member States and non-member countries) trade statistics do not record exchanges involving goods in transit, placed in a customs warehouse or given temporary admission (for trade fairs, temporary exhibitions, tests, etc.). This is known as "special trade". For exports the partner is the country of final destination of the goods, while for imports it's normally the country of origin.

SITC classification: Information on commodities exported and imported are presented according to the SITC classification (Standard International Trade Classification) at a more general level (1-digit) and a more detailed level (2-digits). A full description is available from Eurostat's classification server RAMON, accessible at: http://ec.europa.eu/eurostat/ramon/

Agriculture, forestry and fisheries

7

Introduction

Farming ensures adequate food production and should go hand in hand with economically viable rural communities and action on environmental challenges such as climate change, water management, bioenergy and biodiversity.

EU agricultural policy aims to enable producers of all forms of food to produce sufficient quantities of safe, high-quality food and make a full contribution to diversified economic development in rural areas. At the same time, high standards of environmental care and animal welfare should be met, and this for consumers who are becoming ever more quality-conscious about food.

Brazil has vast agricultural resources and has developed to a major food exporter in only a few decades. The country is the single biggest exporter of agricultural products to the EU.

Russia's main agricultural region is very vast, extending from the Central district bordering Ukraine and Belarus to western Siberia. The country has been rebuilding its agricultural sector towards a more market-oriented system. Wheat and barley remain the main crops, but also maize and sunflower seeds. With higher yields, Russia may become a more important exporter of agricultural products in the future.

Although the contribution of India's agriculture sector to the country's economy is constantly declining due to a more diversified economy, it remains very important, especially considering its population growth. Efforts to increase yields are being undertaken, fish captures have increased and aquaculture industries have developed rapidly.

China's agricultural sector remains of prime importance, even if production patterns have changed ever since China joined the WTO in 2001 leading to more agricultural imports. A large proportion of the arable land is used for food crops and yields are generally high. Threats linked to overfishing in coastal waters have been compensated by increased aquaculture.

The following elements are presented:

- Land resources
- Evolution of the production of cereals
- Harvested production of the main cereals and selected fruits and vegetables
- Livestock population and animal slaughtering
- Milk production
- Roundwood and sawnwood production
- Information on fish catches and aquaculture.

Table 7.1: Land resources, 2009
(1 000 ha)

	Land area	Agricultural area	Arable land	Permanent crops	Permanent meadows and pastures	Forest area	Other land	Inland water
EU-27 (¹) (²)	427 137	180 493	107 715	12 331	58 532	156 865	75 535	14 245
Brazil	845 942	264 500	61 200	7 300	196 000	521 716	59 726	5 546
Russia	1 637 687	215 561	121 750	1 791	92 020	809 030	613 096	72 137
India	297 319	179 963	157 923	11 700	10 340	68 289	49 067	31 407
China	932 749	524 321	109 999	14 321	400 001	204 097	204 331	27 251

(¹) Data 2008.
(²) The data is from years 2004–2009. Arable land, permanent crops, and permanent meadows and pastures do not sum up to the total agricultural area due to the fact that the data is from different years.

Source: EU-27, Eurostat (online data codes: apro_cpp_luse and for_area); BRIC, FAO.

Figure 7.1: Production of cereals (including rice)
(1 000 tonnes)
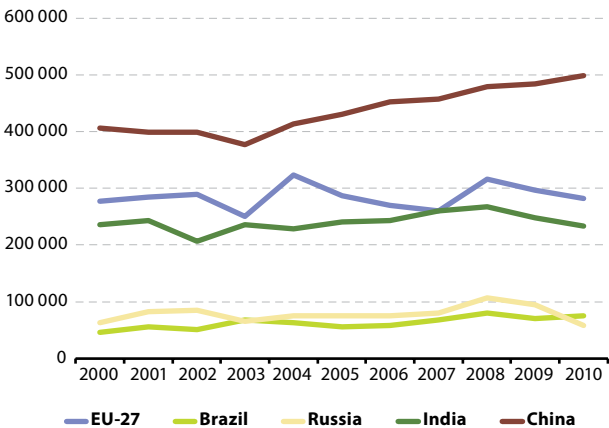
Source: EU-27, Eurostat (online data code: apro_cpp_crop); BRIC, FAO.

Table 7.2: Harvested production of main cereals, 2010
(1 000 tonnes)

	Wheat	**Barley**	**Maize**	**Rye**	**Rice**
EU-27 (¹)	138 450	53 180	56 711	8 025	3 058
Brazil	6 037	274	56 060	3	11 309
Russia	41 508	8 350	3 084	1 636	1 061
India	80 710	1 600	14 060	:	120 620
China	115 180	2 520	177 549	650	197 221

(¹) Provisional values for Barley and Rye.

Source: EU-27, Eurostat (online data code: apro_cpp_crop); BRIC, FAO.

Table 7.3: Harvested production of some fruits and
vegetables, 2010
(1 000 tonnes)

	Tomatoes	**Carrots** (²)	**Onions** (³)	**Potatoes**	**Apples**	**Oranges**
EU-27 (¹)	16 855	5 457	5 757	62 504	11 784	6 281
Brazil	3 691	:	1 556	3 595	1 276	19 112
Russia	2 000	1 303	1 536	21 141	986	0.1
India	11 980	485	13 372	36 577	2 163	6 268
China (⁴)	41 865	15 904	20 497	74 785	33 267	5 040

(¹) 2009 instead of 2010; potatoes, provisional value.
(²) BRIC, carrots and turnips.
(³) BRIC, onions, dry.
(⁴) Potatoes – unofficial figure.

Source: EU-27, Eurostat (online data codes: apro_cpp_fruveg and apro_cpp_crop);
BRIC, FAO.

Table 7.4: Livestock population, 2010
(1 000 head)

	Cattle	**Pigs**	**Sheep**	**Goats**
EU-27 (¹)	86 610	151 080	84 880	13 230
Brazil	209 541	38 957	17 381	9 313
Russia	20 671	17 231	19 851	2 138
India	210 200	9 630	73 991	154 000
China	83 797	476 237	134 021	150 708

(¹) Estimated value.

Source: EU-27, Eurostat (online data codes: apro_mt_lscatl, apro_mt_lspig, apro_
mt_lssheep and apro_mt_lsgoat); BRIC, FAO.

