



	Investment commitments in infrastructure projects with private participation <sup>a</sup>								Domestic credit to private sector % of GDP 2010	Businesses registered	
	Telecommunications		Energy		Transport		Water and sanitation			New 2009	Entry density 2009
	2000-05	2006-10	2000-05	2006-10	2000-05	2006-10	2000-05	2006-10			
	\$ millions										
Afghanistan	466.1	1,040.4	1.6	..	..	..	..	..	10.5	..	..
Albania	569.2	778.8	790.6	692.0	308.0	..	8.0	0.0	38.0	2,045	0.84
Algeria	3,422.5	2,162.0	962.0	2,320.0	120.9	269.0	510.0	1,572.0	15.6	10,544	0.44
Angola	278.7	1,663.0	45.0	9.4	..	53.0	..	..	20.3	..	..
Argentina	5,836.8	5,993.9	3,826.9	3,801.9	203.6	1,402.6	791.6	..	14.6	11,924	0.46
Armenia	317.1	586.7	74.0	127.0	63.0	715.0	0.0	0.0	26.5	2,698	1.28
Australia	..	..	..	..	..	..	..	..	131.1	89,960	6.38
Austria	..	..	..	..	..	..	..	..	122.4	3,228	0.58
Azerbaijan	355.6	1,407.8	375.2	..	..	..	0.0	..	18.3	5,314	0.93
Bahrain	..	..	..	..	..	..	..	..	79.6	..	..
Bangladesh	1,294.3	4,250.3	501.5	340.4	0.0	0.0	..	..	47.1	..	..
Belarus	735.4	2,638.7	..	2,500.0	..	4.0	..	..	44.8	5,508	0.80
Belgium	..	..	..	..	..	..	..	..	94.9	29,548	4.28
Benin	116.9	793.7	590.0	..	..	..	..	..	23.1	..	..
Bolivia	520.5	284.7	884.4	137.3	16.6	..	..	..	40.3	2,504	0.43
Bosnia and Herzegovina	0.0	1,102.5	..	908.6	..	..	..	..	66.0	1,896	0.58
Botswana	104.0	242.9	..	..	..	..	..	..	23.4	..	..
Brazil	41,053.8	40,063.0	26,034.6	52,825.6	3,156.5	23,527.7	1,234.4	1,581.0	57.0	315,645	2.38
Bulgaria	2,179.1	2,211.3	3,253.5	2,454.1	2.1	536.2	152.0	..	74.6	35,545	7.20
Burkina Faso	41.9	979.6	..	..	..	..	..	..	17.6	610	0.08
Burundi	53.6	0.0	..	..	..	..	..	..	25.5	..	..
Cambodia	136.1	446.7	82.1	2,452.3	125.3	40.1	..	..	27.6	2,003	0.22
Cameroon	394.4	934.4	91.8	908.0	0.0	..	..	0.0	11.9	..	..
Canada	..	..	..	..	..	..	..	..	128.2	174,000	7.56
Central African Republic	0.0	30.8	..	..	..	..	..	..	8.7	..	..
Chad	11.0	591.4	0.0	..	..	..	..	..	5.7	..	..
Chile	1,260.7	1,326.7	1,393.2	1,567.2	4,830.7	1,943.1	1,495.2	3.1	86.3	23,541	2.12
China	8,548.0	0.0	10,970.9	7,477.5	15,454.0	15,795.0	3,505.2	4,626.9	130.0	..	..
Hong Kong SAR, China	..	..	..	..	..	..	..	..	189.0	101,023	19.19
Colombia	1,570.9	6,347.9	351.6	1,080.9	1,497.4	4,461.4	314.3	305.0	43.5	31,132	1.07
Congo, Dem. Rep.	473.4	1,054.0	..	..	..	..	..	..	6.6	..	..
Congo, Rep.	61.8	407.7	..	..	..	735.0	0.0	..	5.5	..	..
Costa Rica	..	..	80.0	190.0	465.2	407.0	..	..	45.9	26,765	8.78
Côte d'Ivoire	134.9	1,204.4	0.0	0.0	176.4	..	..	0.0	18.1	..	..
Croatia	1,205.7	3,035.0	7.1	85.0	451.0	492.0	298.7	..	70.1	7,800	2.57
Cuba	60.0	0.0	116.0	60.0	0.0	..	600.0	..	..	..	..
Cyprus	..	..	..	..	..	..	..	..	283.6	16,101	20.30
Czech Republic	..	..	..	..	..	..	..	..	56.2	21,717	3.00
Denmark	..	..	..	..	..	..	..	..	223.5	16,519	4.57
Dominican Republic	393.0	220.1	1,306.6	0.0	898.9	948.9	..	..	22.7	12,881	2.13
Ecuador	357.8	2,003.3	302.0	129.0	695.0	766.0	510.0	..	30.8	..	..
Egypt, Arab Rep.	3,471.9	10,977.0	678.0	469.0	821.5	1,370.0	..	475.0	33.1	6,291	0.13
El Salvador	1,110.6	1,037.6	85.0	16.0	..	..	..	..	41.0	4,400	1.19
Eritrea	40.0	0.0	..	..	..	..	..	..	16.0	..	..
Estonia	..	..	..	..	..	..	..	..	97.2	7,199	8.10
Ethiopia	..	0.0	..	4.0	..	..	..	..	17.8	1,327	0.03
Finland	..	..	..	..	..	..	..	..	95.2	11,820	3.37
France	..	..	..	..	..	..	..	..	114.4	128,906	3.08
Gabon	26.6	403.8	0.0	0.0	177.4	3.9	..	..	8.2	3,490	4.27
Gambia, The	6.6	35.0	..	0.0	..	..	..	..	19.1	..	..
Georgia	201.3	722.0	40.0	634.2	..	573.0	..	435.0	32.4	7,226	2.32
Germany	..	..	..	..	..	..	..	..	107.8	64,840	1.19
Ghana	156.5	3,206.0	590.0	100.0	10.0	..	0.0	..	15.2	9,606	0.72
Greece	..	..	..	..	..	..	..	..	115.9	8,426	1.18
Guatemala	560.1	1,724.4	110.0	1,021.8	..	..	..	6.7	23.4	5,133	0.68
Guinea	50.6	313.2	..	..	..	159.0	..	..	..	..	..
Guinea-Bissau	9.7	107.2	..	..	..	..	..	..	6.2	..	..
Haiti	18.0	306.0	5.5	0.0	..	..	..	1.0	14.0	..	..

# Private sector in the economy

# 5.1

	Investment commitments in infrastructure projects with private participation <sup>a</sup>								Domestic credit to private sector % of GDP 2010	Businesses registered	
	\$ millions									New 2009	Entry density 2009
	Telecommunications		Energy		Transport		Water and sanitation				
2000-05	2006-10	2000-05	2006-10	2000-05	2006-10	2000-05	2006-10				
Honduras	135.0	1,001.0	358.8	250.0	120.0	..	207.9	..	50.2	..	..
Hungary	5,172.8	1,523.3	851.6	1,707.0	3,297.5	1,588.0	0.0	0.0	72.6	42,951	6.26
India	20,551.8	53,090.4	8,663.6	90,973.0	4,413.4	38,036.2	112.9	241.7	49.0	84,800	0.12
Indonesia	6,557.2	11,009.5	1,280.5	6,079.3	159.2	1,731.5	44.8	20.2	29.1	28,998	0.18
Iran, Islamic Rep.	695.0	1,992.0	650.0	..	..	..	..	..	36.7	..	..
Iraq	984.0	4,977.0	..	590.0	..	500.0	..	..	9.1	..	..
Ireland	..	..	..	..	..	..	..	..	215.0	13,188	4.67
Israel	..	..	..	..	..	..	..	..	95.7	19,758	4.46
Italy	..	..	..	..	..	..	..	..	122.0	68,508	1.78
Jamaica	612.0	157.9	201.0	210.0	565.0	..	..	..	24.8	2,003	1.16
Japan	..	..	..	..	..	..	..	..	169.3	105,698	1.28
Jordan	1,589.0	949.6	..	989.0	0.0	1,380.0	169.0	951.0	70.3	2,737	0.74
Kazakhstan	1,153.7	3,766.5	300.0	0.0	231.0	31.0	..	..	39.3	27,978	2.59
Kenya	1,434.0	3,465.8	..	437.7	..	404.0	..	..	33.8	17,896	0.85
Korea, Dem. Rep.	..	474.0	..	..	..	..	..	..	..	..	..
Korea, Rep.	..	..	..	..	..	..	..	..	100.8	60,039	1.72
Kosovo	..	385.1	..	..	..	..	0.0	..	37.3	141	0.12
Kuwait	..	..	..	..	..	..	..	..	82.4	..	..
Kyrgyz Republic	11.5	130.2	..	..	..	..	0.0	..	..	4,412	1.26
Lao PDR	87.7	135.0	1,250.0	5,285.0	1.5	1.5	..	..	20.4	..	..
Latvia	700.0	468.1	158.1	184.0	..	135.0	..	..	103.7	7,175	4.62
Lebanon	138.1	0.0	..	..	153.0	..	0.0	..	81.3	..	..
Lesotho	88.4	41.6	0.0	..	..	..	..	..	13.6	..	..
Liberia	70.3	88.8	..	170.0	..	120.0	..	..	16.0	..	..
Libya	..	..	..	..	..	..	..	..	10.9	..	..
Lithuania	993.0	548.2	514.3	464.1	..	..	..	..	66.4	5,399	2.18
Macedonia, FYR	706.6	575.4	..	655.0	..	295.0	..	..	45.3	8,074	5.63
Madagascar	12.6	436.8	0.0	17.8	61.0	17.5	..	..	11.7	724	0.07
Malawi	36.3	313.7	0.0	..	..	..	..	..	16.0	619	0.08
Malaysia	3,294.9	3,689.9	6,637.6	384.5	4,263.0	1,632.3	6,502.2	0.0	114.9	41,638	2.55
Mali	82.6	837.0	365.9	..	55.4	..	..	..	18.4	..	..
Mauritania	92.1	266.1	..	..	..	..	..	..	30.4	..	..
Mauritius	393.0	63.1	0.0	..	..	..	..	0.0	87.8	6,626	7.33
Mexico	18,758.0	16,290.6	6,749.3	2,282.7	2,970.4	12,651.5	523.7	1,096.8	24.6	44,084	0.61
Moldova	46.1	426.8	227.2	68.0	0.0	60.0	..	..	33.3	4,180	1.32
Mongolia	22.1	0.0	..	..	..	..	..	..	39.6	..	..
Morocco	6,139.5	3,673.6	1,049.0	..	200.0	200.0	..	..	68.7	26,166	1.28
Mozambique	123.0	236.2	1,205.8	..	334.6	0.0	..	0.0	25.8	..	..
Myanmar	..	..	..	556.1	..	..	..	..	4.7	..	..
Namibia	35.0	8.5	1.0	..	..	..	0.0	..	45.6	..	..
Nepal	109.3	26.0	15.1	34.1	..	..	..	0.0	55.6	..	..
Netherlands	..	..	..	..	..	..	..	..	199.3	35,100	3.10
New Zealand	..	..	..	..	..	..	..	..	149.0	47,897	17.08
Nicaragua	218.5	512.2	126.3	510.0	104.0	..	..	..	32.5	..	..
Niger	85.5	358.7	..	..	..	..	3.4	..	12.6	24	0.00
Nigeria	6,949.7	14,384.1	1,920.0	280.0	2,355.4	644.1	..	..	29.4	65,089	0.79
Norway	..	..	..	..	..	..	..	..	..	13,805	4.49
Oman	..	..	..	..	..	..	..	..	48.2	3,165	1.67
Pakistan	6,594.9	9,006.5	375.4	4,120.5	112.8	923.7	..	..	21.5	2,759	0.03
Panama	211.4	1,262.2	449.3	877.0	51.4	0.0	..	..	91.5	548	0.26
Papua New Guinea	..	150.0	..	..	..	..	..	..	31.8	..	..
Paraguay	199.0	636.4	..	..	..	..	..	..	37.8	..	..
Peru	2,241.4	3,191.1	2,498.9	2,191.0	522.5	3,289.6	152.0	119.8	24.3	51,151	2.65
Philippines	4,616.4	5,172.0	3,428.4	10,942.5	943.5	968.9	0.0	530.5	29.6	11,435	0.19
Poland	16,800.1	7,750.0	2,620.5	2,475.4	1,672.0	3,642.3	64.3	0.8	54.8	14,434	0.52
Portugal	..	..	..	..	..	..	..	..	191.0	27,759	3.92
Puerto Rico	..	..	..	..	..	..	..	..	..	..	..
Qatar	..	..	..	..	..	..	..	..	51.5	..	..



	Investment commitments in infrastructure projects with private participation <sup>a</sup>								Domestic credit to private sector	Businesses registered	
	Telecommunications		Energy		Transport		Water and sanitation		% of GDP	New	Entry density
	2000-05	2006-10	2000-05	2006-10	2000-05	2006-10	2000-05	2006-10			
	\$ millions										
Romania	3,906.9	4,996.4	1,240.8	6,288.7	..	116.8	116.0	41.0	46.1	56,698	3.66
Russian Federation	22,049.4	30,982.6	1,726.0	32,401.2	109.4	4,786.9	904.7	1,241.7	45.1	261,633	2.61
Rwanda	72.3	414.0	1.6	..	..	..	..	..	..	3,028	0.51
Saudi Arabia	..	..	..	..	..	..	..	..	47.6	..	..
Senegal	593.1	1,569.0	93.3	22.0	55.4	398.0	0.0	0.0	25.9	1,636	0.22
Serbia	563.5	3,024.1	..	..	..	..	0.0	..	51.5	9,715	1.94
Sierra Leone	48.8	149.2	..	1.2	..	130.0	..	..	10.4	..	..
Singapore	..	..	..	..	..	..	..	..	102.1	26,416	7.40
Slovak Republic	..	..	..	..	..	..	..	..	44.9	15,825	4.04
Slovenia	..	..	..	..	..	..	..	..	94.4	5,836	4.16
Somalia	13.4	0.0	..	..	..	..	..	..	..	..	..
South Africa	10,519.5	9,815.0	1,251.3	15.9	504.7	3,483.0	31.3	0.0	145.5	24,700	0.77
South Sudan	..	..	..	..	..	..	..	..	..	..	..
Spain	..	..	..	..	..	..	..	..	211.6	79,757	2.92
Sri Lanka	714.6	1,283.5	270.8	..	..	..	..	..	26.6	4,223	0.29
Sudan	747.7	2,226.3	..	..	..	30.0	..	120.7	11.6	..	..
Swaziland	27.7	63.3	..	..	..	..	..	..	23.0	..	..
Sweden	..	..	..	..	..	..	..	..	140.2	24,228	4.09
Switzerland	..	..	..	..	..	..	..	..	174.6	25,250	4.88
Syrian Arab Republic	583.0	372.7	..	..	..	82.0	..	..	22.5	..	..
Tajikistan	8.5	196.4	16.0	..	..	..	..	..	..	2,171	0.48
Tanzania	515.3	2,109.5	348.0	28.4	27.7	134.0	8.5	..	16.2	..	..
Thailand	5,602.7	3,526.0	4,693.3	6,641.4	939.0	..	524.7	18.8	116.6	27,520	0.59
Timor-Leste	0.0	0.0	..	..	..	..	..	..	15.6	..	..
Togo	0.0	67.0	657.7	190.0	..	..	..	..	23.0	125	0.04
Trinidad and Tobago	..	..	..	..	..	..	..	..	39.2	..	..
Tunisia	751.0	3,771.0	30.0	..	..	840.0	..	95.0	68.8	9,079	1.23
Turkey	12,788.6	13,751.7	5,854.8	13,504.2	3,203.6	4,471.2	..	..	44.0	44,472	0.87
Turkmenistan	20.0	202.5	..	..	..	..	..	..	..	..	..
Uganda	387.6	1,720.0	113.9	1,000.6	..	404.0	0.0	..	15.8	11,152	0.72
Ukraine	3,162.9	4,921.4	160.0	64.9	..	130.0	100.0	102.0	61.7	19,300	0.60
United Arab Emirates	..	..	..	..	..	..	..	..	72.5	..	..
United Kingdom	..	..	..	..	..	..	..	..	202.9	330,100	8.05
United States	..	..	..	..	..	..	..	..	202.2	..	..
Uruguay	114.2	200.2	330.0	..	251.1	..	368.0	..	23.0	4,664	2.08
Uzbekistan	285.6	2,046.8	..	..	..	25.0	0.0	..	..	14,428	0.78
Venezuela, RB	3,337.0	3,042.8	39.5	..	34.0	..	15.0	..	18.9	..	..
Vietnam	430.0	1,593.7	2,360.6	297.0	20.0	1,120.0	266.0	..	125.0	..	..
West Bank and Gaza	279.8	644.0	150.0	..	..	..	..	..	..	..	..
Yemen, Rep.	376.8	451.2	..	15.8	..	220.0	..	..	6.2	..	..
Zambia	208.3	1,077.0	3.0	..	15.6	..	0.0	..	11.5	5,509	0.88
Zimbabwe	72.0	644.0	..	..	..	..	..	..	..	..	..
<b>World</b>	.. S	.. S	.. S	.. S	.. S	.. S	.. S	.. S	.. S	134.8 W	..
<b>Low income</b>	4,646.3	21,615.6	..	..	..	..	..	..	..	..	28.3
<b>Middle income</b>	226,353.6	317,609.7	107,559.1	266,780.1	51,413.6	106,204.4	16,177.1	6,654.9	73.7	..	..
Lower middle income	68,257.9	144,334.1	19,986.8	123,341.9	1,781.0	34,127.5	192.0	..	40.2	..	..
Upper middle income	158,095.7	34,212.5	83,156.9	143,438.2	41,607.7	72,076.9	18,427.2	9,705.8	83.3	..	..
<b>Low &amp; middle income</b>	232,154.6	339,225.4	85,938.8	272,012.7	5,437.5	86,673.9	2,481.0	..	73.0	..	..
East Asia & Pacific	29,380.1	4,662.0	30,710.4	40,115.6	21,905.4	20,538.0	10,842.9	5,196.4	116.3	..	..
Europe & Central Asia	51,002.1	76,087.4	4,439.1	58,924.3	..	..	..	..	46.2	..	..
Latin America & Carib.	78,935.4	85,698.9	45,347.6	67,445.3	16,419.9	49,397.7	2,516.1	..	41.9	..	..
Middle East & N. Africa	13,435.4	29,970.1	..	..	..	..	..	..	35.0	..	..
South Asia	29,784.3	68,726.2	9,828.0	95,669.0	4,526.2	39,437.9	112.9	241.7	45.7	..	..
Sub-Saharan Africa	24,622.2	52,365.4	..	..	..	..	..	..	65.4	..	..
<b>High income</b>	..	..	..	..	..	..	..	..	164.6	..	..
Euro area	..	..	..	..	..	..	..	..	133.6	..	..

a. Data refer to total for the period shown. Includes infrastructure projects with private sector participation that reached financial closure in 1990-2010.