Table 7.5: Animal slaughtering by species, 2010
(1 000 tonnes)

	Bovines	Pigs	Sheep	Goats	Poultry
EU-27	7 902	22 047	717	59	11 640
Brazil	6 977	3 078	81	30	10 693
Russia	1 711	2 308	170	18	2 533
India	1 087	333	289	587	2 300
China	6 236	51 720	2 070	1 873	11 853

Source: EU-27, Eurostat (online data code: apro_mt_pann); BRIC, FAO.

Table 7.6: Milk production, 2010
(1 000 tonnes)

	Total	of which:		
		Cows' milk	Ewes' milk	Goats' milk
EU-27 ([1])	139 388	136 360	1 725	1 303
Brazil	31 816	31 668	:	148
Russia	32 136	31 895	1	240
India ([2])	117 000	50 300	:	4 300
China ([2])	41 137	36 023	1 724	278

([1]) Estimated data.
([2]) Total includes buffalo milk.

Source: EU-27, Eurostat (online data code: apro_mk_farm); BRIC, FAO.

Figure 7.2: Roundwood production
(1 000 m³)

Legend: EU-27, Brazil, Russia, India, China (2000–2010)
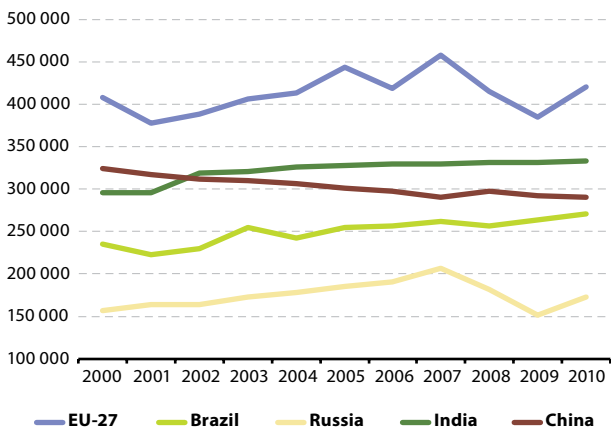
Table 7.7: Roundwood production
(1 000 m³)

	Coniferous			Non-coniferous		
	2006	**2008**	**2010**	**2006**	**2008**	**2010**
EU-27	287 222	285 226	289 665	130 591	129 905	131 129
Brazil	50 577	48 292	49 806	206 960	208 014	221 695
Russia	126 100	118 700	113 500	64 500	62 700	59 500
India	12 089	12 135	12 181	317 355	318 839	320 318
China	143 141	143 921	141 827	155 037	152 950	149 423

Figure 7.3: Sawnwood production
(1 000 m³)
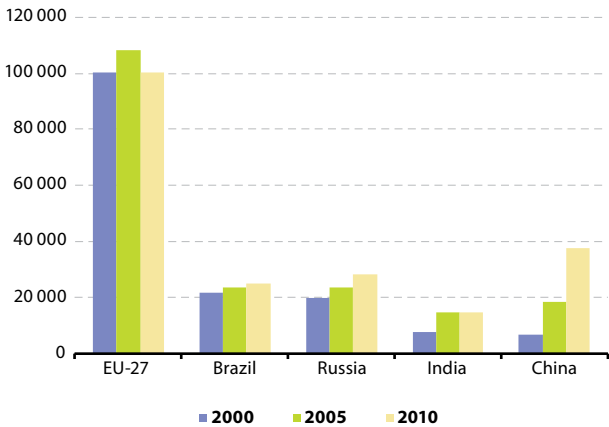
Source: EU-27, Eurostat (online data code: for_swpan); BRIC, FAO.

Table 7.8: Catches, total – all fishing areas
(1 000 tonnes live weight)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
EU-27	6 789	6 920	6 321	5 892	5 875	5 641	5 450	5 180	5 176	5 068
Brazil	667	730	756	712	746	750	779	783	792	825
Russia	4 027	3 639	3 244	3 291	2 953	3 208	3 296	3 463	3 394	3 832
India	3 726	3 817	3 745	3 721	3 391	3 691	3 845	3 859	4 099	4 053
China (¹)	14 824	14 404	14 427	14 599	14 786	14 851	14 906	14 988	15 157	15 196

(¹) 2000–2006, FAO estimates.

Source: EU-27, Eurostat (online data code: fish_ca_00); BRIC, FAO.

Table 7.9: Aquaculture, total — all fishing areas
(1 000 tonnes live weight)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
EU-27	1 399	1 386	1 272	1 343	1 311	1 261	1 283	1 307	1 255	1 302
Brazil	172	206	248	273	270	258	272	289	365	416
Russia	77	90	101	109	110	115	106	106	116	117
India	1 943	2 120	2 189	2 316	2 803	2 972	3 181	3 112	3 851	3 792
China (¹)	28 460	29 869	31 862	33 664	35 942	37 615	39 359	41 173	42 670	45 279

(¹) 2000–2006, FAO estimates.

Source: EU-27, Eurostat (online data code: fish_aq_q); BRIC, FAO.

Table 7.10: Total catches by category, 2009
(tonnes)

	Total	of which:						
		Freshwater fishes	Diadromous fishes	Marine fishes	Crustaceans	Molluscs	Aquatic plants	Miscellaneous aquatic animal
EU-27	5 067 891	107 566	28 471	4 362 942	233 477	315 985	18 971	480
Brazil	825 412	221 869	67	522 809	65 994	14 673	:	:
Russia	3 831 957	125 019	594 448	2 960 774	59 621	75 376	5 828	10 891
India	4 053 241	832 374	38 675	2 661 372	441 587	79 229	:	4
China	15 195 766	1 526 285	98 656	8 909 739	2 346 737	1 769 428	276 170	268 751

Source: EU-27, Eurostat (online data code: fish_ca_00); BRIC, FAO.

Table 7.11: Total aquaculture by category, 2009
(tonnes)

	Total	of which:						
		Freshwater fishes	Diadromous fishes	Marine fishes (¹)	Crustaceans	Molluscs	Aquatic plants	Miscellaneous aquatic animal (²)
EU-27	1 301 866	104 419	372 513	174 473	250	650 100	111	:
Brazil	415 636	332 256	4 381	:	65 288	13 106	:	605
Russia	117 310	89 324	26 289	:	:	912	739	46
India	3 791 922	3 533 849	:	127 779	110 410	19 882	2	:
China	45 279 173	19 276 930	293 563	800 148	2 977 446	10 765 706	10 495 905	666 077

(¹) China, FAO estimate.
(²) Brazil, FAO estimate.