## About the data

Private sector development and investment—tapping private sector initiative and investment for socially useful purposes—are critical for poverty reduction. In parallel with public sector efforts, private investment, especially in competitive markets, has tremendous potential to contribute to growth. Private markets are the engine of productivity growth, creating productive jobs and higher incomes. And with government playing a complementary role of regulation, funding, and service provision, private initiative and investment can help provide the basic services and conditions that empower poor people—by improving health, education, and infrastructure.

Investment in infrastructure projects with private participation has made important contributions to easing fiscal constraints, improving the efficiency of infrastructure services, and extending delivery to poor people. Developing countries have been in the forefront, pioneering better approaches to infrastructure services and reaping the benefits of greater competition and customer focus.

The data on investment in infrastructure projects with private participation refer to all investment (public and private) in projects in which a private company assumes operating risk during the operating period or development and operating risk during the contract period. Investment refers to commitments not disbursements. Foreign state-owned companies are considered private entities for the purposes of this measure.

Investments are classified into two types: investments in physical assets—the resources a company commits to invest in expanding and modernizing facilities—and payments to the government to acquire state-owned enterprises or rights to provide services in a specific area or to use part of the radio spectrum.

The data are from the World Bank's Private Participation in Infrastructure (PPI) Project database, which tracks infrastructure projects with private participation in developing countries. It provides information on more than 4,800 infrastructure projects in 139 developing economies from 1984 to 2010. The database contains more than 30 fields per project record, including country, financial closure year, infrastructure services provided, type of private participation, investment, technology, capacity, project location, contract duration, private sponsors, bidding process, and development bank support. Data on the projects are compiled from publicly available information. The database aims to be as comprehensive as possible, but some projects—particularly those

involving local and small-scale operators—may be omitted because they are not publicly reported. The database is a joint product of the World Bank's Finance, Economics, and Urban Development Department and the Public-Private Infrastructure Advisory Facility. Geographic and income aggregates are calculated by the World Bank's Development Data Group. For more information, see <http://ppi.worldbank.org/>.

Credit is an important link in money transmission; it finances production, consumption, and capital formation, which in turn affect economic activity. The data on domestic credit to the private sector are taken from the banking survey of the International Monetary Fund's (IMF) *International Financial Statistics* or, when unavailable, from its monetary survey. The monetary survey includes monetary authorities (the central bank), deposit money banks, and other banking institutions, such as finance companies, development banks, and savings and loan institutions. Credit to the private sector may sometimes include credit to state-owned or partially state-owned enterprises.

Entrepreneurship is essential to the dynamism of the modern market economy, and a greater entry density of new businesses can foster competition and economic growth. The table includes data on business registrations from the 2008 and 2010 World Bank Group Entrepreneurship Survey, which includes entrepreneurial activity in more than 100 countries for 2000–09. Survey data are used to analyze firm creation, its relationship to economic growth and poverty reduction, and the impact of regulatory and institutional reforms. The 2010 survey improves on earlier surveys' methodology and country coverage for better cross-country comparability; the database will be updated in 2012. Data on total registered businesses were collected directly from national registrars of companies. For cross-country comparability, only limited liability corporations that operate in the formal sector are included. For additional information on sources, methodology, calculation of entrepreneurship rates, and data limitations see <http://econ.worldbank.org/research/entrepreneurship>.

## Definitions

• **Investment commitments in infrastructure projects with private participation** refers to infrastructure projects in telecommunications, energy (electricity and natural gas transmission and distribution), transport, and water and sanitation that have reached financial closure and directly or indirectly serve the public. Incinerators, movable assets, standalone solid waste projects, and small projects such as windmills are excluded. Included are operation and management contracts, concessions (operation and management contracts with major capital expenditure), greenfield projects (new facilities built and operated by a private entity or a public-private joint venture), and divestitures. Investment commitments are the sum of investments in physical assets and payments to the government. Investments in physical assets are resources the project company commits to invest during the contract period in new facilities or in expansion and modernization of existing facilities. Payments to the government are the resources the project company spends on acquiring government assets such as state-owned enterprises, rights to provide services in a specific area, or use of specific radio spectrums. • **Domestic credit to private sector** is financial resources provided to the private sector—such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable—that establish a claim for repayment. For some countries these claims include credit to public enterprises. • **New businesses registered** are the number of limited liability corporations registered in the calendar year. • **Entry density** is the number of newly registered limited liability corporations per 1,000 people ages 15–64.

## Data sources

Data on investment commitments in infrastructure projects with private participation are from the World Bank's PPI Project database (<http://ppi.worldbank.org>). Data on domestic credit are from the IMF's *International Financial Statistics*. Data on business registration are from the World Bank's Entrepreneurship Snapshots (<http://econ.worldbank.org/research/entrepreneurship>).



# 5.2

## Business environment: enterprise surveys

Survey year	Regulations and tax		Permits and licenses	Corruption	Crime	Informality	Gender	Finance	Infrastructure	Innovation	Trade	Workforce	
	Time dealing with officials % of management time	Average number of times meeting with tax officials											Time required to obtain operating license days
Afghanistan	2008	6.8	1.2	13.8	41.5	1.5	88.0	2.8	1.4	6.5	8.5	14.6	14.6
Albania	2007	18.7	3.9	21.2	57.7	0.5	89.4	10.8	12.4	13.7	24.6	1.9	19.9 <sup>a</sup>
Algeria	2007	25.1	2.3	19.3	66.6	0.9	98.3	15.0	8.9	4.0	5.0	14.1	17.3 <sup>a</sup>
Angola	2010	12.2	2.5	34.7	48.9	1.5	62.7	56.6	13.1	12.6	21.7	6.7	23.5
Argentina	2010	20.8	2.7	176.1	18.2	0.6	92.4	38.0	30.3	3.5	18.2	7.3	63.6
Armenia	2009	10.3	2.1	20.0	16.0	0.6	96.2	31.8	31.9	1.8	26.9	3.3	30.4
Australia		..	..	..	..	..	..	..	..	..	..	..	..
Austria		..	..	..	..	..	..	..	..	..	..	..	..
Azerbaijan	2009	3.0	2.1	15.8	52.2	0.3	85.1	10.8	19.0	1.8	18.2	1.9	10.5
Bahrain		..	..	..	..	..	..	..	..	..	..	..	..
Bangladesh	2007	3.2	1.3	6.0	85.1	0.1	..	16.1	24.7	10.6	7.8	8.4	27.2 <sup>a</sup>
Belarus	2008	13.6	1.1	38.2	26.1	0.4	98.5	52.9	35.8	0.8	13.9	2.6	44.4
Belgium		..	..	..	..	..	..	..	..	..	..	..	..
Benin	2009	20.7	1.2	64.3	54.5	1.9	87.9	43.9	4.2	7.5	7.3	9.6	32.4
Bolivia	2010	28.5	1.6	37.3	17.6	0.8	72.4	41.3	27.8	2.5	22.4	12.4	57.1
Bosnia and Herzegovina	2009	11.2	1.0	21.4	10.3	0.4	98.6	32.8	59.7	1.9	30.1	1.3	66.5
Botswana	2010	10.2	1.0	27.2	7.3	1.5	93.9	55.3	32.8	3.7	21.3	6.2	51.9
Brazil	2009	18.7	1.2	83.5	11.9	1.7	95.8	59.3	48.4	3.0	25.7	15.9	52.9
Bulgaria	2009	10.6	2.2	20.8	22.4	0.5	98.5	33.9	34.7	1.6	19.9	4.2	30.7
Burkina Faso	2009	22.2	1.5	35.8	8.5	0.3	77.7	19.2	25.6	5.8	14.4	7.4	24.8
Burundi	2006	5.7	1.8	27.3	56.5	1.1	..	34.8	12.3	10.7	7.1	..	22.1 <sup>a</sup>
Cambodia	2007	5.6	1.0	..	61.2	0.4	87.5	..	11.3	2.4	2.8	1.5	48.4 <sup>a</sup>
Cameroon	2009	7.0	4.4	30.0	51.2	1.6	82.1	15.7	31.4	4.9	20.4	15.1	25.5
Canada		..	..	..	..	..	..	..	..	..	..	..	..
Central African Republic		..	..	..	..	..	..	..	..	..	..	..	..
Chad	2009	20.8	3.4	24.3	41.8	2.5	77.1	40.1	4.2	3.3	43.3	11.9	43.4
Chile	2010	9.9	2.9	68.5	0.7	0.8	96.1	29.6	44.8	1.3	22.1	10.8	57.5
China	2003	18.3	14.4	11.6	72.6	0.1	..	..	28.8	1.3	35.9	6.6	84.8
Hong Kong SAR, China		..	..	..	..	..	..	..	..	..	..	..	..
Colombia	2010	12.9	0.9	25.6	2.8	0.3	94.3	35.3	35.0	1.8	20.8	8.6	65.2
Congo, Dem. Rep.	2010	29.4	8.0	40.0	65.7	1.8	61.9	38.9	6.7	22.7	8.5	18.0	24.1
Congo, Rep.	2009	6.0	2.7	..	81.8	3.3	84.3	31.8	7.7	16.4	19.6	..	37.5
Costa Rica	2010	8.4	0.8	35.6	3.7	0.4	80.8	43.5	22.2	1.7	13.3	10.0	54.7
Côte d'Ivoire	2009	1.6	3.7	44.1	38.5	3.4	56.4	61.9	13.9	5.0	4.3	16.6	19.1
Croatia	2007	10.9	0.7	26.5	14.5	0.2	98.1	33.5	60.0	0.8	16.5	1.3	28.0 <sup>a</sup>
Cuba		..	..	..	..	..	..	..	..	..	..	..	..
Cyprus		..	..	..	..	..	..	..	..	..	..	..	..
Czech Republic	2009	10.4	1.5	19.9	12.8	0.4	98.0	25.0	33.4	0.6	43.5	5.7	70.7
Denmark		..	..	..	..	..	..	..	..	..	..	..	..
Dominican Republic	2005	8.8	0.5	..	26.3	0.7	..	..	12.5	15.2	9.6	11.4	53.3
Ecuador	2010	22.5	0.8	30.0	11.8	1.0	85.1	24.1	17.0	3.9	9.7	18.2	65.9
Egypt, Arab Rep.	2008	8.8	3.4	42.7	15.2	3.0	17.9	34.0	5.6	3.2	21.1	6.2	21.7
El Salvador	2010	19.7	3.0	44.4	12.7	1.6	75.7	40.2	31.7	7.0	14.5	3.7	61.0
Eritrea	2009	0.5	0.2	..	0.0	0.0	100.0	4.2	11.9	0.2	15.1	9.6	26.1
Estonia	2009	5.5	0.4	8.3	3.7	0.9	97.4	36.3	41.5	0.5	21.2	1.8	69.3
Ethiopia	2006	3.8	1.1	11.4	12.4	1.4	..	30.9	11.0	0.9	4.2	4.3	38.2 <sup>a</sup>
Finland		..	..	..	..	..	..	..	..	..	..	..	..
France		..	..	..	..	..	..	..	..	..	..	..	..
Gabon	2009	2.8	15.2	12.1	41.8	0.4	63.7	33.1	6.3	1.7	18.6	3.8	30.9
Gambia, The	2006	7.3	2.5	8.4	52.4	2.7	..	21.3	7.6	11.8	22.2	5.0	25.6 <sup>a</sup>
Georgia	2008	2.1	0.6	11.8	14.7	0.7	99.6	40.8	38.2	1.4	16.0	3.8	14.5
Germany	2005	1.2	1.3	..	..	0.5	..	20.3	45.0	..	..	4.7	35.4
Ghana	2007	3.2	4.3	6.4	38.8	0.9	66.4	44.0	16.0	5.6	6.8	7.8	33.0 <sup>a</sup>
Greece	2005	1.8	1.7	..	21.6	0.0	..	24.4	25.9	..	11.7	5.5	20.0
Guatemala	2010	10.2	2.7	41.1	6.3	1.3	90.0	44.2	26.6	2.8	11.9	4.7	51.9
Guinea	2006	2.7	2.8	13.0	84.8	2.0	..	25.4	0.9	14.0	5.2	4.3	21.1 <sup>a</sup>
Guinea-Bissau	2006	2.9	3.4	30.4	63.1	1.1	..	19.9	0.7	5.3	8.4	5.6	12.4 <sup>a</sup>
Haiti		..	..	..	..	..	..	..	..	..	..	..	..

# Business environment: enterprise surveys

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Survey year	Regulations and tax		Permits and licenses	Corruption	Crime	Informality	Gender	Finance	Infrastructure	Innovation	Trade	Workforce	
	Time dealing with officials % of management time	Average number of times meeting with tax officials											Time required to obtain operating license days
Honduras	2010	17.0	2.2	28.8	6.1	2.2	81.3	43.3	17.0	9.2	16.3	10.1	35.8
Hungary	2009	13.5	0.8	35.6	5.4	0.1	100.0	42.4	48.7	0.9	39.4	4.3	14.8
India	2006	6.7	2.6	..	47.5	0.1	..	9.1	46.6	6.6	22.5	15.1	15.9 <sup>a</sup>
Indonesia	2009	1.6	0.2	21.1	14.9	0.4	29.1	42.8	11.7	2.2	2.9	2.3	4.7
Iran, Islamic Rep.	..	..	..	..	..	..	..	..	..	..	..	..	..
Iraq	..	..	..	..	..	..	..	..	..	..	..	..	..
Ireland	2005	2.3	1.3	..	8.3	0.3	..	41.6	37.4	1.5	17.2	2.6	73.2
Israel	..	..	..	..	..	..	..	..	..	..	..	..	..
Italy	..	..	..	..	..	..	..	..	..	..	..	..	..
Jamaica	2010	1.7	0.6	9.3	10.6	0.4	90.0	38.2	44.4	0.2	16.5	13.1	25.9
Japan	..	..	..	..	..	..	..	..	..	..	..	..	..
Jordan	2006	6.7	1.7	6.4	18.1	0.1	..	13.1	8.6	1.7	15.5	3.8	23.9 <sup>a</sup>
Kazakhstan	2009	4.7	2.6	30.8	34.1	1.0	97.4	34.4	31.0	3.7	10.8	8.5	40.9
Kenya	2007	5.1	6.7	23.4	79.2	3.9	..	37.1	22.9	6.4	9.8	5.6	48.5 <sup>a</sup>
Korea, Dem. Rep.	..	..	..	..	..	..	..	..	..	..	..	..	..
Korea, Rep.	2005	0.1	2.2	..	14.1	0.0	..	19.1	39.9	..	17.6	7.2	39.5
Kosovo	2009	9.8	4.5	18.8	7.5	0.3	89.2	10.9	25.3	17.1	7.9	1.7	24.6
Kuwait	..	..	..	..	..	..	..	..	..	..	..	..	..
Kyrgyz Republic	2009	4.9	2.1	18.0	47.8	0.3	95.9	60.4	17.9	10.5	16.2	15.8	29.7
Lao PDR	2009	1.2	4.4	13.6	39.8	0.3	93.5	39.4	0.0	4.3	7.2	7.5	11.1
Latvia	2009	9.7	1.5	11.5	13.4	0.3	98.5	46.3	37.3	1.1	18.2	1.9	43.4
Lebanon	2009	8.9	2.2	81.0	23.0	0.0	97.6	33.5	23.8	9.4	17.9	7.6	52.4
Lesotho	2009	5.6	1.8	16.4	28.1	2.9	86.8	18.4	32.7	6.7	24.7	5.4	42.5
Liberia	2009	7.5	6.5	16.0	55.4	2.8	73.8	53.0	10.1	2.9	2.4	..	17.0
Libya	..	..	..	..	..	..	..	..	..	..	..	..	..
Lithuania	2009	9.3	0.8	65.5	10.7	0.4	97.1	38.7	47.4	0.7	15.6	2.4	46.0
Macedonia, FYR	2009	14.5	3.0	33.8	16.9	0.7	99.2	36.4	47.0	5.9	21.5	2.5	19.0
Madagascar	2009	17.1	0.9	41.3	21.8	1.2	97.5	50.0	12.2	7.7	8.7	14.2	27.0
Malawi	2009	3.5	2.6	15.0	10.8	5.7	78.6	23.9	20.6	13.3	17.9	9.9	48.4
Malaysia	2007	7.8	2.1	22.4	..	1.0	53.0	13.1	48.6	3.0	54.1	2.7	50.1 <sup>a</sup>
Mali	2010	2.0	1.2	41.0	19.4	0.5	79.2	58.3	29.3	4.1	24.8	12.9	32.1
Mauritania	2006	5.8	1.8	10.7	82.1	0.6	..	17.3	3.2	1.6	5.9	3.9	25.5 <sup>a</sup>
Mauritius	2009	9.4	0.5	19.1	5.9	1.4	84.2	16.9	37.5	2.2	11.1	10.3	25.6
Mexico	2010	13.6	1.1	54.0	11.6	1.4	84.7	25.7	16.2	3.4	24.0	7.1	50.8
Moldova	2009	7.0	1.9	13.9	33.5	0.4	97.9	53.1	30.8	2.0	9.1	2.4	33.1
Mongolia	2009	12.1	2.0	43.5	33.4	0.6	90.1	52.0	26.5	0.8	16.7	18.6	61.2
Morocco	2007	11.4	0.9	3.4	13.4	0.0	86.0	13.1	12.3	1.3	17.3	1.8	24.7 <sup>a</sup>
Mozambique	2007	3.3	1.9	35.2	14.8	1.8	85.9	24.4	10.5	2.4	18.7	10.1	22.1 <sup>a</sup>
Myanmar	..	..	..	..	..	..	..	..	..	..	..	..	..
Namibia	2006	2.9	0.3	9.6	11.4	1.3	..	33.4	8.1	0.7	17.6	1.4	44.5 <sup>a</sup>
Nepal	2009	6.5	1.3	14.5	15.2	0.9	94.0	27.4	17.5	27.0	3.1	5.6	8.8
Netherlands	..	..	..	..	..	..	..	..	..	..	..	..	..
New Zealand	..	..	..	..	..	..	..	..	..	..	..	..	..
Nicaragua	2010	20.2	1.5	17.6	8.3	2.2	74.0	61.9	21.9	18.2	15.5	4.7	47.2
Niger	2009	22.9	1.2	39.7	35.2	0.9	90.5	17.6	9.3	1.9	4.6	2.6	32.1
Nigeria	2007	6.1	3.0	12.1	40.9	4.1	..	20.0	2.7	8.9	8.5	7.5	25.7 <sup>a</sup>
Norway	..	..	..	..	..	..	..	..	..	..	..	..	..
Oman	..	4.4	11.8	33.2	..	..	..	31.0	4.2	10.8	3.4	20.9	..
Pakistan	2007	1.9	1.5	10.2	48.0	0.4	..	6.7	9.7	9.2	9.6	2.6	6.7 <sup>a</sup>
Panama	2010	33.3	0.8	66.3	30.5	0.3	99.7	24.7	1.2	2.1	22.5	7.6	11.0
Papua New Guinea	..	..	..	..	..	..	..	..	..	..	..	..	..
Paraguay	2010	20.7	1.0	81.3	17.5	1.3	98.7	51.6	30.1	1.4	15.0	21.7	54.9
Peru	2010	14.1	1.7	46.5	21.4	0.6	82.6	28.7	45.9	3.2	14.2	16.1	60.1
Philippines	2009	9.1	1.5	10.6	18.6	1.1	97.5	69.4	22.0	3.9	15.7	10.0	31.1
Poland	2009	12.8	0.6	14.6	14.7	0.5	99.3	47.9	40.7	1.9	17.3	6.0	60.9
Portugal	2005	1.1	1.6	..	14.5	0.2	..	50.8	24.4	..	12.7	7.2	31.9
Puerto Rico	..	..	..	..	..	..	..	..	..	..	..	..	..
Qatar	..	..	..	..	..	..	..	..	..	..	..	..	..



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## Business environment: enterprise surveys

Country	Survey year	Regulations and tax		Permits and licenses	Corruption	Crime	Informality	Gender	Finance	Infrastructure	Innovation	Trade	Workforce
		Time dealing with officials % of management time	Average number of times meeting with tax officials	Time required to obtain operating license days	Informal payments to public officials % of firms	Losses due to theft, robbery, vandalism, and arson % of sales	Firms formally registered when operations started % of firms	Firms with female participation in ownership % of firms	Firms using banks to finance investment % of firms	Value lost due to electrical outages % of sales	Internationally recognized quality certification ownership % of firms	Average time to clear direct exports through customs days	Firms offering formal training % of firms
Romania	2009	9.2	2.3	23.7	22.2	0.3	98.7	47.9	37.3	2.2	26.1	2.0	24.9
Russian Federation	2009	19.9	1.6	57.4	39.6	0.8	94.7	33.1	30.6	1.2	11.7	4.6	52.2
Rwanda	2006	5.9	3.3	6.5	20.0	1.3	..	41.0	15.9	8.7	10.8	6.7	27.6 <sup>a</sup>
Saudi Arabia	..	..	..	..	..	..	..	..	..	..	..	..	..
Senegal	2007	2.9	1.3	21.4	18.1	0.5	78.9	26.3	19.8	5.0	6.1	7.4	16.3 <sup>a</sup>
Serbia	2009	12.2	1.4	28.0	21.4	0.6	95.0	28.8	42.8	1.3	21.8	1.6	36.5
Sierra Leone	2009	7.4	1.9	12.6	20.4	0.8	89.2	7.9	6.9	6.6	13.8	..	18.6
Singapore	..	..	..	..	..	..	..	..	..	..	..	..	..
Slovak Republic	2009	6.7	0.9	32.1	15.7	0.7	100.0	29.6	33.5	0.3	28.6	2.4	33.1
Slovenia	2009	7.3	0.3	56.1	5.8	0.4	99.9	42.2	52.2	0.5	28.0	2.2	47.5
Somalia	..	..	..	..	..	..	..	..	..	..	..	..	..
South Africa	2007	6.0	0.8	36.2	15.1	1.0	91.0	22.6	34.8	1.6	26.4	4.5	36.8 <sup>a</sup>
South Sudan	..	..	..	..	..	..	..	..	..	..	..	..	..
Spain	2005	0.8	1.5	..	4.4	0.2	..	34.1	32.6	3.0	21.3	4.9	51.3
Sri Lanka	2004	3.5	4.9	49.5	16.3	0.5	..	..	26.2	..	..	7.6	32.6
Sudan	..	..	..	..	..	..	..	..	..	..	..	..	..
Swaziland	2006	4.4	1.4	24.0	40.6	1.3	..	28.6	7.7	2.5	22.1	2.1	51.0 <sup>a</sup>
Sweden	..	..	..	..	..	..	..	..	..	..	..	..	..
Switzerland	..	..	..	..	..	..	..	..	..	..	..	..	..
Syrian Arab Republic	2009	12.2	2.3	169.2	83.8	0.8	..	14.4	20.7	8.6	7.4	5.1	38.3
Tajikistan	2008	11.7	1.4	22.6	44.6	0.3	92.7	34.4	21.4	15.1	16.7	20.4	21.1
Tanzania	2006	4.0	2.7	15.9	49.5	1.2	..	30.9	6.8	9.6	14.7	5.7	36.5 <sup>a</sup>
Thailand	2006	0.4	1.0	32.1	..	0.1	..	..	74.4	1.5	39.0	1.3	75.3 <sup>a</sup>
Timor-Leste	2009	3.8	0.9	16.6	19.4	2.7	91.8	42.9	1.6	7.6	2.2	..	49.7
Togo	2009	2.7	1.2	56.4	16.7	2.4	75.8	31.8	16.9	10.5	6.6	6.7	31.0
Trinidad and Tobago	..	..	..	..	..	..	..	..	..	..	..	..	..
Tunisia	..	..	..	..	..	..	..	..	..	..	..	..	..
Turkey	2008	27.1	1.3	36.0	18.0	0.4	94.1	40.7	51.9	2.8	30.0	5.2	28.8
Turkmenistan	..	..	..	..	..	..	..	..	..	..	..	..	..
Uganda	2006	5.2	2.4	9.3	51.7	1.0	..	34.7	7.7	10.2	15.5	3.2	35.0 <sup>a</sup>
Ukraine	2008	11.3	2.1	31.0	31.8	0.6	95.8	47.1	32.1	4.4	13.0	3.4	24.8
United Arab Emirates	..	..	..	..	..	..	..	..	..	..	..	..	..
United Kingdom	..	..	..	..	..	..	..	..	..	..	..	..	..
United States	..	..	..	..	..	..	..	..	..	..	..	..	..
Uruguay	2010	11.6	1.0	108.0	8.1	0.3	94.6	23.1	13.7	0.3	10.8	6.2	48.6
Uzbekistan	2008	11.1	0.7	9.1	59.5	0.7	100.0	39.8	8.2	5.4	1.3	5.1	9.6
Venezuela, RB	2010	27.6	3.0	117.2	23.7	1.4	95.6	30.7	35.3	8.3	25.9	18.4	56.0
Vietnam	2009	4.6	0.9	15.9	52.5	0.3	87.5	59.2	21.5	3.6	16.7	4.2	43.6
West Bank and Gaza	2006	5.7	1.7	21.3	13.3	1.2	..	18.0	4.2	4.6	18.2	6.0	26.5 <sup>a</sup>
Yemen, Rep.	2010	11.8	7.3	6.5	68.2	0.6	81.7	6.4	4.2	13.2	4.4	6.2	12.9
Zambia	2007	4.6	1.9	48.3	14.3	1.0	96.2	37.2	10.2	3.7	17.2	2.3	26.0 <sup>a</sup>
Zimbabwe	..	..	..	..	..	..	..	..	..	..	..	..	..

**Note:** Enterprise surveys are updated several times a year; see [www.enterprisesurveys.org](http://www.enterprisesurveys.org) for the most recent updates.

a. The sample was drawn from the manufacturing sector only.

## About the data

The World Bank Enterprise Surveys gather firm-level data to benchmark the business environment of economies and assess how business environment constraints affect productivity and job creation. Standardized surveys are conducted all over the world, and data are available on more than 130,000 firms in 128 countries. The survey covers 11 dimensions of the business environment, including regulation, corruption, crime, informality, finance, infrastructure, and trade. For several countries firm-level panel data are also available, making it possible to track changes in the business environment over time.

Firms evaluating investment options, governments interested in improving business conditions, and economists seeking to explain economic performance have all grappled with defining and measuring the business environment. The firm-level data from Enterprise Surveys provide a useful tool for benchmarking economies across a large number of indicators measured at the firm level.

Most countries can improve regulation and taxation without compromising broader social interests. Excessive regulation may harm business performance and growth. For example, time spent with tax officials is a burden firms may face in paying taxes. The business environment suffers when governments increase uncertainty and risks or impose unnecessary costs and unsound regulation and taxation. Time to obtain licenses and permits and the associated red tape constrain firm operations.

In some countries doing business requires informal payments to “get things done” in customs, taxes, licenses, regulations, services, and the like. Such corruption can harm the business environment by distorting policymaking, undermining government credibility, and diverting public resources. Crime, theft, and disorder also impose costs on businesses and society.

In many developing countries informal businesses operate without formal registration. These firms have less access to financial and public services and can engage in fewer types of contracts and investments, constraining growth.

Equal opportunities for men and women contribute to development. Female participation in firm ownership and in management measures women’s integration as decisionmakers.

Financial markets connect firms to lenders and investors, allowing firms to grow their businesses: creditworthy firms can obtain credit from financial intermediaries at competitive prices. But too often market imperfections and government-induced

distortions limit access to credit and thus restrain growth.

The reliability and availability of infrastructure benefit households and support development. Firms with access to modern and efficient infrastructure—telecommunications, electricity, and transport—can be more productive. Firm-level innovation and use of modern technology may help firms compete.

Delays in clearing customs can be costly, deterring firms from engaging in trade or making them uncompetitive globally. Ill-considered labor regulations discourage firms from creating jobs, and while employed workers may benefit, unemployed, low-skilled, and informally employed workers will not. A trained labor force enables firms to thrive, compete, innovate, and adopt new technology.

The data in the table are from Enterprise Surveys implemented by the World Bank’s Financial and Private Sector Development Enterprise Analysis Unit. All economies in East Asia and Pacific, Europe and Central Asia, Latin America and the Caribbean, Middle East and North Africa, and Sub-Saharan Africa (for 2009) and Afghanistan, Bangladesh, and India draw a sample of registered nonagricultural businesses, excluding those in the financial and public sectors. Samples for other economies are drawn only from the manufacturing sector and are footnoted in the table. Typical Enterprise Survey sample sizes range from 150 to 1,800, depending on the size of the economy. In each country samples are selected by stratified random sampling, unless otherwise noted. Stratified random sampling allows indicators to be computed by sector, firm size, and location and increases the precision of economywide indicators compared with alternative simple random sampling. Stratification by sector of activity divides the economy into manufacturing and retail and other services sectors. For medium-size and large economies the manufacturing sector is further stratified by industry. Firm size is stratified into small (5–19 employees), medium (20–99 employees), and large (more than 99 employees). Geographic stratification divides the national economy into the main centers of economic activity.

## Definitions

- **Survey year** is the year in which the underlying data were collected.
- **Time dealing with tax officials** is the average percentage of senior management’s time that is spent in a typical week dealing with requirements imposed by government regulations.
- **Average number of times meeting with tax officials** is the average number of visits or required meetings with tax officials.
- **Time required to obtain operating license** is the average wait to obtain an operating license from the day applied for to the day granted.
- **Informal payments to public officials** are the percentage of firms that answered positively to the question “Was a gift or informal payment expected or requested during a meeting with tax officials?”
- **Losses due to theft, robbery, vandalism, and arson** are the estimated losses from those causes that occurred on establishments’ premises as a percentage of annual sales.
- **Firms formally registered when operations started** are firms formally registered when they started operations in the country. Firms not formally registered (the residual) are in the informal sector of the economy.
- **Firms with female participation in ownership** are firms with a woman among the owners.
- **Firms using banks to finance investment** are firms that invested in fixed assets during the last fiscal year that used banks to finance fixed assets.
- **Value lost due to electrical outages** is losses that resulted from power outages as a percentage of annual sales.
- **Internationally recognized quality certification ownership** is the percentage of firms that have an internationally recognized quality certification, such as International Organization for Standardization 9000, 9001, 9002, or 14000 or Hazard Analysis and Critical Control Points.
- **Average time to clear direct exports through customs** is the average number of days to clear direct exports through customs.
- **Firms offering formal training** are firms offering formal training programs for their permanent, full-time employees.

## Data sources

Data on the business environment are from the World Bank Enterprise Surveys website ([www.enterprisesurveys.org](http://www.enterprisesurveys.org)).





# 5.3

## Business environment: Doing Business indicators

	Starting a business			Registering property		Dealing with construction permits		Getting electricity	Enforcing contracts		Protecting investors	Resolving insolvency
	Number of procedures June 2011	Time required days June 2011	Cost % of per capita income June 2011	Number of procedures June 2011	Time required days June 2011	Number of procedures to build a warehouse June 2011	Time required to build a warehouse days June 2011	Time required days June 2011	Number of procedures June 2011	Time required days June 2011	Disclosure index 0–10 (least to most disclosure) June 2011	Time required years June 2011
Afghanistan	4	7	25.8	9	250	12	334	109	47	1,642	1	2.0
Albania	5	5	29.0	6	33	..	..	177	39	390	8	2.0
Algeria	14	25	12.1	10	48	19	281	159	45	630	6	2.5
Angola	8	68	118.9	7	184	11	321	48	46	1,011	5	6.2
Argentina	14	26	11.9	7	53	25	365	67	36	590	6	2.8
Armenia	3	8	2.9	3	7	18	79	242	49	440	5	1.9
Australia	2	2	0.7	5	5	15	147	81	28	395	8	1.0
Austria	8	28	5.2	3	21	13	194	23	25	397	3	1.1
Azerbaijan	6	8	2.7	4	11	30	212	241	39	237	7	2.7
Bahrain	7	9	0.7	2	31	12	43	90	48	635	8	2.5
Bangladesh	7	19	30.6	8	245	11	201	372	41	1,442	6	4.0
Belarus	5	5	1.3	2	10	13	140	254	29	275	7	5.8
Belgium	3	4	5.2	8	64	12	169	88	26	505	8	0.9
Benin	6	29	149.9	4	120	12	372	158	42	795	6	4.0
Bolivia	15	50	90.4	7	92	14	249	42	40	591	1	1.8
Bosnia and Herzegovina	12	40	17.0	7	33	18	181	125	37	595	3	3.3
Botswana	10	61	1.8	5	16	22	145	121	28	625	7	1.7
Brazil	13	119	5.4	13	39	17	469	34	45	731	6	4.0
Bulgaria	4	18	1.5	8	15	23	120	130	39	564	10	3.3
Burkina Faso	3	13	47.7	4	59	12	98	158	37	446	6	4.0
Burundi	9	14	116.8	5	94	22	135	188	44	832	8	..
Cambodia	9	85	109.7	7	56	21	652	183	44	401	5	6.0
Cameroon	5	15	45.5	5	93	11	147	67	43	800	6	3.2
Canada	1	5	0.4	6	17	12	73	168	36	570	8	0.8
Central African Republic	7	21	175.5	5	75	18	203	102	43	660	6	4.8
Chad	11	66	208.5	6	44	13	154	67	41	743	6	4.0
Chile	7	7	5.1	6	31	17	155	31	36	480	8	4.5
China	14	38	3.5	4	29	33	311	145	34	406	10	1.7
Hong Kong SAR, China	3	3	1.9	5	36	6	67	43	26	280	10	1.1
Colombia	9	14	8.0	7	15	8	46	165	34	1,346	8	1.3
Congo, Dem. Rep.	10	65	551.4	6	54	11	117	58	43	610	3	5.2
Congo, Rep.	10	160	85.2	6	55	14	186	129	44	560	6	3.3
Costa Rica	12	60	11.1	5	20	20	188	62	40	852	2	3.5
Côte d'Ivoire	10	32	132.6	6	62	18	583	33	33	770	6	2.2
Croatia	6	7	8.6	5	104	12	317	70	38	561	1	3.1
Cuba	..	..	..	..	..	..	..	..	..	..	..	..
Cyprus	6	8	13.1	6	42	9	677	247	43	735	8	1.5
Czech Republic	9	20	8.4	4	25	33	120	279	27	611	2	3.2
Denmark	4	6	0.0	3	16	5	67	38	35	410	7	1.0
Dominican Republic	7	19	18.2	7	60	14	216	87	34	460	5	3.5
Ecuador	13	56	28.8	9	16	16	128	89	39	588	1	5.3
Egypt, Arab Rep.	6	7	5.6	7	72	22	218	54	41	1,010	8	4.2
El Salvador	8	17	45.1	5	31	33	157	78	34	786	3	4.0
Eritrea	13	84	62.6	11	78	..	..	59	39	405	4	..
Estonia	5	7	1.8	3	18	13	148	111	35	425	8	3.0
Ethiopia	5	9	12.8	10	41	9	128	95	37	620	4	3.0
Finland	3	14	1.0	3	14	16	66	53	33	375	6	0.9
France	5	7	0.9	8	59	10	184	123	29	331	10	1.9
Gabon	9	58	17.3	7	39	13	201	160	38	1,070	6	5.0
Gambia, The	8	27	206.1	5	66	14	143	78	33	434	2	3.0
Georgia	2	2	4.3	1	2	9	74	97	36	285	9	3.3
Germany	9	15	4.6	5	40	9	97	17	30	394	5	1.2
Ghana	7	12	17.3	5	34	16	218	78	36	487	7	1.9
Greece	10	10	20.1	11	18	14	169	77	39	819	1	2.0
Guatemala	12	37	52.5	4	23	19	165	39	31	1,459	3	3.0
Guinea	12	40	118.0	6	59	29	287	69	49	276	6	3.8
Guinea-Bissau	9	9	49.8	8	210	12	170	455	40	1,715	6	..
Haiti	12	105	314.2	5	301	9	1,129	66	35	530	2	5.7