Source: EU-27, Eurostat (online data code: fish_aq_q); BRIC, FAO.

Definitions and methodological information

Land area: the land area is made up of its total area excluding the area of rivers, lakes and reservoirs.

Agricultural area, abbreviated to AA, (or utilised agricultural area, UAA) describes the area used for farming. It includes the land categories arable land, permanent grassland and permanent crops.

Arable land is land worked (ploughed or tilled) regularly, generally under a system of crop rotation.

Permanent crops are ligneous crops not grown in rotation, but occupying the soil and yielding harvests for several (usually more than five) consecutive years. Permanent crops mainly consist of fruit and berry trees, bushes, vines and olive trees. Permanent crops are usually intended for human consumption and generally yield a higher added value per hectare than annual crops. They also play an important role in shaping the rural landscape (through orchards, vineyards and olive tree plantations) and help to balance agriculture within the environment.

Permanent grassland and meadow is land used permanently (for several, usually more than five, consecutive years)

- to grow herbaceous forage crops, through cultivation (sown) or naturally (self-seeded);
- is not included in the crop rotation scheme on the agricultural holding.

Permanent grassland and meadows can be either used for grazing by livestock, or mowed for hay or silage (stocking in a silo).

Other land: unutilised agricultural land (agricultural land which is no longer farmed, for economic, social or other reasons, and which is not used in the crop rotation system), wooded area and other land occupied by buildings, farmyards, tracks, ponds, quarries, infertile land, rock, etc.

Inland water: area occupied by major rivers, lakes and reservoirs

Cereals include wheat (common wheat and spelt and durum wheat), rye, maslin, barley, oats, mixed grain other than maslin, grain maize, sorghum, triticale, and other cereal crops such as buckwheat, millet, canary seed and rice.

Harvested production means production including on-holding losses and wastage, quantities consumed directly on the farm and marketed quantities, indicated in units of basic product weight.

Livestock numbers (cattle, pigs, sheep and goats) refer to animals counted in the December livestock surveys.

Milk production covers farm production of milk from cows, ewes, goats and buffaloes. 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.

Forest is defined as land with tree crown cover (meaning all parts of the tree above ground level including its leaves, branches etc.), or equivalent stocking level, of more than 10 % and with an area of more than 0.5 hectares (ha). The trees should be able to reach a minimum height of 5 meters at maturity *in situ*.

Roundwood production (the term is also used as a synonym for **removals** in the context of forestry) comprises all quantities of wood removed from the forest or other felling sites and stripped of the bark. It is reported in cubic metres under bark (i.e. excluding bark).

Coniferous - All wood derived from trees classified botanically as Gymnospermae, e.g. Abies spp., Araucaria spp., Cedrus spp., Chamaecyparis spp., Cupressus spp., Larix spp., Picea spp., Pinus spp., Thuja spp., Tsuga spp., etc. These are generally referred to as softwoods.

Non-coniferous - All wood derived from trees classified botanically as Angiospermae, e.g. Acer spp., Dipterocarpus spp., Entandrophragma spp., Eucalyptus spp., Fagus spp., Populus spp., Quercus spp., Shorea spp., Swietonia spp., Tectona spp., etc. These are generally referred to as broadleaves or hardwoods.

Sawnwood is wood that has been produced either by sawing lengthways or by a profile-chipping process and that exceeds 6 millimetres (mm) in thickness.

Aquaculture, also known as **aqua-farming**, 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. Farming also implies individual or corporate ownership of, or contractual rights to, the stock being cultivated.

Fish catch (or simply **catch**) refers to catches of fishery products including fish, molluscs, crustaceans and other aquatic animals, residues and aquatic plants that are taken:

- for all purposes (commercial, industrial, recreational and subsistence);
- by all types and classes of fishing units (including fishermen, vessels, gear, etc.); 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.

Other data sources:

FAOSTAT - http://faostat.fao.org/site/291/default.aspx

ForesSTAT - http://faostat.fao.org/site/626/default.aspx#ancor

Fisheries and Aquaculture Department - http://www.fao.org/fishery/statistics/en

Introduction

Energy policy directly affects all citizens. and plays a fundamental role in today's world.

In the European Union, issues and challenges connected to energy supply and consumption often require action at European level. By working together, European Union Member States and European industry can develop energy sectors which best meet the needs of citizens and the economy, whilst minimising damage to the environment.

Along with their impressive economic development, the BRIC countries have undergone large transformations in their energy industries. Growing electricity demand, ambitious energy strategies together with record investment in the BRIC countries has created new business opportunities for suppliers of power plants, transmission and distribution technology and equipment. Russia and Brazil are core oil and gas exporters, China and India are large consumers. The importance of the energy sector is particularly striking in Russia, which holds large natural gas, coal and crude oil reserves.

The rise of the BRIC economies has been powered by the prodigious use of fossil fuels. The fast pace of development has caused unprecedented changes to the biodiversity and ecosystems of these nations and the scale of the challenges that lie ahead are becoming quite clear. China is taking a lead in green technologies and innovation through massive public investment, and is also engaging in extensive reforestation. Brazil has begun to enact more stringent legislation and pursue better enforcement to curb deforestation, both legal and illegal.

However, while their economies are large, a substantial part of the population remains relatively poor. As emerging nations, the BRIC countries will face considerable challenges when balancing the needs of their populations with environmental sustainability.

The following elements are outlined in the next pages:

- Total production of energy
- Gross inland consumption of primary energy
- Gross inland energy consumption per capita
- Energy supply per unit of GDP
- Final electricity consumption per capita
- CO_2 emissions from total fossil fuel combustion
- CO_2 emissions from coal, oil and natural gas combustion
- CO_2 emissions from fossil fuel combustion, by economic sector

Table 8.1: Total production of primary energy
(Mtoe)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
EU-27	940.6	940.9	939.9	931.6	928.4	896.9	878.1	856.9	850.4	813.7
Brazil	148.3	152.2	167.4	178.3	182.6	194.8	206.5	216.4	228.2	230.3
Russia	978.0	1 008.2	1 046.3	1 119.5	1 172.3	1 203.2	1 227.0	1 239.1	1 253.9	1 181.6
India	366.4	374.5	383.6	396.4	409.5	422.4	437.9	452.7	468.3	502.5
China	1 064.0	1 093.8	1 171.2	1 317.3	1 493.3	1 622.9	1 728.3	1 824.5	1 989.8	2 084.9

Source: EU-27, Eurostat (online data code: ten00076); BRIC, OECD.