# Business environment: Doing Business indicators

# 5.3

	Starting a business			Registering property		Dealing with construction permits		Getting electricity	Enforcing contracts		Protecting investors	Resolving insolvency
	Number of procedures June 2011	Time required days June 2011	Cost % of per capita income June 2011	Number of procedures June 2011	Time required days June 2011	Number of procedures to build a warehouse June 2011	Time required to build a warehouse days June 2011	Time required days June 2011	Number of procedures June 2011	Time required days June 2011	Disclosure index 0–10 (least to most disclosure) June 2011	Time required years June 2011
Honduras	13	14	46.7	7	23	14	94	33	47	920	0	3.8
Hungary	4	4	7.6	4	17	29	102	252	35	395	2	2.0
India	12	29	46.8	5	44	34	227	67	46	1,420	7	7.0
Indonesia	8	45	17.9	6	22	13	158	108	40	570	10	5.5
Iran, Islamic Rep.	6	8	3.8	9	36	16	320	140	39	505	5	4.5
Iraq	11	77	115.7	5	51	13	187	47	51	520	4	..
Ireland	4	13	0.4	5	38	10	141	205	21	650	10	0.4
Israel	5	34	4.4	7	144	19	212	132	35	890	7	4.0
Italy	6	6	18.2	7	27	11	258	192	41	1,210	7	1.8
Jamaica	6	7	7.2	6	37	8	145	96	35	655	4	1.1
Japan	8	23	7.5	6	14	14	193	117	30	360	7	0.6
Jordan	7	12	13.9	7	21	17	70	43	38	689	5	4.3
Kazakhstan	6	19	0.8	4	40	32	189	88	36	390	9	1.5
Kenya	11	33	37.8	8	64	8	125	163	40	465	3	4.5
Korea, Dem. Rep.	..	..	..	..	..	..	..	..	..	..	..	..
Korea, Rep.	5	7	14.6	7	11	12	30	49	33	230	7	1.5
Kosovo	10	58	26.7	8	33	17	301	60	53	420	3	2.0
Kuwait	12	32	1.2	8	47	24	130	42	50	566	7	4.2
Kyrgyz Republic	2	10	3.5	4	5	12	142	337	38	260	8	4.0
Lao PDR	7	93	7.6	5	98	23	108	134	42	443	2	..
Latvia	4	16	2.6	5	18	23	205	108	27	369	5	3.0
Lebanon	5	9	67.1	8	25	19	219	75	37	721	9	4.0
Lesotho	7	40	24.9	6	101	12	510	140	40	785	2	2.6
Liberia	4	6	68.4	10	50	23	75	586	41	1,280	4	3.0
Libya	..	..	..	..	..	..	..	..	..	..	..	..
Lithuania	6	22	2.8	3	3	15	142	148	30	275	7	1.5
Macedonia, FYR	3	3	2.4	4	40	10	117	151	37	370	9	2.0
Madagascar	3	8	12.1	6	74	16	172	450	38	871	5	2.0
Malawi	10	39	90.9	6	69	18	200	244	42	312	4	2.6
Malaysia	4	6	16.4	5	48	22	260	51	29	425	10	1.5
Mali	4	8	90.5	5	29	11	179	120	36	620	6	3.6
Mauritania	9	19	48.3	4	49	18	119	75	46	370	5	8.0
Mauritius	5	6	3.6	4	22	16	136	91	36	645	6	1.7
Mexico	6	9	11.2	7	74	10	81	114	38	415	8	1.8
Moldova	7	9	9.1	5	5	27	291	140	30	352	7	2.8
Mongolia	7	13	2.9	5	11	19	208	156	32	314	5	4.0
Morocco	6	12	15.7	8	75	15	97	71	40	510	7	1.8
Mozambique	9	13	11.7	8	42	13	370	117	30	730	5	5.0
Myanmar	..	..	..	..	..	..	..	..	..	..	..	..
Namibia	10	66	17.2	7	39	12	139	55	33	270	5	1.5
Nepal	7	29	37.4	3	5	13	222	70	39	910	6	5.0
Netherlands	6	8	5.5	5	7	15	176	143	26	514	4	1.1
New Zealand	1	1	0.4	2	2	6	64	50	30	216	10	1.3
Nicaragua	8	39	107.9	8	49	16	218	70	37	409	4	2.2
Niger	9	17	114.4	4	35	12	326	120	39	545	6	5.0
Nigeria	8	34	70.6	13	82	15	85	260	40	457	5	2.0
Norway	5	7	1.8	1	3	11	250	66	34	280	7	0.9
Oman	5	8	3.1	2	16	14	174	62	51	598	8	4.0
Pakistan	10	21	11.2	6	50	11	222	206	46	976	6	2.8
Panama	6	8	9.9	8	32	17	113	35	31	686	1	2.5
Papua New Guinea	6	51	15.6	4	72	21	219	66	42	591	5	3.0
Paraguay	7	35	47.2	6	46	12	137	53	38	591	6	3.9
Peru	5	26	11.9	4	7	16	188	100	41	428	8	3.1
Philippines	15	35	19.1	8	39	30	85	50	37	842	2	5.7
Poland	6	32	17.3	6	152	30	301	143	37	830	7	3.0
Portugal	5	5	2.3	1	1	14	255	64	31	547	6	2.0
Puerto Rico	6	6	0.6	8	194	18	189	32	39	620	7	3.8
Qatar	8	12	8.3	7	13	17	70	90	43	570	5	2.8



# 5.3

## Business environment: Doing Business indicators

	Starting a business			Registering property		Dealing with construction permits		Getting electricity	Enforcing contracts		Protecting investors	Resolving insolvency
	Number of procedures June 2011	Time required days June 2011	Cost % of per capita income June 2011	Number of procedures June 2011	Time required days June 2011	Number of procedures to build a warehouse June 2011	Time required to build a warehouse days June 2011	Time required days June 2011	Number of procedures June 2011	Time required days June 2011	Disclosure index 0–10 (least to most disclosure) June 2011	Time required years June 2011
Romania	6	14	3.0	8	26	16	287	223	31	512	9	3.3
Russian Federation	9	30	2.0	5	43	51	423	281	36	281	6	2.0
Rwanda	2	3	4.7	5	25	12	164	30	24	230	7	3.0
Saudi Arabia	3	5	5.9	2	2	9	75	71	43	635	9	1.5
Senegal	3	5	68.0	6	122	13	210	125	43	780	6	3.0
Serbia	7	13	7.8	6	11	19	279	131	36	635	7	2.7
Sierra Leone	6	12	93.3	7	86	20	238	137	39	515	6	2.6
Singapore	3	3	0.7	3	5	11	26	36	21	150	10	0.8
Slovak Republic	6	18	1.8	3	17	11	286	177	32	565	3	4.0
Slovenia	2	6	0.0	5	110	13	199	38	32	1,290	3	2.0
Somalia	..	..	..	..	..	..	..	..	..	..	..	..
South Africa	5	19	0.3	6	23	13	127	226	29	600	8	2.0
South Sudan	..	..	..	..	..	..	..	..	..	..	..	..
Spain	10	28	4.7	5	13	8	182	101	39	515	5	1.5
Sri Lanka	4	35	4.7	8	83	18	217	132	40	1,318	6	1.7
Sudan	10	36	31.4	6	9	16	270	70	53	810	0	2.0
Swaziland	12	56	29.2	9	21	13	95	137	40	972	2	2.0
Sweden	3	15	0.6	1	7	7	116	52	30	508	8	2.0
Switzerland	6	18	2.1	4	16	13	154	39	32	390	0	3.0
Syrian Arab Republic	7	13	17.1	4	19	23	104	71	55	872	7	4.1
Tajikistan	5	24	33.3	6	37	26	228	238	35	430	8	1.7
Tanzania	12	29	28.8	9	73	19	303	109	38	462	3	3.0
Thailand	5	29	6.2	2	2	8	157	35	36	479	10	2.7
Timor-Leste	10	103	4.5	..	..	19	238	63	51	1,285	3	..
Togo	7	84	177.2	5	295	12	309	74	41	588	6	3.0
Trinidad and Tobago	9	43	0.9	8	162	17	297	61	42	1,340	4	4.0
Tunisia	10	11	4.2	4	39	17	88	65	39	565	5	1.3
Turkey	6	6	11.2	6	6	24	189	70	36	420	9	3.3
Turkmenistan	..	..	..	..	..	..	..	..	..	..	..	..
Uganda	16	34	84.5	13	48	15	125	91	38	490	2	2.2
Ukraine	9	24	4.4	10	117	21	375	274	30	343	5	2.9
United Arab Emirates	7	13	5.6	1	2	14	46	55	49	537	4	5.1
United Kingdom	6	13	0.7	6	29	9	99	109	28	399	10	1.0
United States	6	6	1.4	4	12	15	26	68	32	300	7	1.5
Uruguay	5	7	24.9	8	66	27	234	48	41	720	3	2.1
Uzbekistan	6	14	6.4	12	78	25	243	117	42	195	4	4.0
Venezuela, RB	17	141	26.1	8	38	10	381	125	30	510	3	4.0
Vietnam	9	44	10.6	4	57	10	200	142	34	295	6	5.0
West Bank and Gaza	11	49	96.0	7	47	18	119	63	44	540	6	..
Yemen, Rep.	6	12	83.8	6	19	12	116	35	36	520	6	3.0
Zambia	6	18	27.4	5	40	14	196	117	35	471	3	2.7
Zimbabwe	9	90	148.9	5	31	12	614	125	38	410	8	3.3
<b>World</b>	<b>7 u</b>	<b>31 u</b>	<b>36.2 u</b>	<b>6 u</b>	<b>55 u</b>	<b>16 u</b>	<b>193 u</b>	<b>111 u</b>	<b>38 u</b>	<b>610 u</b>	<b>5 u</b>	<b>2.9 u</b>
<b>Low income</b>	8	33	106.0	6	86	15	260	167	39	662	5	3.7
<b>Middle income</b>	8	36	28.0	6	51	17	188	102	39	626	5	3.1
Lower middle income	8	34	40.9	6	66	16	181	98	40	662	4	3.3
Upper middle income	8	38	13.9	6	36	17	195	106	38	588	6	2.8
<b>Low &amp; middle income</b>	8	35	46.3	6	60	16	205	117	39	634	5	3.2
East Asia & Pacific	8	39	26.4	5	80	17	172	98	37	548	5	3.2
Europe & Central Asia	6	16	8.0	6	29	21	214	168	37	390	7	2.8
Latin America & Carib.	9	57	40.8	7	56	14	221	66	40	699	4	3.1
Middle East & N. Africa	8	23	50.4	7	41	17	166	84	42	692	6	3.5
South Asia	7	23	21.6	6	103	16	222	145	43	1,075	5	3.4
Sub-Saharan Africa	8	34	80.8	6	66	15	212	138	39	657	5	3.4
<b>High income</b>	6	17	6.8	5	44	14	159	93	35	539	6	2.1
Euro area	6	12	5.4	5	32	12	210	111	32	600	6	1.7

Note: Regional aggregates differ from those reported on the Doing Business website because the regional aggregates reported on the Doing Business website include developed countries.

## About the data

The economic health of a country is measured not only in macroeconomic terms but also by other factors that shape daily economic activity such as laws, regulations, and institutional arrangements. The Doing Business indicators measure business regulation, gauge regulatory outcomes, and measure the extent of legal protection of property, the flexibility of employment regulation, and the tax burden on businesses.

The table presents a subset of Doing Business indicators covering 7 of the 11 sets of indicators: starting a business, registering property, dealing with construction permits, getting electricity, enforcing contracts, protecting investors, and resolving insolvency. Table 5.5 includes Doing Business measures of getting credit, and table 5.6 presents data on paying business taxes.

The fundamental premise of the Doing Business project is that economic activity requires good rules and regulations that are efficient, accessible to all who need to use them, and simple to implement. Thus some Doing Business indicators give a higher score for more regulation, such as stricter disclosure requirements in related-party transactions, and others give a higher score for simplified regulations, such as a one-stop shop for completing business startup formalities.

In constructing the indicators, it is assumed that entrepreneurs know about all regulations and comply with them; in practice, entrepreneurs may not be aware of all required procedures or may avoid legally required procedures altogether. But where regulation is particularly onerous, levels of informality are higher, which comes at a cost: firms in the informal sector usually grow more slowly, have less access to credit, and employ fewer workers—and those workers remain outside the protections of labor law. The indicators in the table can help policymakers understand the business environment in a country and—along with information from other sources such as the World Bank's Enterprise Surveys—provide insights into potential areas of reform.

Doing Business data are collected with a standardized survey that uses a simple business case to ensure comparability across economies and over time—with assumptions about the legal form of the business, its size, its location, and nature of its operation. Surveys in 183 countries are administered through more than 9,000 local experts, including lawyers, business consultants, accountants, freight forwarders, government officials, and other professionals who routinely administer or advise on legal and regulatory requirements.

The Doing Business project encompasses two types of data: data from readings of laws and regulations and data on time and motion indicators that measure efficiency in achieving a regulatory goal. Within the time and motion indicators cost estimates are recorded from official fee schedules where applicable. The data from surveys are subjected to numerous tests for robustness, which lead to revision or expansion of the information collected.

The Doing Business methodology has limitations that should be considered when interpreting the data. First, the data collected refer to businesses in the economy's largest city and may not represent regulations in other locations of the economy. To address this limitation, subnational indicators are being collected for selected economies. These subnational studies point to significant differences in the speed of reform and the ease of doing business across cities in the same economy. Second, the data often focus on a specific business form—generally a limited liability company of a specified size—and may not represent regulation for other types of businesses such as sole proprietorships. Third, transactions described in a standardized business case refer to a specific set of issues and may not represent the full set of issues a business encounters. Fourth, the time measures involve an element of judgment by the expert respondents. When sources indicate different estimates, the Doing Business time indicators represent the median values of several responses given under the assumptions of the standardized case. Fifth, the methodology assumes that a business has full information on what is required and does not waste time when completing procedures.

## Definitions

- **Number of procedures for starting a business** is the number of procedures required to start a business, including interactions to obtain necessary permits and licenses and to complete all inscriptions, verifications, and notifications to start operations for businesses with specific characteristics of ownership, size, and type of production.
- **Time required for starting a business** is the number of calendar days to complete the procedures for legally operating a business using the fastest procedure, independent of cost.
- **Cost for starting a business** is normalized as a percentage of gross national income (GNI) per capita. It includes all official fees and fees for legal or professional services if they are required by law.
- **Number of procedures for registering property** is the number of procedures required for a business to legally transfer property.
- **Time required for registering property** is the number of calendar days for a business to legally transfer property.
- **Number of procedures for dealing with construction permits to build a warehouse** is the number of interactions of a company's employees or managers with external parties, including government staff, public inspectors, notaries, land registry and cadastre staff, and technical experts apart from architects and engineers.
- **Time required for dealing with construction permits to build a warehouse** is the number of calendar days to complete the required procedures for building a warehouse using the fastest procedure, independent of cost.
- **Time required for getting electricity** is the number of calendar days required for a business to obtain a permanent electricity connection and supply.
- **Number of procedures for enforcing contracts** is the number of independent actions, mandated by law or court regulation, that demand interaction between the parties to a contract or between them and the judge or court officer.
- **Time required for enforcing contracts** is the number of calendar days from the time of the filing of a lawsuit in court to the final determination and payment.
- **Disclosure index** measures the degree to which investors are protected through disclosure of ownership and financial information. Higher values indicate more disclosure.
- **Time required to resolve insolvency** is the number of years from time of filing for insolvency in court until resolution of distressed assets and payment of creditors.

## Data sources

Data on the business environment are from the World Bank's Doing Business project ([www.doingbusiness.org](http://www.doingbusiness.org)).



# 5.4

## Stock markets

	Market capitalization				Market liquidity		Turnover ratio		Listed domestic companies		S&P/Global Equity Indices	
	\$ millions		% of GDP		Value of shares traded % of GDP		Value of shares traded % of market capitalization		number		% change	
	2005	2011	2005	2010	2005	2010	2005	2011	2005	2011	2010	2011
Afghanistan	..	..	..	..	..	..	..	..	..	..	..	..
Albania	..	..	..	..	..	..	..	..	..	..	..	..
Algeria	..	..	..	..	..	..	..	..	..	..	..	..
Angola	..	..	..	..	..	..	..	..	..	..	..	..
Argentina	61,478	43,580	33.6	17.3	9.0	0.7	30.4	4.8	101	99	55.3 <sup>a</sup>	-30.2 <sup>a</sup>
Armenia	43	44	0.9	0.3	0.0	0.0	3.7	1.5	198	12	..	..
Australia	804,074	1,198,164	115.4	128.5	88.5	108.0	78.0	94.0	1,643	1,922	12.5	-15.7
Austria	124,390	82,374	40.8	17.9	15.1	12.7	43.6	51.6	92	73	10.9	-35.8
Azerbaijan	..	..	..	..	..	..	..	..	..	..	..	..
Bahrain	17,364	17,152	129.0	82.2	5.3	4.2	4.6	1.5	47	44	10.0 <sup>a</sup>	-14.4 <sup>a</sup>
Bangladesh	3,035	23,546	5.0	15.6	1.7	14.6	31.5	92.6	262	216	37.6 <sup>a</sup>	-42.3 <sup>a</sup>
Belarus	..	..	..	..	..	..	..	..	..	..	..	..
Belgium	288,515	229,896	76.5	57.4	33.3	23.7	44.8	43.0	222	158	0.5	-15.1
Benin	..	..	..	..	..	..	..	..	..	..	..	..
Bolivia	2,200	4,125	23.0	17.2	0.0	0.1	0.1	0.4	36	40	..	..
Bosnia and Herzegovina	..	..	..	..	..	..	..	..	..	..	..	..
Botswana	2,437	4,107	23.8	27.4	0.4	0.9	1.8	3.6	18	23	-6.8 <sup>a</sup>	-7.5 <sup>a</sup>
Brazil	474,647	1,228,969	53.8	74.0	17.5	43.2	38.3	69.3	381	366	6.5	-24.4
Bulgaria	5,086	8,253	17.6	15.2	4.8	0.4	35.2	3.4	331	393	-15.2 <sup>a</sup>	-22.1 <sup>a</sup>
Burkina Faso	..	..	..	..	..	..	..	..	..	..	..	..
Burundi	..	..	..	..	..	..	..	..	..	..	..	..
Cambodia	..	..	..	..	..	..	..	..	..	..	..	..
Cameroon	..	..	..	..	..	..	..	..	..	..	..	..
Canada	1,480,891	1,906,589	130.6	137.0	74.5	86.6	63.6	74.8	3,721	3,932	22.0	-14.7
Central African Republic	..	..	..	..	..	..	..	..	..	..	..	..
Chad	..	..	..	..	..	..	..	..	..	..	..	..
Chile	136,446	270,289	115.4	160.6	16.0	25.5	14.9	18.6	245	229	47.2	-24.1
China	780,763	3,389,098	34.6	80.4	26.0	135.5	82.5	188.2	1,387	2,342	6.9	-21.7
Hong Kong SAR, China	693,486	889,597	390.1	481.0	165.4	711.7	43.3	157.6	1,020	1,472	21.3	-20.2
Colombia	46,016	201,296	31.4	72.3	4.3	8.0	17.9	13.3	114	79	44.1	-12.0
Congo, Dem. Rep.	..	..	..	..	..	..	..	..	..	..	..	..
Congo, Rep.	..	..	..	..	..	..	..	..	..	..	..	..
Costa Rica	1,478	1,443	7.4	4.0	0.1	0.1	1.7	2.6	19	9	..	..
Côte d'Ivoire	2,327	6,288	14.2	31.2	0.2	0.6	1.4	1.8	39	33	19.3 <sup>a</sup>	-15.2 <sup>a</sup>
Croatia	12,918	21,796	28.8	40.9	1.8	1.7	6.7	4.1	145	209	-0.4 <sup>a</sup>	-30.3 <sup>a</sup>
Cuba	..	..	..	..	..	..	..	..	..	..	..	..
Cyprus	6,583	2,853	38.7	29.5	2.4	2.7	7.1	10.0	144	117	..	-71.9 <sup>a</sup>
Czech Republic	38,345	38,352	30.8	22.4	33.0	7.3	118.6	38.0	36	15	0.2	-15.0
Denmark	178,038	179,529	69.1	74.3	59.0	46.3	92.3	73.2	179	186	25.1	-17.3
Dominican Republic	..	..	..	..	..	..	..	..	..	..	..	..
Ecuador	3,214	5,779	8.7	9.1	0.4	0.2	5.0	1.9	32	41	9.7 <sup>a</sup>	-9.6 <sup>a</sup>
Egypt, Arab Rep.	79,672	48,683	88.8	37.7	28.3	17.0	43.0	33.5	744	231	11.5	-49.1
El Salvador	3,623	5,474	21.2	19.9	0.4	0.2	2.3	1.6	35	65	..	..
Eritrea	..	..	..	..	..	..	..	..	..	..	..	..
Estonia	3,495	1,611	25.1	11.8	17.8	1.7	51.1	12.6	15	15	56.0 <sup>a</sup>	-23.3 <sup>a</sup>
Ethiopia	..	..	..	..	..	..	..	..	..	..	..	..
Finland	209,504	143,081	107.0	49.6	139.7	42.8	139.1	133.5	134	121	10.7	-33.1
France	1,758,721	1,568,730	82.3	75.3	71.4	57.3	92.0	84.4	885	893	-9.9 <sup>b</sup>	-19.5 <sup>b</sup>
Gabon	..	..	..	..	..	..	..	..	..	..	..	..
Gambia, The	..	..	..	..	..	..	..	..	..	..	..	..
Georgia	355	796	5.5	9.1	0.6	0.0	13.6	0.2	257	135	..	..
Germany	1,221,250	1,184,459	44.1	43.6	63.7	42.8	146.0	134.5	648	670	7.4 <sup>c</sup>	-16.6 <sup>c</sup>
Ghana	1,661	3,097	15.5	11.3	0.6	0.3	3.2	4.1	30	36	94.1 <sup>a</sup>	-22.8 <sup>a</sup>
Greece	145,013	33,648	60.4	24.1	27.2	14.3	48.3	46.5	307	275	-43.8	-58.3
Guatemala	..	..	..	..	..	..	..	..	..	..	..	..
Guinea	..	..	..	..	..	..	..	..	..	..	..	..
Guinea-Bissau	..	..	..	..	..	..	..	..	..	..	..	..
Haiti	..	..	..	..	..	..	..	..	..	..	..	..