Table 8.2: Gross inland consumption of primary energy
(Mtoe)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
EU-27	1 724.9	1 763.5	1 758.3	1 799.2	1 820.4	1 824.3	1 825.7	1 808.9	1 800.3	1 703.4
Brazil	189.2	190.3	195.8	199.1	209.7	215.4	223.0	235.4	248.6	240.2
Russia	619.3	626.0	623.1	645.3	647.4	651.7	670.7	672.6	688.5	646.9
India	457.2	464.5	477.5	489.5	518.6	537.9	565.0	596.6	619.0	675.8
China	1 094.9	1 091.4	1 181.7	1 345.0	1 567.9	1 696.4	1 854.0	1 964.0	2 117.5	2 257.1

Source: EU-27, Eurostat (online data code: ten00086); BRIC, OECD.

Table 8.3: Gross inland consumption per capita
(toe per capita)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
EU-27	3.57	3.65	3.63	3.70	3.72	3.71	3.70	3.65	3.62	3.41
Brazil	1.09	1.08	1.09	1.10	1.14	1.16	1.19	1.24	1.30	1.24
Russia	4.22	4.28	4.28	4.45	4.49	4.54	4.70	4.73	4.85	4.56
India	0.45	0.45	0.46	0.46	0.48	0.49	0.51	0.53	0.54	0.58
China	0.87	0.86	0.92	1.04	1.21	1.30	1.41	1.49	1.60	1.70

Source: EU-27, Eurostat (online data codes: nrg_100a and demo_pjan); BRIC, OECD.

Figure 8.1: Final electricity consumption per capita (kWh/capita)

Table 8.4: Total primary energy supply per unit of GDP (toe per thousand 2000 US dollars of GDP calculated using PPPs)
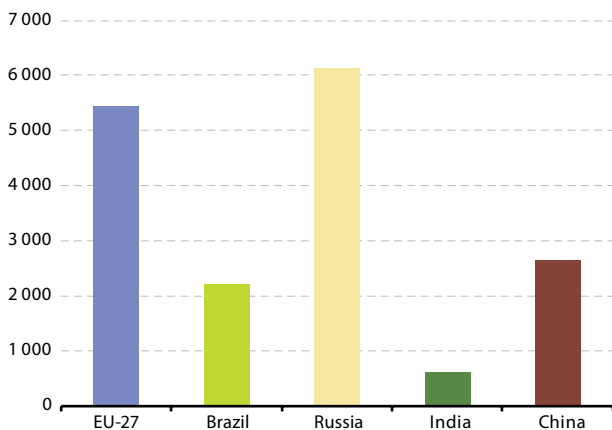
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
EU-27	0.16	0.16	0.16	0.16	0.16	0.15	0.15	0.14	0.14	0.14
Brazil	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Russia	0.62	0.60	0.57	0.55	0.51	0.48	0.46	0.43	0.41	0.42
India	0.19	0.18	0.18	0.17	0.17	0.16	0.15	0.15	0.15	0.15
China	0.22	0.20	0.20	0.21	0.22	0.21	0.21	0.19	0.19	0.19

Table 8.5: CO_2 emissions from fossil fuel combustion, total (million tonnes of CO_2)

	1990	1995	2000	2005	2007	2008	2009
EU-27	4 070.9	3 851.2	3 818.7	3 936.0	3 868.6	3 794.1	3 527.1
Brazil	194.3	240.4	302.8	322.2	341.9	361.5	337.8
Russia	2 178.8	1 574.5	1 505.5	1 516.2	1 578.5	1 593.4	1 532.6
India	582.3	776.6	972.5	1 160.4	1 357.2	1 431.3	1 585.8
China	2 244.1	3 022.1	3 077.2	5 103.1	6 071.8	6 549.0	6 877.2

Table 8.6: CO_2 emissions from coal combustion
(million tonnes of CO_2)

	1990	1995	2000	2005	2007	2008	2009
EU-27	1 779.3	1 426.1	1 256.6	1 245.6	1 282.2	1 186.3	1 056.1
Brazil	29.1	36.7	44.9	44.2	46.4	46.9	38.2
Russia	687.1	483.9	441.4	407.3	418.8	421.7	404.9
India	395.9	517.3	623.6	782.1	925.6	977.7	1 080.4
China	1 913.7	2 563.2	2 450.9	4 196.8	5 032.7	5 460.4	5 750.8

Source: EU-27, EEA; BRIC, IEA.

Table 8.7: CO_2 emissions from oil combustion
(million tonnes of CO_2)

	1990	1995	2000	2005	2007	2008	2009
EU-27	1 629.7	1 655.0	1 637.8	1 642.7	1 559.2	1 552.1	1 472.9
Brazil	158.8	195.3	240.6	240.0	254.8	365.6	260.6
Russia	625.4	351.2	332.4	309.9	325.8	336.2	327.2
India	165.8	223.9	301.8	309.9	355.7	377.3	400.8
China	304.6	427.1	577.1	818.0	905.5	934.9	957.6

Source: EU-27, EEA; BRIC, IEA.

Table 8.8: CO_2 emissions from natural gas combustion
(million tonnes of CO_2)

	1990	1995	2000	2005	2007	2008	2009
EU-27	638.8	740.9	886.7	1 001.2	973.9	999.1	941.6
Brazil	6.4	8.5	17.3	38.0	40.7	49.0	39.1
Russia	866.3	728.8	718.1	783.4	820.7	821.5	784.8
India	20.6	35.3	47.1	68.5	75.8	76.3	104.6
China	25.8	31.8	49.2	88.0	133.6	153.8	168.8

Source: EU-27, EEA; BRIC, IEA.

Table 8.9: CO$_2$ emissions from fossil fuel combustion by sector in 2009
(million tonnes of CO$_2$)

	Total CO$_2$ emissions from fuel combustion	Electricity and heat production	Other energy industry own use (¹)	Manufacturing industries and construction	Transport		Other sectors	
					Total	of which: road	Total	of which: residential
EU-27	3 527.1	1 218.3	181.1	524.4	920.7	868.0	674.0	431.9
Brazil	337.8	30.0	28.1	96.0	147.0	132.2	36.7	16.5
Russia	1 532.6	812.7	66.0	274.3	226.3	136.8	153.2	117.2
India	1 585.8	855.7	49.7	346.2	150.1	134.1	184.1	76.7
China	6 877.2	3 324.3	264.2	2 283.3	476.3	366.5	529.2	289.1

(¹) Includes emissions from own use in petroleum refining, the manufacture of solid fuels, coal mining, oil and gas extraction and other energy-producing industries.

Source: EU-27, EEA; BRIC, IEA.

Table 8.10: Per capita CO$_2$ emissions from fossil fuel combustion, by sector, 2009
(kg CO$_2$)

	Total CO$_2$ emissions from fuel combustion	Electricity and heat production	Other energy industry own use (¹)	Manufacturing industries and construction	Transport		Other sectors	
					Total	of which: road	Total	of which: residential
EU-27	7 058.6	2 438.1	362.5	1 049.4	1 842.6	1 737.2	1 348.9	864.3
Brazil	1 744.0	155.0	145.0	495.0	759.0	682.0	190.0	85.0
Russia	10 800.0	5 727.0	465.0	1 933.0	1 595.0	964.0	1 080.0	826.0
India	1 373.0	741.0	43.0	300.0	130.0	116.0	159.0	66.0
China	5 138.0	2 484.0	197.0	1 706.0	356.0	274.0	395.0	216.0

(¹) Includes emissions from own use in petroleum refining, the manufacture of solid fuels, coal mining, oil and gas extraction and other energy-producing industries.

Source: EU-27, EEA; BRIC, IEA.

Definitions and methodological information

Annual energy indicators are compiled on the basis of joint Eurostat/IEA/UNECE questionnaires that contain detailed explanatory notes on the accounting conventions to be used for each fuel. These conventions are agreed and reviewed regularly by the three organisations using these questionnaires

Primary energy production (EU-27) is the extraction of energy from a natural source. The precise definition depends on the fuel involved: hard coal, lignite, crude oil, natural gas, nuclear heat, hydropower, wind, solar photovoltaic, geothermal energy, biomass/wastes.

Primary energy production (BRIC countries, according to the OECD) refers to the quantities of fuels extracted from the ground after the removal of inert matter or impurities (e.g. sulphur from natural gas). For non-combusted energy such as nuclear, hydro and solar, the primary energy equivalent is calculated using the physical energy content method, which expresses the energy content of each source in million tonnes of oil equivalent (Mtoe) energy.

Gross Inland Consumption is the quantity of energy consumed within the borders of a country. It is calculated using the following formula: primary production + recovered products + imports + stock changes – exports – bunkers (i.e. quantities supplied to sea going ships).

Total primary energy supply per unit of GDP gives an indication of the effectiveness with which energy is being used to produce added value. The ratios are calculated by dividing each country's annual total primary energy supply by each country's annual GDP expressed in constant 2000 prices and converted to US dollars using purchasing power parities (PPPs) for the year 2000.

Final energy consumption is the energy consumed in the following sectors: industry, transport, commercial and public services, agriculture/forestry, fishing, residential and other. It excludes the non-energy consumption, deliveries to the energy transformation sector and to the energy sector.

Carbon dioxide (CO_2) is a colourless, odourless and non-poisonous gas formed by combustion of carbon and in the respiration of living organisms and is considered a greenhouse gas. **Emissions** mean the release of greenhouse gases and/or their precursors into the atmosphere over a specified area and

period of time. **Carbon dioxide emissions or CO_2 emissions** are emissions stemming from the burning of fossil fuels and the manufacture of cement; they include carbon dioxide produced during consumption of solid, liquid, and gas fuels as well as gas flaring.

Fuel combustion (Sectoral Approach) is the total emissions of all greenhouse gases from all fuel combustion activities. CO_2 emissions from combustion of biomass fuels are not included. Other greenhouse gases from biomass fuel combustion are considered net emissions and are included. Incineration of waste for waste-to-energy facilities is included. Emissions from fuel used in ships or aircraft engaged in international transport are not included.

Other definition sources:

International Energy Agency (IEA):
http://www.iea.org/stats/defs/defs.asp

Other data sources:

The source for the EU-27 emissions is EEA, 2011 EU GHG inventory submission to UNFCCC.

http://www.eea.europa.eu/publications/european-union-greenhouse-gas-inventory-2011

http://www.oecd.org/site/0,3407,
en_21571361_34374092_1_1_1_1_1,00.html

http://www.iea.org/co2highlights/co2highlights.pdf

http://www.iea.org/stats/index.asp

Transport and communication

9

Introduction

Transport infrastructure is an important component of the economy as it directly impacts on development and the welfare of populations. Efficient transport systems provide economic and social opportunities and benefits that result in positive multiplier effects: better accessibility to markets, employment and additional investments. However, the impacts of transportation can also have negative consequences such as road accidents, pollution and congestion.

Well-functioning passenger and freight links are vital for European undertakings and citizens and are fundamental to the smooth operation of the internal market, the mobility of persons and goods as well as economic, social and territorial cohesion. European transport policy aims to reconcile the growing mobility needs of citizens with the requirements of sustainable development.

The EU and the BRIC countries do not share the same level of transport infrastructure and mobility: in Brazil, there are major regional differences and a lack of development of the national rail network. Russia has recognized the need to improve its basic infrastructure in order to increase the competitiveness of Russian manufactured products in international markets and to secure the stable flow of raw materials to its foreign customers. In India, good physical connectivity in the urban and rural areas is essential for economic growth. While the transport infrastructure in general struggles to keep pace with rising demand, congested urban centres and inefficient seaports seem to be the most urgent issues. China's transport infrastructure has still large regional discrepancies although substantial efforts have been made to upgrade the rail and road network in the last 20 years. With private car ownership growing fast, there are severe air pollution problems in urban centres.

As with transport infrastructure, individuals, enterprises and public organisations alike depend increasingly on convenient, reliable telecommunication networks and services. The EU cooperates with many countries and international organisations to represent Europe's interests and actively promote the benefits of the Information Society and cultural diversity to all people. This takes place at three levels: the global level, the level of bilateral and regional policy dialogues and economic cooperation, where the European

model has considerable persuasiveness in other countries, and the research cooperation level, which helps to promote mutually beneficial partnerships. In all countries, a shift in the importance of various services can be noted during recent years, from wired networks to mobile networks, and from voice to data services. During the last decade, communication technologies have become widely available to the general public, both in terms of accessibility as well as cost. This is especially true in the EU, where the liberalisation of the market and fierce competition has led to substantially lower prices.