	Market capitalization				Market liquidity		Turnover ratio		Listed domestic companies		S&P/Global Equity Indices	
	\$ millions		% of GDP		Value of shares traded % of GDP		Value of shares traded % of market capitalization		number		% change	
	2005	2011	2005	2010	2005	2010	2005	2011	2005	2011	2010	2011
Honduras	..	..	..	..	..	..	..	..	..	..	..	..
Hungary	32,576	18,773	29.5	21.5	21.7	20.6	78.0	83.9	44	52	-10.8	-35.3
India	553,074	1,015,370	66.3	93.6	52.0	61.2	92.2	56.3	4,763	5,112	18.7	-38.0
Indonesia	81,428	390,107	28.5	51.0	14.7	18.3	54.2	37.2	335	440	37.9	1.1
Iran, Islamic Rep.	38,724	107,249	20.2	19.1	4.3	5.2	19.1	20.7	420	347	..	..
Iraq	..	..	..	..	..	..	..	..	..	..	..	..
Ireland	114,134	35,363	56.1	16.3	31.8	8.1	56.7	45.3	53	48	-7.7	-1.5
Israel	120,114	144,970	89.5	100.3	44.6	61.4	55.5	64.7	572	576	7.4	-29.7
Italy	798,167	431,471	44.7	15.4	62.4	26.2	140.5	236.8	275	287	-17.4	-27.6
Jamaica	13,028	7,223	116.8	46.5	3.9	1.5	3.1	3.1	39	37	22.4 <sup>a</sup>	28.4 <sup>a</sup>
Japan	4,736,513	3,540,685	104.0	75.1	109.8	78.4	118.8	108.9	3,279	3,961	9.6 <sup>d</sup>	-12.2 <sup>d</sup>
Jordan	37,639	27,183	299.0	111.9	189.1	34.3	85.0	13.9	201	247	-8.6 <sup>a</sup>	-16.2 <sup>a</sup>
Kazakhstan	10,521	43,301	18.4	40.8	1.9	1.5	14.9	2.1	62	63	-1.0 <sup>a</sup>	-36.4 <sup>a</sup>
Kenya	6,384	10,203	34.1	46.0	2.7	3.5	9.8	7.1	47	58	33.8 <sup>a</sup>	-31.6 <sup>a</sup>
Korea, Dem. Rep.	..	..	..	..	..	..	..	..	..	..	..	..
Korea, Rep.	718,180	994,302	85.0	107.4	142.4	160.3	209.8	195.1	1,620	1,792	25.3	-10.9
Kosovo	..	..	..	..	..	..	..	..	..	..	..	..
Kuwait	130,080	100,869	161.0	87.6	116.4	63.9	94.3	19.4	143	206	29.1 <sup>a</sup>	-21.4 <sup>a</sup>
Kyrgyz Republic	42	165	1.7	1.7	0.5	0.2	34.1	2.7	8	34	..	..
Lao PDR	..	..	..	..	..	..	..	..	..	..	..	..
Latvia	2,527	1,076	15.8	5.2	0.6	0.1	4.6	4.4	45	32	39.4 <sup>a</sup>	-17.3 <sup>a</sup>
Lebanon	4,929	10,164	22.5	32.3	4.2	4.8	25.5	4.5	11	10	-8.7 <sup>a</sup>	-22.2 <sup>a</sup>
Lesotho	..	..	..	..	..	..	..	..	..	..	..	..
Liberia	..	..	..	..	..	..	..	..	..	..	..	..
Libya	..	..	..	..	..	..	..	..	..	..	..	..
Lithuania	8,183	4,075	31.5	15.6	2.9	0.8	10.1	5.0	43	33	44.0 <sup>a</sup>	-16.1 <sup>a</sup>
Macedonia, FYR	646	2,504	10.8	28.8	1.6	0.4	18.3	2.0	57	32	..	..
Madagascar	..	..	..	..	..	..	..	..	..	..	..	..
Malawi	230	1,384	8.4	26.7	0.3	0.4	4.1	3.9	9	13	..	..
Malaysia	181,236	395,083	131.4	172.6	36.2	37.9	26.9	32.0	1,020	941	35.1	-1.1
Mali	..	..	..	..	..	..	..	..	..	..	..	..
Mauritania	..	..	..	..	..	..	..	..	..	..	..	..
Mauritius	2,617	6,540	41.7	66.9	2.4	3.7	6.0	8.0	42	86	8.2 <sup>a</sup>	-2.5 <sup>a</sup>
Mexico	239,128	408,691	28.2	43.9	6.2	10.5	25.7	26.0	151	128	26.6	-14.8
Moldova	..	..	..	..	0.6	0.2	..	..	..	..	..	..
Mongolia	46	1,579	1.8	17.6	0.1	0.8	6.1	3.4	392	332	..	..
Morocco	27,220	60,088	45.7	76.2	7.0	11.8	15.9	9.8	56	75	13.1	-17.7
Mozambique	..	..	..	..	..	..	..	..	..	..	..	..
Myanmar	..	..	..	..	..	..	..	..	..	..	..	..
Namibia	415	1,152	5.7	9.7	0.1	0.2	1.5	1.2	13	7	24.2 <sup>a</sup>	6.2 <sup>a</sup>
Nepal	1,344	4,529	16.5	30.8	0.6	0.6	4.4	1.7	125	181	..	..
Netherlands	592,906	594,732	92.9	84.8	130.9	76.0	147.7	88.3	237	108	1.2	-16.4
New Zealand	43,409	71,657	39.1	52.9	15.7	14.2	40.0	39.6	154	144	5.2	-3.8
Nicaragua	..	..	..	..	..	..	..	..	..	..	..	..
Niger	..	..	..	..	..	..	..	..	..	..	..	..
Nigeria	19,356	39,270	17.2	26.3	1.7	2.7	11.5	9.2	214	196	20.3 <sup>a</sup>	-29.5 <sup>a</sup>
Norway	190,952	219,245	62.8	60.1	64.1	52.0	117.2	88.6	191	192	13.7	-18.1
Oman	15,269	19,719	49.4	36.9	10.4	12.4	29.8	12.9	96	136	12.2 <sup>a</sup>	-14.1 <sup>a</sup>
Pakistan	45,937	32,764	41.9	21.6	128.6	7.3	376.3	28.6	661	638	15.3 <sup>a</sup>	-18.8 <sup>a</sup>
Panama	5,074	10,682	32.8	40.9	0.5	0.7	1.8	0.6	24	21	12.8 <sup>a</sup>	18.0 <sup>a</sup>
Papua New Guinea	3,166	8,999	64.6	102.8	0.4	0.2	0.6	0.6	9	11	..	..
Paraguay	257	958	3.4	0.2	0.0	0.1	0.6	3.0	54	66	..	..
Peru	35,995	79,329	45.3	63.6	2.5	2.5	7.2	5.5	196	202	51.3	-21.3
Philippines	40,153	165,380	39.0	78.8	6.7	13.4	20.1	20.4	235	251	56.7	0.2
Poland	93,873	138,246	30.9	40.5	9.9	16.5	36.3	58.4	248	757	11.3	-33.4
Portugal	66,981	61,688	34.9	35.9	21.7	13.7	60.7	50.3	48	46	-16.6	-31.0
Puerto Rico	..	..	..	..	..	..	..	..	..	..	..	..
Qatar	87,316	125,413	202.9	89.4	65.2	25.9	40.0	18.6	31	42	27.7 <sup>a</sup>	3.3 <sup>a</sup>



# 5.4 | Stock markets

	Market capitalization				Market liquidity		Turnover ratio		Listed domestic companies		S&P/Global Equity Indices	
	\$ millions		% of GDP		Value of shares traded % of GDP		Value of shares traded % of market capitalization		number		% change	
	2005	2011	2005	2010	2005	2010	2005	2011	2005	2011	2010	2011
Romania	20,588	21,197	20.8	20.0	3.4	1.1	21.0	12.0	3,747	1,267	-6.6 <sup>a</sup>	-18.2 <sup>a</sup>
Russian Federation	548,579	796,376	71.8	67.9	20.9	54.0	39.0	127.3	296	327	21.7	-23.4
Rwanda	..	..	..	..	..	..	..	..	..	..	..	..
Saudi Arabia	646,104	338,873	204.7	81.3	349.7	46.7	231.7	84.6	77	150	9.0 <sup>e</sup>	-3.9 <sup>e</sup>
Senegal	..	..	..	..	..	..	..	..	..	..	..	..
Serbia	5,409	8,365	21.4	25.2	2.6	0.6	15.3	3.7	864	1,322	..	..
Sierra Leone	..	..	..	..	..	..	..	..	..	..	..	..
Singapore	316,658	308,320	256.4	177.3	97.0	135.1	40.4	74.8	685	462	18.4	-21.2
Slovak Republic	4,393	4,736	7.2	4.8	0.1	0.2	1.6	10.2	209	81	5.4 <sup>a</sup>	3.0 <sup>a</sup>
Slovenia	7,899	6,326	22.1	20.1	2.2	0.6	9.0	6.5	116	66	-20.3 <sup>a</sup>	-30.7 <sup>a</sup>
Somalia	..	..	..	..	..	..	..	..	..	..	..	..
South Africa	565,408	855,711	228.9	278.4	81.2	93.5	39.3	39.8	388	355	32.1	-17.4
South Sudan	..	..	..	..	..	..	..	..	..	..	..	..
Spain	960,024	1,030,951	84.9	83.2	137.8	96.7	163.9	128.9	3,300	3,241	-24.5	-16.8
Sri Lanka	5,720	19,437	23.4	40.2	4.7	6.7	24.3	25.1	239	253	84.6 <sup>a</sup>	-23.0 <sup>a</sup>
Sudan	..	..	..	..	..	..	..	..	..	..	..	..
Swaziland	197	..	7.8	..	0.0	..	0.0	..	6	5	..	..
Sweden	403,948	470,122	109.0	126.7	125.2	95.9	118.9	96.2	252	340	32.6	-18.5
Switzerland	938,624	932,207	252.0	232.9	237.1	164.7	100.1	85.9	263	246	11.0	-9.4
Syrian Arab Republic	..	..	..	..	..	..	..	..	..	..	..	..
Tajikistan	..	..	..	..	..	..	..	..	..	..	..	..
Tanzania	588	1,539	4.2	5.5	0.1	0.1	2.3	2.5	6	17	..	..
Thailand	124,864	268,489	70.8	87.2	50.6	68.4	73.9	85.1	504	545	52.1	-4.7
Timor-Leste	..	..	..	..	..	..	..	..	..	..	..	..
Togo	..	..	..	..	..	..	..	..	..	..	..	..
Trinidad and Tobago	16,972	14,725	106.2	59.0	3.9	0.7	3.7	1.2	37	37	0.8 <sup>a</sup>	26.7 <sup>a</sup>
Tunisia	2,876	9,662	8.9	24.1	1.4	3.8	16.5	11.0	46	57	11.7 <sup>a</sup>	-13.4 <sup>a</sup>
Turkey	161,537	201,817	33.4	41.8	41.7	57.4	154.9	162.7	302	362	21.4	-37.0
Turkmenistan	..	..	..	..	..	..	..	..	..	..	..	..
Uganda	103	7,727	1.1	10.5	0.0	0.1	3.1	..	5	8	..	..
Ukraine	24,976	25,558	29.0	28.6	0.8	1.5	3.6	14.1	221	195	53.8 <sup>a</sup>	-36.3 <sup>a</sup>
United Arab Emirates	225,568	93,767	124.9	35.2	79.2	9.2	89.6	15.9	79	104	-6.8 <sup>a</sup>	-16.5 <sup>a</sup>
United Kingdom	3,058,182	1,202,031	134.1	137.4	182.7	132.9	141.9	137.9	2,759	2,001	5.2 <sup>f</sup>	-6.1 <sup>f</sup>
United States	16,970,865	15,640,707	134.9	117.5	171.0	208.8	129.2	187.6	5,143	4,171	12.8 <sup>g</sup>	0.0 <sup>g</sup>
Uruguay	96	175	0.6	0.4	0.0	0.0	1.1	0.4	9	6	..	..
Uzbekistan	37	..	0.3	..	0.3	0.1	184.7	..	114	132	..	..
Venezuela, RB	5,017	5,143	3.4	1.0	0.2	0.0	4.5	0.9	50	36	..	..
Vietnam	461	18,316	0.9	19.2	0.2	16.2	24.8	29.5	33	301	0.5 <sup>a</sup>	-26.8 <sup>a</sup>
West Bank and Gaza	4,461	2,532	111.1	..	52.2	..	75.4	14.7	28	45	..	..
Yemen, Rep.	..	..	..	..	..	..	..	..	..	..	..	..
Zambia	989	4,009	13.8	17.4	0.2	1.6	2.0	..	15	20	17.4 <sup>a</sup>	-1.3 <sup>a</sup>
Zimbabwe	2,402	10,903	43.0	153.6	5.9	15.3	15.3	..	79	75	..	..
<b>World</b>	<b>43,319,352 s</b>	<b>45,082,821s</b>	<b>96.6 w</b>	<b>88.7 w</b>	<b>105.7 w</b>	<b>106.4 w</b>	<b>116.3 w</b>	<b>133.4 w</b>	<b>50,936 s</b>	<b>49,553 s</b>	..	..
<b>Low income</b>	..	59,995	..	26.6	..	..	15.3	48.6	..	602	..	..
<b>Middle income</b>	4,426,053	10,282,607	49.3	72.6	24.9	67.7	58.4	103.0	19,925	18,737	..	..
Lower middle income	898,133	1,854,685	48.0	65.9	35.2	34.2	86.4	44.8	8,741	8,653	..	..
Upper middle income	3,527,921	8,427,921	49.6	74.4	22.2	76.5	51.4	116.1	11,184	10,084	..	..
<b>Low &amp; middle income</b>	4,440,182	10,342,602	48.8	72.1	24.6	67.0	58.3	102.8	20,466	19,339	..	..
East Asia & Pacific	1,212,704	4,638,422	40.1	79.9	25.6	113.3	68.4	154.3	3,931	5,181	..	..
Europe & Central Asia	789,576	1,116,849	48.7	51.8	22.7	42.7	61.6	121.1	6,564	4,368	..	..
Latin America & Carib.	1,028,157	2,274,194	40.5	57.6	9.9	22.9	28.4	46.4	1,504	1,446	..	..
Middle East & N. Africa	135,018	265,561	36.8	34.6	7.2	7.5	39.3	19.4	1,531	1,012	..	..
South Asia	609,110	1,095,645	58.8	81.9	55.7	52.6	111.6	55.4	6,050	6,400	..	..
Sub-Saharan Africa	605,113	951,930	128.6	149.5	43.3	46.6	37.3	37.2	911	932	..	..
<b>High income</b>	38,879,170	34,740,219	108.8	95.9	126.3	123.5	122.4	143.0	30,470	30,214	..	..
Euro area	6,357,326	5,482,967	62.7	51.7	73.1	47.1	120.5	110.4	6,737	6,250	..	..

a. Refers to the S&P Frontier BMI index. b. Refers to the CAC 40 index. c. Refers to the DAX index. d. Refers to the Nikkei 225 index. e. Refers to the Saudi Arabia country index. f. Refers to the FTSE 100 index. g. Refers to the S&P 500 index.

## About the data

The development of an economy's financial markets is closely related to its overall development. Well functioning financial systems provide good and easily accessible information. That lowers transaction costs, which in turn improves resource allocation and boosts economic growth. Both banking systems and stock markets enhance growth, the main factor in poverty reduction. At low levels of economic development commercial banks tend to dominate the financial system, while at higher levels domestic stock markets tend to become more active and efficient relative to domestic banks.

Open economies with sound macroeconomic policies, good legal systems, and shareholder protection attract capital and therefore have larger financial markets. Recent research on stock market development shows that modern communications technology and increased financial integration have resulted in more cross-border capital flows, a stronger presence of financial firms around the world, and the migration of stock exchange activities to international exchanges. Many firms in emerging markets now cross-list on international exchanges, which provides them with lower cost capital and more liquidity-traded shares. However, this also means that exchanges in emerging markets may not have enough financial activity to sustain them, putting pressure on them to rethink their operations.

The indicators in the table are from Standard & Poor's Emerging Markets Data Base. They include measures of size (market capitalization, number of listed domestic companies) and liquidity (value of shares traded as a percentage of gross domestic product, value of shares traded as a percentage of market capitalization). The comparability of such indicators across countries may be limited by conceptual and statistical weaknesses, such as inaccurate reporting and differences in accounting standards. The percentage change in stock market prices in U.S. dollars for developing economies is from Standard & Poor's Global Equity Indices (S&P IFCI) and Standard & Poor's Frontier Broad Market Index (BMI). The percentage change for France, Germany, Japan, the United Kingdom, and the United States is from local stock market prices. The indicator is an important measure of overall performance. Regulatory and institutional factors that can affect investor confidence, such as entry and exit restrictions, the existence of a securities and exchange commission, and the quality of laws to protect investors, may influence the functioning of stock markets but are not included in the table.