The following elements are outlined in the following pages:

- Number of passenger cars
- Persons killed in road accidents
- Length of the railway network
- Fixed and mobile telephone subscriptions
- Internet users
- Fixed broadband subscriptions
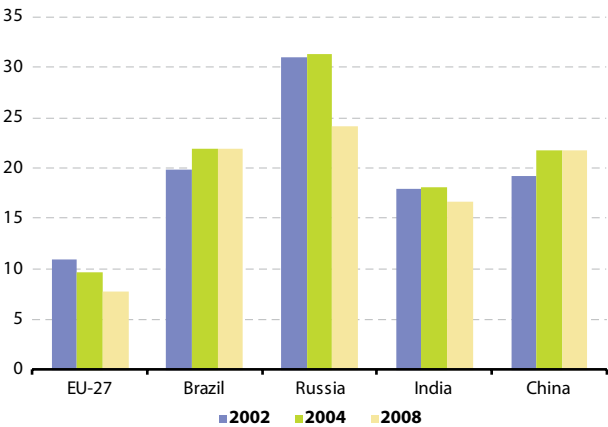- Level of internet access of enterprises

Figure 9.1: Passenger cars
(per 1 000 inhabitants)

■ **2003** ■ **2008**
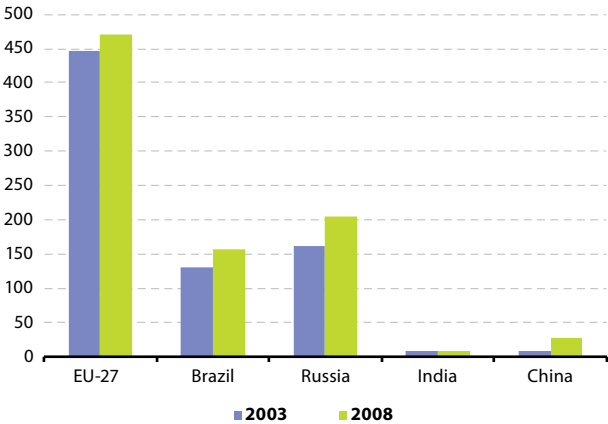
Note: EU-27, estimated value; Brazil and Russia, 2007 instead of 2008; India, 2006 instead of 2008.

Source: EU-27, Eurostat (online data code: road_eqs_carhab); BRIC, The World Bank.

Figure 9.2: People killed in road accidents
(per 100 000 inhabitants)

■ **2002** ■ **2004** ■ **2008**

Source: EU-27, Eurostat (online data code: road_ac_death); BRIC, WHO.

Table 9.1: Length of railway lines
(thousand kilometres)

|	2000	2005	2009 (¹)	2009 – km per 1 000 km² of national territory	2009 – km per million inhabitants
EU-27	217.6	216.6	217.9	50.6	434.8
Brazil	:	29.3	29.8	3.5	152.6
Russia	86.1	85.5	85.2	5.2	606.9
India	62.8	63.5	63.3	19.2	52.1
China	58.7	62.2	65.5	6.8	48.4

(¹) EU-27, 2008 estimated.

Source: EU-27, Eurostat (online data code: rail_if_line_tr); BRIC, The World Bank.

Table 9.2: Fixed telephone subscriptions
(per 100 inhabitants)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
EU-27	48.0	49.0	48.0	47.0	48.0	48.0	47.0	46.0	44.0	43.0	:
Brazil	17.7	21.2	21.7	21.6	21.5	21.4	20.6	20.8	21.5	21.5	21.6
Russia	21.9	22.8	24.4	24.9	26.7	27.9	30.6	31.6	31.8	31.7	31.4
India	3.1	3.6	3.8	3.8	4.1	4.4	3.5	3.3	3.2	3.1	2.9
China	11.4	14.1	16.7	20.3	24.0	26.8	28.0	27.7	25.6	23.5	22.0

Note: EU-27, 2008 and 2009 estimated values.

Source: EU-27, Eurostat (online data code: isoc_tc_ac2); BRIC, ITU.

Figure 9.3: Mobile cellular subscriptions
(per 100 inhabitants)

■ **EU-27** ■ **Brazil** ■ **Russia** ■ **India** ■ **China**
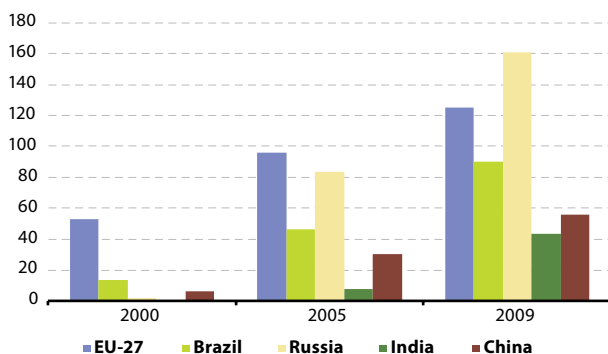
Source: EU-27, Eurostat (online data code: isoc_tc_ac2); BRIC, ITU.

Table 9.3: Internet users
(per 100 inhabitants)

	2004	2005	2006	2007	2008	2009	2010
EU-27	47	54	55	60	64	67	71
Brazil	19	21	28	31	34	39	41
Russia	13	15	18	25	27	29	43
India	2	2	3	4	4	5	8
China	7	9	11	16	23	29	34

Source: EU-27, Eurostat (online data code: isoc_ci_ifp_iu); BRIC, ITU.

Table 9.4: Fixed broadband subscriptions
(per 100 inhabitants)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
EU-27	:	:	:	:	:	:	:	18.20	21.70	23.90	25.70
Brazil	0.06	0.19	0.41	0.53	1.72	1.74	2.54	4.01	5.37	6.09	7.23
Russia	0.00	0.00	0.01	0.24	0.47	1.10	2.02	3.42	6.48	9.02	10.98
India	0.00	0.00	0.01	0.01	0.02	0.12	0.20	0.27	0.44	0.64	0.90
China	0.00	0.03	0.26	0.87	1.92	2.86	3.87	5.03	6.24	7.79	9.42

Source: EU-27, Eurostat (online data code: isoc_si_broad); BRIC, ITU.

Figure 9.4: Enterprises - level of Internet access, 2009
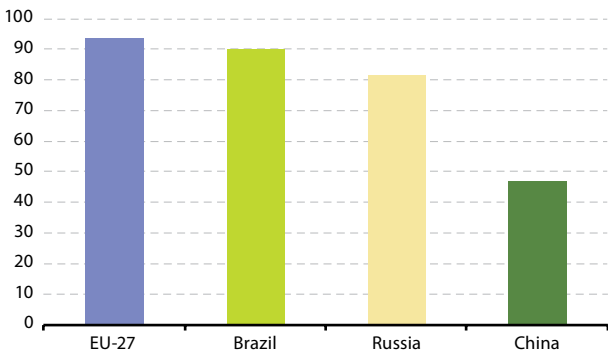
Note: EU-27, 2010 data instead of 2009.

Source: EU-27, Eurostat (online data code: isoc_ci_in_en2); BRIC, OECD.

Definitions and methodological information

A **passenger car** is a road motor vehicle, other than a motor cycle, intended for carrying passengers and designed to seat no more than nine people (including the driver). The term passenger car also covers microcars (small cars which, depending on individual Member State legislation, may need no permit to be driven and/or benefit from lower vehicle taxation), taxis and other hired passenger cars, provided that they have fewer than 10 seats in total. This category may also include pick-ups (light motor vehicles with an open rear cargo area).

Persons killed in road accidents: Fatalities caused by road accidents include drivers and passengers of motorised vehicles and pedal cycles as well as pedestrians, killed within 30 days from the day of the accident. EU-27 data come from the CARE database managed by Directorate-General for Mobility and Transport (DG MOVE).

Railway lines

Railway line (Eurostat): line of communication made up by rail exclusively for the use of railway vehicles. Line: one or more adjacent running tracks forming a route between two points. Where a section of network comprises two or more lines running alongside one another, there are as many lines as routes to which tracks are allotted exclusively.

Rail lines (The World Bank) are the length of railway route available for train service, irrespective of the number of parallel tracks.

Fixed telephone subscriptions

A main line is a (fixed) telephone line connecting the subscriber's terminal equipment to the public switched network and which has a dedicated port in the telephone exchange equipment. This term is synonymous with the term Main Station or Direct Exchange Line (DEL) that are commonly used in telecommunication documents. It may not be the same as an access line or a subscriber. The number of ISDN channels should be included. Fixed wireless subscribers should also be included unless specifically excluded.

Mobile cellular subscriptions (ITU)

Refers to the subscriptions to a public mobile telephone service and provides access to Public Switched Telephone Network (PSTN) using cellular technology, including number of

prepaid SIM cards active during the past three months. This includes both analogue and digital cellular systems (IMT-2000 (Third Generation, 3G) and 4G subscriptions), but excludes mobile broadband subscriptions via data cards or USB modems. Subscriptions to public mobile data services, private trunked mobile radio, telepoint or radio paging, and telemetry services are excluded.

Internet users (ITU) refer to the estimated number of Internet users out of the total population. This includes those using the Internet from any device (including mobile phones) in the last 12 months. A growing number of countries are measuring this through household surveys. In countries where household surveys are available, this estimate should correspond to the estimated number derived from the percentage of Internet users collected. (If the survey covers the percentage of the population for a certain age group e.g. 15–74 years old, the estimated number of Internet users should be derived using this percentage). In situations where surveys are not available, an estimate can be derived based on the number of Internet subscriptions.

Fixed broadband subscriptions (ITU)
Total fixed (wired) broadband Internet subscriptions refers to subscriptions to high-speed access to the public Internet (a TCP/IP connection), at downstream speeds equal to, or greater than, 256 kbit/s. This can include for example cable modem, DSL, fibre-to-the-home/building and other fixed (wired) broadband subscriptions. This total is measured irrespective of the method of payment. It excludes subscriptions that have access to data communications (including the Internet) via mobile cellular networks.

Other definition sources:

The World Bank: http://go.worldbank.org/60D6F18CB0

Eurostat/ITF/UNECE
http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/publication?p_product_code=KS-RA-10-028

International Telecommunication Union (ITU), World Telecommunications: http://www.itu.int/ITU-D/ict/material/TelecomICT_Indicators_Definition_March2010_for_web.pdf

Other data sources:

The World Bank: http://data.worldbank.org/indicator/IS.RRS.TOTL.KM

European Commission CARE database: http://ec.europa.eu/transport/road_safety/specialist/statistics/care_reports_graphics/index_en.htm

World Health Organization (WHO): http://www.who.int/gho/road_safety/mortality/en/index.html

International Telecommunication Union (ITU), World Telecommunications: http://www.itu.int/ITU-D/ict/statistics/

Science and technology **10**

Introduction

Science, technology and innovation are often considered as important drivers for economic development and growth. Investment in the creation of new knowledge is essential for developing new and improved products and processes and may provide a stimulus to a country's competitiveness.

The BRIC countries are some of the world's largest developing and transition economies and of increasing importance for Europe as strategic partners and associates. The knowledge base in BRIC countries is increasing steadily, both in terms of qualified human resources and investments.

EU policymakers call for strengthening international research cooperation with BRIC countries, and steps have been taken to foster Research and Development (R&D) cooperation on policy level, such as the signing of Science and Technology agreements and joint cooperation and R&D funding programmes.

Expenditure on R&D can be funded by various sources, the largest shares coming from the government and the business enterprise sectors.

Among the total personnel active in R&D, researchers undertake creative work in order to increase the stock of knowledge and promote new applications.

Patents reflect a country's inventive activity and show their capacity to exploit knowledge and translate it into potential economic gains. A patent is an intellectual property right for inventions of a technical nature. It can be granted in one or more countries. The so-called triadic patents are of particular importance.

This chapter offers data for the following elements:

- Gross domestic expenditure on research and development (GERD)

- GERD by source of funds

- Total number of researchers active in all sectors, as a share of total employment

- Number of triadic patent families

Figure 10.1: Gross domestic expenditure on R&D (GERD)
(% of GDP)
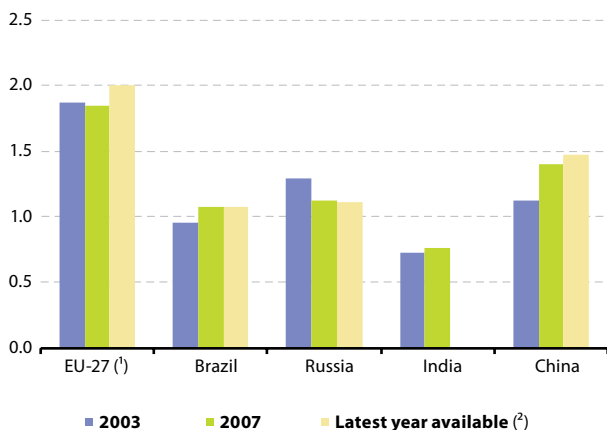
(¹) Eurostat estimate.
(²) EU-27 and Russia, 2010; Brazil and China, 2008.