Stock market size can be measured in various ways, and each may produce a different ranking of countries. Market capitalization shows the overall

size of the stock market in U.S. dollars and as a percentage of GDP. The number of listed domestic companies is another measure of market size. Market size is positively correlated with the ability to mobilize capital and diversify risk.

Market liquidity, the ability to easily buy and sell securities, is measured by dividing the total value of shares traded by GDP. The turnover ratio—the value of shares traded as a percentage of market capitalization—is also a measure of liquidity as well as of transaction costs. (High turnover indicates low transaction costs.) The turnover ratio complements the ratio of value traded to GDP, because the turnover ratio is related to the size of the market and the value traded ratio to the size of the economy. A small, liquid market will have a high turnover ratio but a low value of shares traded ratio. Liquidity is an important attribute of stock markets because, in theory, liquid markets improve the allocation of capital and enhance prospects for long-term economic growth. A more comprehensive measure of liquidity would include trading costs and the time and uncertainty in finding a counterpart in settling trades.

S&P Indices, the source for all the data in the table, provides regular updates on 21 emerging stock markets and 36 frontier markets. S&P Indices maintains a series of indexes for investors interested in investing in stock markets in developing countries. The S&P/IFCI index, S&P Indices's leading emerging markets index, is designed to be sufficiently investable to support index tracking portfolios in emerging market stocks that are legally and practically open to foreign portfolio investment. The S&P Frontier BMI measures the performance of 36 smaller and less liquid markets. The S&P Frontier BMI country indexes aim to include all publicly listed equities representing an aggregate of at least 80 percent of the total market capitalization in each market, subject to the securities meeting size and liquidity thresholds defined by three market size tiers. These indexes are widely used benchmarks for international portfolio management. See [www.standardandpoors.com](http://www.standardandpoors.com) for further information on the indexes.

Because markets included in Standard & Poor's emerging markets category vary widely in level of development, it is best to look at the entire category to identify the most significant market trends. And it is useful to remember that stock market trends may be distorted by currency conversions, especially when a currency has registered a significant devaluation.

*About the data* is based on Demirgüç-Kunt and Levine (1996), Beck and Levine (2001), and Claessens, Klingebiel, and Schmukler (2002).

## Definitions

- **Market capitalization** (also known as market value) is the share price times the number of shares outstanding.
- **Market liquidity** is the total value of shares traded during the period divided by gross domestic product (GDP). This indicator complements the market capitalization ratio by showing whether market size is matched by trading.
- **Turnover ratio** is the total value of shares traded during the period divided by the average market capitalization for the period. Average market capitalization is calculated as the average of the end-of-period values for the current period and the previous period.
- **Listed domestic companies** are the domestically incorporated companies listed on the country's stock exchanges at the end of the year. This indicator does not include investment companies, mutual funds, or other collective investment vehicles.
- **S&P/Global Equity Indices** measure the U.S. dollar price change in the stock markets.

## Data sources

Data on stock markets are from Standard & Poor's *Global Stock Markets Factbook 2011*, which draws on the Emerging Markets Data Base, supplemented by other data from Standard & Poor's. The firm collects data through an annual survey of the world's stock exchanges, supplemented by information provided by its network of correspondents and by Reuters. Data on GDP are from the World Bank's national accounts data files.





	Getting credit		Financial access and outreach				Bank capital to asset ratio	Ratio of bank nonperforming loans to total gross loans	Domestic credit provided by banking sector	Interest rate spread	Risk premium on lending
	Strength of legal rights index	Depth of credit information index	per 1,000 adults		per 100,000 adults					Lending rate minus deposit rate	Prime lending rate minus treasury bill rate
	0–10 (weak to strong)	0–6 (low to high)	Depositors with commercial banks	Borrowers from commercial banks	Commercial bank branches	Automated teller machines	%	%	% of GDP	percentage points	percentage points
	June 2011	June 2011	2010	2010	2010	2010	2010	2010	2010	2010	2010
Afghanistan	6	0	100	4	2.2	0.50	..	..	2.1	..	..
Albania	9	4	..	118	22.6	31.96	8.5	13.9	67.5	6.4	7.0
Algeria	3	3	346	23	5.2	6.07	..	..	-7.4	6.3	7.7
Angola	3	4	97	86	1.3	12.66	..	..	22.9	9.8	..
Argentina	4	6	702	285	13.3	42.45	11.9	1.8	29.2	1.4	..
Armenia	6	6	589	202	17.5	32.11	20.4	3.0	25.8	10.3	8.6
Australia	9	5	..	..	31.6	162.38	5.7	2.2	147.6	3.1	2.8
Austria	7	6	1,376	..	11.4	48.16	7.5	2.8	137.5	..	..
Azerbaijan	6	5	41	256	10.4	28.43	..	..	23.5	9.1	18.9
Bahrain	4	3	..	..	..	..	..	..	79.3	6.0	6.4
Bangladesh	7	2	418	81	6.9	1.93	6.5	11.2	65.9	5.9	..
Belarus	3	5	..	..	3.1	37.17	13.7	3.5	45.7	0.1	..
Belgium	7	4	..	..	48.0	86.37	5.0	2.8	117.1	..	8.9
Benin	6	1	..	..	..	..	..	..	18.1	..	..
Bolivia	1	6	..	..	..	..	8.4	2.2	49.4	8.9	9.8
Bosnia and Herzegovina	5	5	914	251	30.9	34.47	17.6	11.4	67.2	4.7	..
Botswana	7	4	496	238	8.6	..	..	..	9.4	5.9	..
Brazil	3	5	..	194	13.8	120.62	11.1	3.1	97.8	31.1	29.1
Bulgaria	8	6	1,958	421	91.2	80.53	10.5	11.9	71.0	7.1	8.6
Burkina Faso	6	1	..	..	..	..	..	..	16.4	..	..
Burundi	3	1	..	..	..	..	..	..	40.1	..	..
Cambodia	8	0	108	29	4.0	5.07	..	..	22.7	..	..
Cameroon	6	2	72	17	1.4	1.40	..	..	9.0	..	..
Canada	7	6	..	..	24.3	220.02	4.7	1.2	177.6	2.6	2.0
Central African Republic	6	2	3	1	0.6	..	..	..	18.8	..	..
Chad	6	2	24	3	0.6	0.36	..	..	9.3	..	..
Chile	6	5	2,134	310	17.6	62.51	8.3	2.7	90.3	3.0	..
China	6	4	..	..	..	..	6.1	1.1	146.4	3.1	..
Hong Kong SAR, China	10	5	..	..	23.6	..	12.3	0.8	199.0	5.0	4.7
Colombia	5	5	..	..	..	..	14.3	2.9	65.7	5.7	..
Congo, Dem. Rep.	3	0	..	..	..	..	..	..	1.0	39.7	..
Congo, Rep.	6	2	20	3	2.4	1.23	..	..	-16.4	..	..
Costa Rica	3	5	..	..	19.2	..	14.4	1.9	51.3	11.8	..
Côte d'Ivoire	6	1	..	..	..	..	..	..	25.1	..	..
Croatia	6	5	..	..	..	100.86	13.9	11.2	82.2	8.6	..
Cuba	..	..	..	..	..	..	..	..	..	..	..
Cyprus	9	0	..	..	151.5	87.58	5.9	5.6	315.8	..	..
Czech Republic	6	5	..	..	22.5	41.65	6.5	6.2	64.7	4.8	5.0
Denmark	9	4	..	..	41.1	63.55	5.5	4.1	215.3	..	..
Dominican Republic	3	6	..	..	..	..	9.3	2.9	39.6	7.3	..
Ecuador	3	6	..	..	..	..	8.9	3.5	26.4	..	..
Egypt, Arab Rep.	3	6	..	..	..	..	6.2	11.0	69.4	4.8	1.7
El Salvador	5	6	..	..	..	..	13.9	3.9	45.1	..	..
Eritrea	2	0	..	..	..	..	..	..	114.4	..	..
Estonia	7	5	1,993	542	19.3	88.09	9.3	5.4	97.6	6.7	..
Ethiopia	4	2	107	2	1.8	0.31	..	..	37.1	3.3	7.3
Finland	8	4	..	..	15.6	91.72	5.5	0.6	100.8	..	..
France	7	4	..	..	43.1	110.07	4.4	4.2	134.4	..	..
Gabon	6	2	95	46	4.7	8.62	11.3	9.9	10.2	..	..
Gambia, The	5	0	..	..	..	..	..	..	45.4	12.4	..
Georgia	8	6	697	377	18.6	42.34	16.9	12.5	33.8	15.0	14.7
Germany	7	6	..	..	17.6	116.80	4.3	3.3	132.0	..	..
Ghana	8	3	324	33	5.0	..	7.9	17.6	28.3	..	..
Greece	4	5	..	..	41.2	78.24	6.9	10.4	145.5	..	..
Guatemala	8	6	..	..	36.5	..	10.3	2.1	38.5	7.9	..
Guinea	6	0	..	..	..	..	..	..	..	..	..
Guinea-Bissau	6	1	..	..	..	..	..	..	7.7	..	..
Haiti	3	2	339	12	2.8	..	..	..	19.9	16.7	..

# Financial access, stability, and efficiency

# 5.5

	Getting credit		Financial access and outreach				Bank capital to asset ratio	Ratio of bank nonperforming loans to total gross loans	Domestic credit provided by banking sector	Interest rate spread	Risk premium on lending
	Strength of legal rights index 0–10 (weak to strong) June 2011	Depth of credit information index 0–6 (low to high) June 2011	per 1,000 adults Depositors with commercial banks 2010	per 1,000 adults Borrowers from commercial banks 2010	per 100,000 adults Commercial bank branches 2010	per 100,000 adults Automated teller machines 2010	% 2010	% 2010	% of GDP 2010	Lending rate minus deposit rate percentage points 2010	Prime lending rate minus treasury bill rate percentage points 2010
Honduras	8	6	..	..	..	..	..	52.3	9.0	..	
Hungary	7	4	1,072	..	16.6	56.73	9.8	9.7	81.7	2.7	2.2
India	8	4	747	137	10.9	..	7.1	2.4	71.1	..	..
Indonesia	3	4	..	275	8.3	13.37	11.4	2.6	36.5	6.2	..
Iran, Islamic Rep.	4	4	..	..	26.6	30.95	..	..	37.2	0.1	..
Iraq	3	0	..	..	4.2	1.09	..	..	-2.1	8.3	8.0
Ireland	9	5	..	..	28.6	92.47	4.4	8.6	233.2	..	..
Israel	9	5	..	927	19.9	102.35	6.8	1.4	85.7	2.9	2.3
Italy	3	5	1,307	480	66.9	98.56	9.3	7.8	154.6	..	2.9
Jamaica	8	0	..	..	6.7	25.98	..	..	48.1	14.1	11.2
Japan	7	6	7,169	171	34.0	132.96	4.8	1.8	326.6	1.1	1.5
Jordan	4	2	..	..	18.1	..	10.5	7.9	96.0	5.5	..
Kazakhstan	4	5	874	..	3.3	62.75	10.9	23.8	45.4	..	..
Kenya	10	4	370	73	4.4	7.27	13.2	6.3	51.0	9.8	10.8
Korea, Dem. Rep.	..	..	..	..	..	..	..	..	..	..	..
Korea, Rep.	8	6	4,522	..	18.6	250.29	7.6	1.9	103.2	1.7	..
Kosovo	8	5	770	54	17.5	22.86	..	4.4	17.8	10.9	..
Kuwait	4	4	..	..	..	..	12.6	8.9	84.0	2.6	4.3
Kyrgyz Republic	10	4	181	26	6.2	7.45	..	..	..	27.4	27.0
Lao PDR	4	0	44	4	2.6	4.33	..	..	26.1	19.6	14.6
Latvia	10	5	1,286	273	31.7	69.98	7.3	19.0	89.6	7.7	7.1
Lebanon	4	5	873	276	29.7	38.25	7.3	4.3	164.4	2.1	4.2
Lesotho	6	0	291	39	3.5	7.28	8.4	3.7	-6.2	7.5	5.0
Liberia	7	1	..	..	..	..	..	..	148.9	10.1	..
Libya	..	..	..	..	10.5	3.61	..	..	-65.9	3.5	..
Lithuania	5	6	..	..	27.3	55.29	8.9	19.7	64.6	3.6	-0.1
Macedonia, FYR	7	6	..	291	26.6	51.88	10.6	9.0	48.2	2.4	..
Madagascar	2	0	45	18	1.6	1.49	..	..	10.5	38.5	39.7
Malawi	7	0	..	..	..	..	..	..	28.4	21.0	17.5
Malaysia	10	6	1,458	280	10.4	46.38	9.1	3.4	132.2	2.5	2.4
Mali	6	1	..	..	..	..	..	..	12.5	..	..
Mauritania	3	1	..	32	4.3	..	..	..	52.9	9.0	8.5
Mauritius	6	3	465	2,168	23.0	1,009.32	7.3	2.8	110.8	0.5	..
Mexico	6	6	1,205	344	15.2	47.28	10.4	2.0	45.0	4.1	0.9
Moldova	8	4	1,197	38	10.3	143.38	16.0	13.3	37.2	8.7	9.2
Mongolia	6	4	1,339	706	53.6	..	..	..	29.9	8.2	..
Morocco	3	5	694	..	21.0	..	8.4	4.4	106.0	..	..
Mozambique	2	4	..	..	3.4	5.70	8.0	1.9	24.1	6.6	4.3
Myanmar	..	..	..	..	..	..	..	..	25.1	5.0	..
Namibia	8	5	624	213	7.6	30.49	8.4	2.0	48.4	4.7	3.3
Nepal	7	3	..	..	..	..	..	..	68.6	4.4	1.2
Netherlands	6	5	1,769	832	23.2	58.27	4.4	2.8	212.1	-0.6	..
New Zealand	10	5	..	..	34.7	72.75	..	..	157.8	1.7	3.5
Nicaragua	3	5	..	..	..	..	..	..	63.4	10.3	..
Niger	6	1	..	..	..	..	..	..	12.8	..	..
Nigeria	9	0	..	..	..	..	3.2	17.2	36.3	11.1	13.7
Norway	7	4	529	..	7.6	56.07	6.4	1.5	..	2.0	..
Oman	4	4	1,012	401	22.9	..	13.5	3.3	41.3	3.5	..
Pakistan	6	4	249	28	8.8	4.40	9.8	14.7	46.3	5.9	1.5
Panama	5	6	..	..	..	..	12.5	1.1	88.0	4.7	..
Papua New Guinea	5	3	178	23	1.8	5.25	..	..	35.7	9.1	5.8
Paraguay	3	6	..	..	..	..	9.4	1.3	32.5	24.8	..
Peru	7	6	436	139	49.5	25.21	9.5	2.6	18.0	17.4	..
Philippines	4	3	488	..	7.7	14.88	11.7	3.8	49.2	4.5	4.2
Poland	9	5	..	..	45.8	52.10	9.1	8.8	63.6	..	..
Portugal	3	4	2,806	413	75.9	197.05	6.4	3.3	209.2	..	..
Puerto Rico	8	5	..	..	..	..	..	..	..	..	..
Qatar	4	4	770	315	23.4	67.00	..	..	75.7	4.4	..



# 5.5

## Financial access, stability, and efficiency

	Getting credit		Financial access and outreach				Bank capital to asset ratio	Ratio of bank nonperforming loans to total gross loans	Domestic credit provided by banking sector	Interest rate spread	Risk premium on lending
	Strength of legal rights index 0–10 (weak to strong)	Depth of credit information index 0–6 (low to high)	per 1,000 adults		per 100,000 adults					Lending rate minus deposit rate percentage points	Prime lending rate minus treasury bill rate percentage points
	June 2011	June 2011	Depositors with commercial banks 2010	Borrowers from commercial banks 2010	Commercial bank branches 2010	Automated teller machines 2010	% 2010	% 2010	% of GDP 2010	2010	2010
Romania	9	5	..	222	33.2	55.48	8.9	11.9	54.9	6.8	6.9
Russian Federation	3	5	..	..	..	76.58	14.0	8.2	38.6	4.8	..
Rwanda	8	6	218	29	2.2	0.81	11.4	10.8	..	9.6	9.2
Saudi Arabia	5	6	780	181	9.0	57.97	12.6	3.0	-0.2	..	..
Senegal	6	1	..	..	..	..	10.0	20.2	29.0	..	..
Serbia	8	5	..	186	10.2	47.43	19.7	16.9	57.8	6.0	3.1
Sierra Leone	7	0	190	12	2.9	0.43	17.5	15.6	18.4	12.3	4.0
Singapore	10	4	2,134	968	10.3	58.57	9.6	1.8	85.7	5.2	5.0
Slovak Republic	9	4	..	..	26.5	50.38	9.7	5.8	54.0	2.0	..
Slovenia	4	4	..	..	39.5	103.04	8.2	3.6	97.4	4.5	4.8
Somalia	..	..	..	..	..	..	..	..	..	..	..
South Africa	10	6	978	415	10.1	59.58	7.0	5.8	182.2	3.4	3.4
South Sudan	..	..	..	..	..	..	..	..	..	..	..
Spain	6	5	775	337	38.3	153.63	6.2	4.6	231.4	..	..
Sri Lanka	4	5	..	..	..	..	..	..	40.5	3.3	1.7
Sudan	4	0	..	..	..	..	..	..	20.5	..	..
Swaziland	6	5	455	185	5.7	21.43	12.2	8.0	17.2	5.9	3.1
Sweden	7	4	..	..	..	..	5.0	2.0	143.5	..	..
Switzerland	8	5	..	..	52.8	97.47	5.4	0.4	191.1	2.7	2.7
Syrian Arab Republic	1	2	220	67	3.8	7.35	..	..	47.7	3.7	..
Tajikistan	2	0	..	..	..	..	..	..	..	18.0	..
Tanzania	8	0	131	30	1.8	3.30	..	..	21.1	8.0	10.7
Thailand	5	5	1,120	237	11.2	77.69	11.3	3.9	135.5	4.9	4.5
Timor-Leste	2	3	..	..	..	..	..	..	-31.6	10.2	..
Togo	6	1	181	0	3.7	..	..	..	31.9	..	..
Trinidad and Tobago	8	4	..	..	..	..	..	..	32.4	7.8	8.4
Tunisia	3	5	..	148	16.6	20.84	..	12.1	73.7	..	..
Turkey	4	5	1,265	719	17.4	43.74	13.4	3.8	69.3	..	..
Turkmenistan	..	..	..	..	..	..	..	..	..	..	..
Uganda	7	4	192	18	2.5	3.58	13.9	2.1	17.1	12.5	15.2
Ukraine	9	4	3,220	..	2.3	76.13	14.6	15.3	78.6	5.3	..
United Arab Emirates	4	5	..	..	21.7	96.81	17.7	5.6	92.3	..	..
United Kingdom	10	6	..	..	25.5	64.58	5.4	4.0	222.6	..	0.0
United States	9	6	..	..	35.7	173.75	11.1	4.9	231.4	..	3.1
Uruguay	4	6	538	426	13.5	30.38	9.5	1.0	32.4	6.2	1.3
Uzbekistan	2	3	957	37	47.5	2.52	..	..	..	..	..
Venezuela, RB	1	0	..	..	..	..	9.9	3.4	22.6	3.5	..
Vietnam	8	5	..	..	3.3	17.64	..	..	135.8	1.9	2.0
West Bank and Gaza	1	3	543	68	10.3	13.68	..	..	..	..	..
Yemen, Rep.	3	2	101	2	2.0	2.75	..	..	19.3	5.2	2.9
Zambia	9	5	..	..	..	..	..	..	18.9	13.5	14.6
Zimbabwe	7	0	..	..	..	..	..	..	..	..	..
<b>World</b>	<b>5.9 u</b>	<b>3.2 u</b>	<b>.. w</b>	<b>.. w</b>	<b>13.7 w</b>	<b>44.00 w</b>	<b>9.4 m</b>	<b>4.0 m</b>	<b>167.9 w</b>	<b>6.2 m</b>	
<b>Low income</b>	5.8	1.3	..	..	..	..	..	..	37.2	11.4	
<b>Middle income</b>	5.5	3.3	..	167	12.2	29.02	10.2	3.9	90.8	6.3	
Lower middle income	5.3	2.8	..	..	5.6	9.77	..	..	57.1	8.7	
Upper middle income	5.7	3.7	..	238	16.6	47.36	10.4	3.7	100.5	5.8	
<b>Low &amp; middle income</b>	5.6	2.8	..	..	8.1	18.23	..	3.9	90.0	7.3	
East Asia & Pacific	6.2	2.0	..	221	7.4	14.09	..	..	131.8	6.9	
Europe & Central Asia	6.5	4.7	894	212	18.1	44.89	13.6	12.2	50.8	6.9	
Latin America & Carib.	5.3	3.4	..	..	..	..	10.1	2.4	66.7	7.3	
Middle East & N. Africa	2.8	3.2	443	66	10.9	6.84	..	..	51.9	5.0	
South Asia	5.6	2.8	249	28	7.8	1.93	7.3	10.5	67.4	5.9	
Sub-Saharan Africa	5.8	1.8	167	27	2.7	..	..	..	81.6	9.7	
<b>High income</b>	6.9	4.3	..	..	23.9	90.08	6.8	4.1	205.6	..	
Euro area	6.4	4.1	..	..	24.9	91.72	6.2	4.4	156.1	..	