Source: EU-27, Russia and China, Eurostat (online data code: rd_e_gerdtot); Brazil and India, UNESCO.

Table 10.1: Gross Expenditure on R&D by source of funds —
Business Enterprise Sector
(%)

	2003	2007	Latest year available (³)
EU-27 (¹)	53.9	55.0	54.1
Brazil	43.8	44.6	43.9
Russia	30.8	29.4	25.5
India (²)	22.3	33.9	:
China	60.1	70.4	71.7

(¹) Eurostat estimate.
(²) Overestimated or based on overestimated data; including private nonprofit; does not
    correspond exactly to Frascati Manual recommendation.
(³) EU-27, 2009; Russia, 2010; Brazil and China, 2008.

Source: EU-27, Russia and China, Eurostat (online data code: tsiir030); Brazil and
India, UNESCO.

Table 10.2: Gross Expenditure on R&D by source of funds — Government Sector
(%)

|	2003	2007	Latest year available ([3])
EU-27 ([1])	35.3	33.2	34.9
Brazil	54.2	53.1	54
Russia	59.6	62.6	70.3
India ([2])	77.7	66.1	:
China	29.9	24.6	23.6

([1]) Eurostat estimate.
([2]) Overestimated or based on overestimated data; including private nonprofit; does not correspond exactly to Frascati Manual recommendation.
([3]) EU-27, 2009; Russia, 2010; Brazil and China, 2008.

Source: EU-27, Russia and China, Eurostat (online data code: tsiir030); Brazil and India, UNESCO.

Figure 10.2: Total researchers: all sectors
(% of total employment — numerator in Full-Time Equivalent)

■ **2005** ■ **Latest year available** ([1])
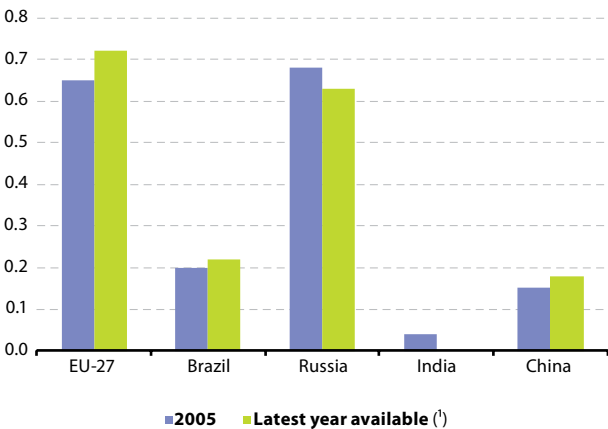
([1]) EU-27 and Russia, 2010; Brazil and China, 2007.

Source: EU-27, Russia and China, Eurostat (online data code: rd_p_perslf); Brazil and India, OECD.

Table 10.3: Triadic patent families by earliest priority year at the national level
(per million of inhabitants)

	2000	2005	2008
EU-27	28.19	12.14	0.54
Brazil	:	:	:
Russia	0.50	0.23	0.01
India	0.05	0.06	:
China	0.07	0.14	0.02

Note: 2006–2008, provisional values. A patent family is triadic when the invention to which it refers has been the subject of a patent application to the European Patent Office (EPO) and the Japan Patent Office (JPO), and the subject of the issue of a title of ownership at the United States Patent and Trademark Office (USPTO). In other words, a triadic patent protects an invention on the European, Japanese and U.S. markets simultaneously.

Source: Eurostat (online data code: pat_td_ntot).

Definitions and methodological information

Gross domestic expenditure on R&D (GERD) includes expenditure on research and development by business enterprises, higher education institutions, as well as government and private nonprofit organisations. Gross domestic expenditure on R&D (GERD) is consequently composed of: Business enterprise expenditure on R&D (BERD), Higher Education expenditure on R&D (HERD), Government expenditure on R&D (GOVERD) and Private Nonprofit expenditure on R&D (PNPRD).

Research and development (R&D) personnel consists of all individuals employed directly in the field of Research and development (R&D), including persons providing direct services, such as managers, administrators, and clerical staff. A R&D researcher 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.

Triadic patents: A patent family is triadic when the invention to which it refers has been the subject of a patent application to the European Patent Office (EPO) and the Japan Patent Office (JPO), and the subject of the issue of a title of ownership at the United States Patent and Trademark Office (USPTO). Falling trends are linked to the patenting procedures and should not be understood as a real decline in the patenting activity. The data is produced using the priority year of the application (first date of filing of a patent application anywhere in the world - the closest to the invention). Information is however made available after publication of the application. For EPO data the time lag between priority date of patent applications and the availability of information can be up to 30 months. For USPTO grants the time lag can be more than 5 years.

Other definition sources:

OECD, Frascati manual: www.oecd.org/sti/frascatimanual

Other data sources:

OECD: http://www.oecd-ilibrary.org/economics/oecd-factbook_18147364

United Nations Educational, Scientific and Cultural Organization: http://www.uis.unesco.org/ScienceTechnology/Pages/default.aspx

HOW TO OBTAIN EU PUBLICATIONS

Free publications:

- via EU Bookshop (http://bookshop.europa.eu);

- at the European Commission's representations or delegations. You can obtain their contact details on the Internet (http://ec.europa.eu) or by sending a fax to +352 2929-42758.

Priced publications:

- via EU Bookshop (http://bookshop.europa.eu).

Priced subscriptions (e.g. annual series of the *Official Journal of the European Union* and reports of cases before the Court of Justice of the European Union):

- via one of the sales agents of the Publications Office of the European Union (http://publications.europa.eu/others/agents/index_en.htm).

The European Union and the BRIC countries

2012 edition

This pocketbook gives a first comparative statistical overview of the EU-27 with Brazil, Russia, India and China, the BRIC countries. The publication is structured in 10 themes covering demography; economy; health; education; labour market; trade in goods; agriculture, forestry and fisheries; energy and environment; transport and communications; and science and technology. Links to Eurostat's as well as national and international data sources along with methodological notes allow the reader to further explore these themes.

http://ec.europa.eu/eurostat

Publications Office