## About the data

Access to finance can expand opportunities for all with higher levels of access and use of banking services associated with lower financing obstacles for people and businesses. A stable financial system that promotes efficient savings and investment is also crucial for a thriving democracy and market economy.

There are several aspects of access to financial services: availability, cost, and quality of services. The development and growth of credit markets depend on access to timely, reliable, and accurate data on borrowers' credit experiences. Access to credit can be improved by making it easy to create and enforce collateral agreements and by increasing information about potential borrowers' creditworthiness. Lenders look at a borrower's credit history and collateral. Where credit registries and effective collateral laws are absent—as in many developing countries—banks make fewer loans. Indicators that cover getting credit include the strength of legal rights index and the depth of credit information index.

The “unbanked” have to resort to informal services to manage their money—saving under the mattress, borrowing from family and friends, or using money lenders—that are usually less reliable and more costly than formal banking institutions. The table presents data on financial access covering depositors and borrowers and on outreach indicators such as the number of branches and automated teller machines. Data for these financial access and outreach indicators are from the International Monetary Fund's (IMF) Financial Access Survey database; this source differs from that in the 2011 edition.

The size and mobility of international capital flows make it increasingly important to monitor the strength of financial systems. Robust financial systems can increase economic activity and welfare, but instability can disrupt financial activity and impose widespread costs on the economy. The ratio of bank capital to assets, a measure of bank solvency and resiliency, shows the extent to which banks can deal with unexpected losses. Capital includes tier 1 capital (paid-up shares and common stock), a common feature in all countries' banking systems, and total regulatory capital, which includes several types of subordinated debt instruments that need not be repaid if the funds are required to maintain minimum capital levels (tier 2 and tier 3 capital). Total assets include all nonfinancial and financial assets. Data are from internally consistent financial statements.

The ratio of bank nonperforming loans to total gross loans measures bank health and efficiency by

identifying problems with asset quality in the loan portfolio. A high ratio may signal deterioration of the credit portfolio. International guidelines recommend that loans be classified as nonperforming when payments of principal and interest are 90 days or more past due or when future payments are not expected to be received in full.

Domestic credit provided by the banking sector as a share of GDP measures banking sector depth and financial sector development in terms of size. In a few countries governments may hold international reserves as deposits in the banking system rather than in the central bank. Since claims on the central government are a net item (claims on the central government minus central government deposits), the figure may be negative, resulting in a negative figure for domestic credit provided by the banking sector.

The interest rate spread—the margin between the cost of mobilizing liabilities and the earnings on assets—measures financial sector efficiency in intermediation. A narrow spread means low transaction costs, which reduces the cost of funds for investment, crucial to economic growth.

The risk premium on lending is the spread between the lending rate to the private sector and the “risk-free” government rate. Spreads are expressed as an annual average. A small spread indicates that the market considers its best corporate customers to be low risk; a negative value indicates that the market considers its best corporate clients to be lower risk than the government.

## Definitions

- **Strength of legal rights index** measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. Higher values indicate that the laws are better designed to expand access to credit.
- **Depth of credit information index** measures rules affecting the scope, accessibility, and quality of information available through public or private credit registries. Higher values indicate the availability of more credit information.
- **Depositors with commercial banks** are deposit account holders at commercial banks and other resident banks functioning as commercial banks that are resident nonfinancial corporations (public and private) and households. For many countries data cover the total number of deposit accounts due to lack of information on account holders. The major types of deposits are checking accounts, savings accounts, and time deposits.
- **Borrowers from commercial banks** are resident customers that are

- nonfinancial corporations (public and private) and households that obtained loans from commercial banks and other banks functioning as commercial banks. For many countries data cover the total number of loan accounts due to lack of information on loan account holders.
- **Commercial bank branches** are retail locations of resident commercial banks and other resident banks that function as commercial banks that provide financial services to customers and are physically separated from the main office but not legally separated subsidiaries.
- **Automated teller machines** are computerized telecommunications devices that provide clients of a financial institution access to financial transactions in a public place.
- **Bank capital to asset ratio** is the ratio of bank capital and reserves to total assets. Capital and reserves include funds contributed by owners, retained earnings, general and special reserves, provisions, and valuation adjustments.
- **Ratio of bank nonperforming loans to total gross loans** is the value of nonperforming loans (gross value of the loan as recorded on the balance sheet) divided by the total value of the loan portfolio (including nonperforming loans before the deduction of loan loss provisions).
- **Domestic credit provided by banking sector** is all credit to various sectors on a gross basis, except to the central government, which is net. The banking sector includes monetary authorities, deposit money banks, and other banking institutions for which data are available.
- **Interest rate spread** is the interest rate charged by banks on loans to prime customers minus the interest rate paid by commercial or similar banks for demand, time, or savings deposits.
- **Risk premium on lending** is the interest rate charged by banks on loans to prime private sector customers minus the “risk-free” treasury bill interest rate at which short-term government securities are issued or traded in the market.

## Data sources

Data on getting credit are from the World Bank's Doing Business project ([www.doingbusiness.org](http://www.doingbusiness.org)). Data on financial access and outreach are from the IMF's Financial Access Survey database (<http://fas.imf.org>). Data on bank capital and nonperforming loans are from the IMF's Financial Soundness Indicators database (<http://fsi.imf.org>). Data on credit and interest rates are from the IMF's *International Financial Statistics*.



# 5.6

## Tax policies

	Tax revenue collected by central government		Taxes payable by businesses					
	% of GDP		Number of payments June 2011	Time to prepare, file, and pay taxes hours June 2011	Profit tax June 2011	% of commercial profits		Total tax rate June 2011
	2005	2010				Labor tax and contributions June 2011	Other taxes June 2011	
Afghanistan	6.3	8.3	8	275	0.0	0.0	36.4	36.4
Albania	17.3	..	44	371	8.7	25.0	4.8	38.5
Algeria	40.7 <sup>a</sup>	34.9 <sup>a</sup>	29	451	6.6	29.7	35.7	72.0
Angola	..	..	31	282	24.6	9.0	19.5	53.2
Argentina	14.2 <sup>a</sup>	..	9	415	2.8	29.4	76.1	108.2
Armenia	14.3	16.9	34	500	16.8	23.0	1.1	40.9
Australia	24.7 <sup>a</sup>	22.1 <sup>a</sup>	11	109	26.0	20.4	1.3	47.7
Austria	20.1 <sup>a</sup>	18.7 <sup>a</sup>	14	170	15.0	34.8	3.4	53.1
Azerbaijan	..	15.9	18	225	12.9	24.8	2.2	40.0
Bahrain	1.4 <sup>a</sup>	..	25	36	0.0	14.7	0.4	15.0
Bangladesh	8.2	8.6	21	302	25.7	0.0	9.2	35.0
Belarus	20.1	17.1	18	654	20.2	39.0	3.5	62.8
Belgium	26.0 <sup>a</sup>	24.6 <sup>a</sup>	11	156	5.2	50.4	1.7	57.3
Benin	15.5 <sup>a</sup>	16.2 <sup>a</sup>	55	270	14.8	27.3	23.9	66.0
Bolivia	16.2 <sup>a</sup>	..	42	1,080	0.0	15.5	64.6	80.0
Bosnia and Herzegovina	20.7 <sup>a</sup>	20.4 <sup>a</sup>	40	422	7.1	12.6	5.3	25.0
Botswana	..	..	19	152	15.9	0.0	3.6	19.4
Brazil	16.7	15.6	9	2,600	22.4	40.9	3.8	67.1
Bulgaria	21.6	21.0	17	500	4.9	19.2	4.1	28.1
Burkina Faso	11.8 <sup>a</sup>	13.0 <sup>a</sup>	46	270	14.8	22.6	6.2	43.6
Burundi	..	..	24	274	37.4	7.8	1.0	46.2
Cambodia	7.9 <sup>a</sup>	10.1 <sup>a</sup>	39	173	18.9	0.1	3.5	22.5
Cameroon	..	..	44	654	29.9	18.3	0.9	49.1
Canada	13.7 <sup>a</sup>	11.9 <sup>a</sup>	8	131	9.3	12.6	6.8	28.8
Central African Republic	6.2	..	54	504	0.0	19.8	34.8	54.6
Chad	..	..	54	732	31.3	28.4	5.7	65.4
Chile	18.7 <sup>a</sup>	17.8 <sup>a</sup>	9	316	18.0	3.8	3.2	25.0
China	8.7	10.5	7	398	5.9	49.6	7.9	63.5
Hong Kong SAR, China	12.7 <sup>a</sup>	12.8 <sup>a</sup>	3	80	17.6	5.3	0.1	23.0
Colombia	12.8 <sup>a</sup>	11.5 <sup>a</sup>	9	193	18.9	28.8	27.1	74.8
Congo, Dem. Rep.	10.0	13.7	32	336	58.9	7.9	272.8	339.7
Congo, Rep.	6.2	..	61	606	18.1	32.5	15.4	65.9
Costa Rica	..	13.9 <sup>a</sup>	31	246	18.9	29.5	6.6	55.0
Côte d'Ivoire	9.8 <sup>a</sup>	16.6 <sup>a</sup>	62	270	8.8	20.1	15.4	44.3
Croatia	20.0	18.8	17	196	11.5	19.4	1.5	32.3
Cuba	..	..	..	..	..	..	..	..
Cyprus	45.4 <sup>a</sup>	25.8 <sup>a</sup>	27	149	9.1	11.8	2.2	23.1
Czech Republic	15.6	13.9	8	557	7.5	38.4	3.2	49.1
Denmark	32.6 <sup>a</sup>	34.3 <sup>a</sup>	10	135	20.1	3.6	3.8	27.5
Dominican Republic	14.6 <sup>a</sup>	13.1 <sup>a</sup>	9	324	21.3	18.6	1.8	41.7
Ecuador	..	..	8	654	18.4	14.2	2.7	35.3
Egypt, Arab Rep.	14.1	14.1	29	433	13.0	27.1	3.6	43.6
El Salvador	12.5 <sup>a</sup>	13.7 <sup>a</sup>	53	320	16.5	17.2	1.3	35.0
Eritrea	..	..	18	216	8.8	0.0	75.8	84.5
Estonia	16.1 <sup>a</sup>	17.4 <sup>a</sup>	8	85	8.0	39.4	11.2	58.6
Ethiopia	8.8	..	19	198	26.8	0.0	4.3	31.1
Finland	22.6 <sup>a</sup>	21.2 <sup>a</sup>	8	93	13.7	24.2	1.2	39.0
France	22.4 <sup>a</sup>	19.8 <sup>a</sup>	7	132	8.2	51.7	5.7	65.7
Gabon	..	..	26	488	18.4	22.7	2.3	43.5
Gambia, The	..	..	50	376	6.1	12.8	264.6	283.5
Georgia	12.1	22.1	4	387	14.3	0.0	2.2	16.5
Germany	11.1 <sup>a</sup>	12.2 <sup>a</sup>	12	221	19.0	21.8	5.9	46.7
Ghana	21.3	12.6	33	224	18.4	14.7	0.5	33.6
Greece	20.3 <sup>a</sup>	19.6 <sup>a</sup>	10	224	13.4	31.7	1.4	46.4
Guatemala	11.2	10.3	24	344	25.9	14.3	0.7	40.9
Guinea	..	..	56	416	20.9	22.8	10.6	54.3
Guinea-Bissau	..	..	46	208	14.9	24.8	6.1	45.9
Haiti	..	..	46	184	24.1	12.4	4.3	40.8

	Tax revenue collected by central government		Taxes payable by businesses					
	% of GDP		Number of payments June 2011	Time to prepare, file, and pay taxes hours June 2011	Profit tax June 2011	% of commercial profits		Total tax rate June 2011
	2005	2010				Labor tax and contributions June 2011	Other taxes June 2011	
Honduras	14.5 <sup>a</sup>	14.8 <sup>a</sup>	47	224	24.7	10.7	8.6	44.0
Hungary	20.3 <sup>a</sup>	23.9 <sup>a</sup>	13	277	14.8	34.1	3.5	52.4
India	9.9	9.5	33	254	24.7	18.2	19.0	61.8
Indonesia	12.5	10.9	51	266	23.7	10.6	0.1	34.5
Iran, Islamic Rep.	7.9	9.3	20	344	17.8	25.9	0.4	44.1
Iraq	..	..	13	312	14.9	13.5	0.0	28.4
Ireland	24.9 <sup>a</sup>	21.2 <sup>a</sup>	8	76	11.9	11.6	2.7	26.3
Israel	26.9 <sup>a</sup>	24.3 <sup>a</sup>	33	235	22.8	5.3	3.1	31.2
Italy	21.1 <sup>a</sup>	22.9 <sup>a</sup>	15	285	22.8	43.4	2.2	68.5
Jamaica	25.5 <sup>a</sup>	21.0 <sup>a</sup>	72	414	25.6	13.0	7.0	45.6
Japan	10.9 <sup>a</sup>	8.7 <sup>a</sup>	14	330	27.0	16.5	5.7	49.1
Jordan	24.4	15.3	25	116	13.0	12.4	2.3	27.7
Kazakhstan	17.1	8.9	7	188	15.9	11.2	1.6	28.6
Kenya	18.7	19.5	41	393	33.1	6.8	9.7	49.6
Korea, Dem. Rep.	..	..	..	..	..	..	..	..
Korea, Rep.	14.7	15.2	12	225	15.1	13.0	1.5	29.7
Kosovo	..	..	33	164	9.1	5.6	0.6	15.4
Kuwait	1.0	0.9	15	118	4.7	10.7	0.0	15.5
Kyrgyz Republic	14.2	15.6	52	210	6.2	19.5	43.4	69.0
Lao PDR	10.4	12.7	34	362	24.8	5.6	2.9	33.3
Latvia	15.1	12.8	7	290	6.1	27.2	4.7	37.9
Lebanon	14.9 <sup>a</sup>	17.1 <sup>a</sup>	19	180	6.1	24.1	0.0	30.2
Lesotho	46.6	59.8	21	324	13.1	0.0	3.0	16.0
Liberia	0.2	0.3	33	158	0.0	5.4	38.3	43.7
Libya	..	..	..	..	..	..	..	..
Lithuania	17.3 <sup>a</sup>	13.4 <sup>a</sup>	11	175	5.7	35.1	3.1	43.9
Macedonia, FYR	19.3	19.1	28	119	6.3	0.0	3.4	9.7
Madagascar	10.1 <sup>a</sup>	13.0 <sup>a</sup>	23	201	14.7	20.3	1.6	36.6
Malawi	..	..	19	157	23.6	1.1	3.5	28.2
Malaysia	15.4	14.3	13	133	17.0	15.6	1.4	34.0
Mali	15.7 <sup>a</sup>	14.7 <sup>a</sup>	59	270	10.8	34.3	6.6	51.8
Mauritania	..	..	37	696	0.0	17.6	50.7	68.3
Mauritius	..	18.5 <sup>a</sup>	7	161	11.6	6.1	7.3	25.0
Mexico	..	..	6	347	24.5	26.8	1.4	52.7
Moldova	18.5	18.2	48	228	0.0	30.6	0.7	31.3
Mongolia	28.7	22.7	41	192	10.2	12.4	2.0	24.6
Morocco	22.0 <sup>a</sup>	23.4 <sup>a</sup>	17	238	25.2	22.7	1.8	49.6
Mozambique	..	..	37	230	27.7	4.5	2.1	34.3
Myanmar	3.9	..	..	..	..	..	..	..
Namibia	25.8	..	37	375	4.0	1.0	4.8	9.8
Nepal	9.2	13.3	34	326	17.2	11.3	3.0	31.5
Netherlands	22.6 <sup>a</sup>	22.6 <sup>a</sup>	9	127	20.9	18.1	1.5	40.5
New Zealand	30.8 <sup>b</sup>	..	8	172	29.9	2.9	1.7	34.4
Nicaragua	16.7	18.3	42	207	24.5	20.3	22.0	66.8
Niger	10.1 <sup>b</sup>	..	41	270	17.3	20.1	6.3	43.8
Nigeria	0.2	0.3	35	938	22.3	9.7	0.7	32.7
Norway	28.7 <sup>a</sup>	26.9 <sup>a</sup>	4	87	24.4	15.9	1.3	41.6
Oman	..	..	14	62	10.0	11.8	0.1	22.0
Pakistan	9.6	10.0	47	560	17.9	15.1	2.3	35.3
Panama	..	..	53	482	13.7	21.7	9.7	45.2
Papua New Guinea	..	..	33	194	22.0	11.7	8.6	42.3
Paraguay	11.8	13.1	35	387	9.6	18.6	6.7	35.0
Peru	13.5	14.5	9	309	26.6	11.0	3.1	40.7
Philippines	12.4	12.1	47	195	21.0	11.3	14.2	46.5
Poland	16.7 <sup>a</sup>	16.3 <sup>a</sup>	29	296	17.4	23.6	2.6	43.6
Portugal	20.6 <sup>a</sup>	19.6 <sup>a</sup>	8	275	15.1	26.8	1.5	43.3
Puerto Rico	..	..	16	218	28.3	14.4	20.5	63.1
Qatar	21.0	19.8	3	36	0.0	11.3	0.0	11.3



# 5.6 Tax policies

	Tax revenue collected by central government		Taxes payable by businesses					
	% of GDP		Number of payments June 2011	Time to prepare, file, and pay taxes hours June 2011	Profit tax June 2011	% of commercial profits		Total tax rate June 2011
	2005	2010				Labor tax and contributions June 2011	Other taxes June 2011	
Romania	12.2 <sup>a</sup>	17.9 <sup>a</sup>	113	222	10.4	31.8	2.2	44.4
Russian Federation	16.6 <sup>a</sup>	13.4 <sup>a</sup>	9	290	8.9	32.1	5.8	46.9
Rwanda	..	..	18	148	21.2	5.7	4.4	31.3
Saudi Arabia	..	..	14	79	2.1	12.4	0.0	14.5
Senegal	..	..	59	666	14.8	24.1	7.0	46.0
Serbia	23.6	22.0	66	279	11.6	20.2	2.2	34.0
Sierra Leone	10.8	11.0	29	357	17.6	11.3	3.3	32.1
Singapore	11.8	13.8	5	84	6.5	15.9	4.7	27.1
Slovak Republic	14.9 <sup>a</sup>	12.4 <sup>a</sup>	31	231	7.2	39.6	2.0	48.8
Slovenia	20.5	17.1	22	260	14.1	18.2	2.4	34.7
Somalia	..	..	..	..	..	..	..	..
South Africa	26.9 <sup>a</sup>	25.5 <sup>a</sup>	9	200	24.4	4.1	4.6	33.1
South Sudan	..	..	..	..	..	..	..	..
Spain	12.9 <sup>a</sup>	11.2 <sup>a</sup>	8	187	1.2	36.7	0.7	38.7
Sri Lanka	13.7	13.3	71	256	26.7	16.9	61.6	105.2
Sudan	..	..	42	180	13.8	19.2	3.1	36.1
Swaziland	26.1	..	33	104	28.1	4.0	4.7	36.8
Sweden	22.6 <sup>a</sup>	21.6 <sup>a</sup>	4	122	15.7	35.5	1.6	52.8
Switzerland	10.3	10.9	19	63	8.9	17.5	3.6	30.1
Syrian Arab Republic	..	..	19	336	20.0	19.3	0.5	39.7
Tajikistan	9.8	..	69	224	0.0	28.5	56.0	84.5
Tanzania	..	..	48	172	20.1	18.0	7.3	45.5
Thailand	17.2 <sup>a</sup>	16.0 <sup>a</sup>	23	264	28.8	5.7	3.0	37.5
Timor-Leste	..	..	6	276	0.0	0.0	0.2	0.2
Togo	13.9 <sup>a</sup>	15.8 <sup>a</sup>	53	270	9.3	26.5	13.7	49.5
Trinidad and Tobago	26.4	26.2	39	210	21.6	5.8	1.8	29.1
Tunisia	18.9	20.1	8	144	15.2	25.2	22.5	62.9
Turkey	19.7 <sup>a</sup>	20.5 <sup>a</sup>	15	223	17.9	18.8	4.4	41.1
Turkmenistan	..	..	..	..	..	..	..	..
Uganda	11.8	12.2	32	213	23.3	11.3	1.1	35.7
Ukraine	17.1	16.4	135	657	12.2	43.3	1.6	57.1
United Arab Emirates	..	..	14	12	0.0	14.1	0.0	14.1
United Kingdom	27.2 <sup>a</sup>	26.0 <sup>a</sup>	8	110	23.1	11.0	3.2	37.3
United States	11.2 <sup>a</sup>	9.3 <sup>a</sup>	11	187	27.6	10.0	9.1	46.7
Uruguay	17.9	19.5	53	336	23.6	15.6	2.9	42.0
Uzbekistan	..	..	41	205	1.1	28.2	68.1	97.5
Venezuela, RB	15.5	..	70	864	6.9	18.0	38.5	63.5
Vietnam	..	..	32	941	17.2	22.6	0.3	40.1
West Bank and Gaza	..	..	27	154	16.2	0.0	0.6	16.8
Yemen, Rep.	..	..	44	248	20.0	11.3	1.5	32.9
Zambia	17.2	16.6	37	132	1.5	10.4	2.5	14.5
Zimbabwe	..	..	49	242	20.3	5.1	10.1	35.6
<b>World</b>	<b>15.4 w</b>	<b>13.5 w</b>	<b>29 u</b>	<b>277 u</b>	<b>16.0 u</b>	<b>16.2 u</b>	<b>12.6 u</b>	<b>44.8 u</b>
<b>Low income</b>	10.7	11.8	38	271	18.7	13.0	36.1	67.8
<b>Middle income</b>	12.9	13.0	32	327	16.5	15.5	9.2	41.1
Lower middle income	11.1	10.9	36	324	16.0	13.7	10.7	40.4
Upper middle income	13.5	13.4	26	330	17.0	17.3	7.5	41.9
<b>Low &amp; middle income</b>	12.8	13.0	33	314	17.0	14.9	15.5	47.4
East Asia & Pacific	10.0	11.0	27	232	17.9	10.5	7.9	36.2
Europe & Central Asia	16.5	15.5	39	314	9.2	22.2	10.2	41.6
Latin America & Carib.	..	..	33	404	20.2	15.2	12.4	47.8
Middle East & N. Africa	18.7	17.5	24	253	15.5	19.1	6.0	40.6
South Asia	9.9	9.5	28	281	18.6	7.7	18.2	44.4
Sub-Saharan Africa	17.5	..	37	314	18.5	13.2	25.6	57.3
<b>High income</b>	16.0	13.6	15	169	13.0	20.2	4.2	37.4
Euro area	18.1	17.2	14	171	11.8	29.7	3.0	44.5

**Note:** Regional aggregates differ from those reported on the Doing Business website because the regional aggregates reported on the Doing Business website include developed countries.  
a. Data were reported on a cash basis and have been adjusted to the accrual framework of the International Monetary Fund's *Government Finance Statistics Manual 2001*.

### About the data

Taxes are the main source of revenue for most governments. The sources of tax revenue and their relative contributions are determined by government policy choices about where and how to impose taxes and by changes in the structure of the economy. Tax policy may reflect concerns about distributional effects, economic efficiency (including corrections for externalities), and the practical problems of administering a tax system. There is no ideal level of taxation. But taxes influence incentives and thus the behavior of economic actors and the economy's competitiveness.

The level of taxation is typically measured by tax revenue as a share of gross domestic product (GDP). Comparing levels of taxation across countries provides a quick overview of the fiscal obligations and incentives facing the private sector. The table shows only central government data, which may significantly understate the total tax burden, particularly in countries where provincial and municipal governments are large or have considerable tax authority.

Low ratios of tax revenue to GDP may reflect weak administration and large-scale tax avoidance or evasion. Low ratios may also reflect a sizable parallel economy with unrecorded and undisclosed incomes. Tax revenue ratios tend to rise with income, with higher income countries relying on taxes to finance a much broader range of social services and social security than lower income countries are able to.

The total tax rate payable by businesses provides a comprehensive measure of the cost of all the taxes a business bears. It differs from the statutory tax rate, which is the factor applied to the tax base. In computing business tax rates, actual tax payable is divided by commercial profit.

The indicators covering taxes payable by businesses measure all taxes and contributions that are government mandated (at any level—federal, state, or local), apply to standardized businesses, and have an impact in their income statements. The taxes covered go beyond the definition of a tax for government national accounts (compulsory, unrequited payments to general government) and also measure any imposts that affect business accounts. The main differences are in labor contributions and value added taxes. The indicators account for government-mandated contributions paid by the employer to a required private pension fund or workers insurance fund but exclude value added taxes because they do not affect the accounting profits of the business—that is, they are not reflected in the income statement.

To make the data comparable across countries, several assumptions are made about businesses. The main assumptions are that they are limited liability companies, they operate in the country's most populous city, they are domestically owned, they perform general industrial or commercial activities, and they have certain levels of start-up capital, employees, and turnover. For details about the assumptions, see the World Bank's *Doing Business 2012*.

The *Doing Business* methodology on business taxes is consistent with the Total Tax Contribution framework developed by PwC, which measures the taxes that are borne by companies and that affect their income statements. However, PwC bases its calculation on data from the largest companies in the economy, while *Doing Business* focuses on a standardized medium-size company.

### Definitions

- **Tax revenue collected by central government** is compulsory transfers to the central government for public purposes. Certain compulsory transfers such as fines, penalties, and most social security contributions are excluded. Refunds and corrections of erroneously collected tax revenue are treated as negative revenue. The analytic framework of the International Monetary Fund's (IMF) *Government Finance Statistics Manual 2001* (GFSM 2001) is based on accrual accounting and balance sheets. For countries still reporting government finance data on a cash basis, the IMF adjusts reported data to the GFSM 2001 accrual framework. These countries are footnoted in the table.
- **Number of tax payments by businesses** is the total number of taxes paid by businesses during one year. When electronic filing is available, the tax is counted as paid once a year even if payments are more frequent.
- **Time to prepare, file, and pay taxes** is the time, in hours per year, it takes to prepare, file, and pay (or withhold) three major types of taxes: the corporate income tax, the value-added or sales tax, and labor taxes, including payroll taxes and social security contributions.
- **Profit tax** is the amount of taxes on profits paid by businesses.
- **Labor tax and contributions** are the amount of taxes and mandatory contributions on labor paid by businesses.
- **Other taxes** are the amounts paid by businesses for property taxes, turnover taxes, and other small taxes such as municipal fees and vehicle and fuel taxes.
- **Total tax rate** is the amount of taxes and mandatory contributions payable by businesses in the second year of operation, expressed as a share of commercial profits. Taxes withheld (such as sales or value added tax or personal income tax) but not paid by businesses are excluded. For further details on the method used for assessing the total tax payable, see the World Bank's *Doing Business 2012*.

### Data sources

Data on central government tax revenue are from print and electronic editions of the IMF's *Government Finance Statistics Yearbook*. Data on taxes payable by businesses are from *Doing Business 2012* ([www.doingbusiness.org](http://www.doingbusiness.org)).





# 5.7

## Military expenditures and arms transfers

	Military expenditures				Armed forces personnel				Arms transfers			
	% of GDP		% of central government expenditure		thousands		% of labor force		Trend indicator values 1990 \$ millions			
	2005	2010	2005	2010	2005	2010	2005	2010	Exports		Imports	
	2005	2010	2005	2010	2005	2010	2005	2010	2005	2010	2005	2010
Afghanistan	1.6	1.8	8.7	4.6	27	307	0.4	3.4	..	..	42	407
Albania	1.3	1.6	6.2	..	23	15	1.6	1.0	..	..	42	13
Algeria	2.9	3.5	13.8	15.0	319	317	3.2	2.8	..	..	155	791
Angola	4.5	4.4	..	..	118	117	1.9	1.6	..	..	40	20
Argentina	0.9	0.9	5.2	..	102	104	0.6	0.6	2	..	3	17
Armenia	2.9	4.5	15.8	19.8	49	56	3.4	3.9	..	..	120	36
Australia	1.9	2.0	7.3	7.3	53	57	0.5	0.5	50	119	467	1,677
Austria	0.9	0.9	2.2	2.2	40	26	1.0	0.6	3	33	22	5
Azerbaijan	2.3	2.9	..	22.5	82	82	2.0	1.8	..	..	45	62
Bahrain	3.6	3.7	17.6	..	21	19	6.2	2.7	..	..	63	71
Bangladesh	1.2	1.2	12.4	10.2	252	221	0.4	0.3	..	..	9	45
Belarus	1.5	1.3	5.0	4.2	183	183	3.9	4.1	24	42	6	3
Belgium	1.1	1.1	2.5	2.5	37	36	0.8	0.7	161	7	0	30
Benin	1.1	1.0	8.1	6.8	8	7	0.3	0.2	..	..	2	0
Bolivia	1.9	1.6	7.2	..	70	83	1.7	1.8	..	..	1	1
Bosnia and Herzegovina	1.6	1.4	4.7	3.4	12	11	0.9	0.7	..	..	..	..
Botswana	2.9	2.7	..	..	11	11	1.2	1.0	..	..	8	10
Brazil	1.5	1.6	6.0	6.3	673	713	0.7	0.7	1	179	223	314
Bulgaria	2.4	1.4	7.6	6.3	85	65	2.5	1.9	66	14	149	17
Burkina Faso	1.2	1.5	10.2	12.4	11	11	0.2	0.2	..	..	19	2
Burundi	6.2	3.8	..	..	82	51	2.3	1.2	..	..	..	2
Cambodia	1.1	1.8	14.8	16.6	191	191	2.8	2.4	..	..	12	28
Cameroon	1.3	1.6	..	..	23	23	0.3	0.3	..	..	5	9
Canada	1.1	1.4	6.3	7.5	71	66	0.4	0.3	226	258	116	373
Central African Republic	1.1	2.6	12.3	..	3	3	0.2	0.2	..	..	9	0
Chad	1.0	3.0	..	..	35	35	0.9	0.8	..	..	9	17
Chile	3.6	3.2	20.0	15.5	116	104	1.7	1.3	..	133	460	434
China	2.1 <sup>a</sup>	2.0 <sup>a</sup>	15.3 <sup>a</sup>	16.1 <sup>a</sup>	3,755	2,945	0.5	0.4	303	1,423	3,536	559
Hong Kong SAR, China	..	..	..	..	..	..	..	..	..	..	..	..
Colombia	3.4	3.7	12.7	20.3	336	442	1.7	2.0	..	..	15	172
Congo, Dem. Rep.	2.3	1.4	10.5	10.2	65	159	0.3	0.6	..	..	17	25
Congo, Rep.	1.3	1.1	8.8	..	12	12	0.8	0.7	..	..	4	1
Costa Rica	..	..	..	..	10	10	0.5	0.4	..	0	..	..
Côte d'Ivoire	1.5	1.6	9.0	8.8	19	19	0.3	0.2	..	..	10	..
Croatia	1.6	1.7	4.7	4.6	31	22	1.6	1.1	..	..	8	10
Cuba	3.8	3.2	..	..	76	76	1.6	1.4	..	..	..	..
Cyprus	2.2	2.2	3.1	4.7	11	13	2.1	2.2	..	..	20	..
Czech Republic	2.0	1.3	5.4	3.6	28	29	0.5	0.5	66	3	621	73
Denmark	1.3	1.4	4.1	3.3	21	19	0.7	0.6	9	11	124	16
Dominican Republic	0.8	0.6	5.6	4.4	40	40	1.0	0.9	..	..	2	33
Ecuador	2.6	3.8	..	..	47	59	0.7	0.9	..	..	48	116
Egypt, Arab Rep.	2.9	2.0	10.4	6.9	799	836	3.3	3.1	..	..	641	681
El Salvador	0.6	0.6	3.6	3.0	16	33	0.7	1.3	..	..	9	4
Eritrea	20.9	..	..	..	202	202	9.3	7.8	..	..	69	..
Estonia	1.9	1.7	7.2	6.2	8	6	1.2	0.8	..	..	17	1
Ethiopia	2.8	1.1	18.6	..	183	138	0.5	0.3	..	..	240	..
Finland	1.4	1.5	3.9	3.8	31	25	1.2	0.9	27	34	99	72
France	2.5	2.3	5.4	5.3	359	342	1.2	1.1	1,724	834	60	120
Gabon	1.3	1.0	..	..	7	7	1.4	1.1	..	..	17	17
Gambia, The	0.6	..	..	..	1	1	0.1	0.1	..	..	5	..
Georgia	3.3	3.9	19.3	14.8	23	32	1.0	1.4	17	..	74	34
Germany	1.4	1.4	4.4	4.5	285	251	0.7	0.6	2,080	2,340	195	101
Ghana	0.6	0.4	2.6	2.4	7	16	0.1	0.1	..	..	0	6
Greece	2.9	3.1	6.9	6.3	168	150	3.3	2.8	13	..	389	703
Guatemala	0.4	0.4	2.9	3.1	48	34	1.0	0.6	..	..	..	0
Guinea	2.2	..	..	..	13	19	0.4	0.5	..	..	1	..
Guinea-Bissau	2.1	..	..	..	9	6	1.6	1.0	..	..	..	..
Haiti	..	..	..	..	5	0	0.1	0.0	..	..	..	..

# Military expenditures and arms transfers

# 5.7

	Military expenditures				Armed forces personnel				Arms transfers			
	% of GDP		% of central government expenditure		thousands		% of labor force		Trend indicator values 1990 \$ millions			
	2005	2010	2005	2010	2005	2010	2005	2010	Exports		Imports	
	2005	2010	2005	2010	2005	2010	2005	2010	2005	2010	2005	2010
Honduras	0.8	1.6	3.9	6.8	20	20	0.8	0.7	..	..	..	0
Hungary	1.4	1.0	3.4	2.5	44	35	1.0	0.8	82	..	13	18
India	2.7	2.4	18.3	16.0	3,047	2,626	0.7	0.6	19	4	1,059	3,337
Indonesia	1.1	1.0	6.9	7.1	582	582	0.5	0.5	8	..	32	198
Iran, Islamic Rep.	3.5	1.9	15.3	8.6	585	563	2.4	2.2	2	5	66	88
Iraq	3.6	6.0	..	..	227	802	3.6	10.6	..	..	165	464
Ireland	0.6	0.6	1.8	1.4	10	10	0.5	0.5	..	4	4	1
Israel	7.6	6.5	16.7	15.7	176	185	6.4	5.8	368	472	1,133	43
Italy	1.9	1.8	4.8	4.1	445	359	1.8	1.4	774	627	150	85
Jamaica	0.5	0.8	1.7	2.3	3	3	0.2	0.2	..	..	13	2
Japan	1.0	1.0	..	..	272	260	0.4	0.4	..	..	375	369
Jordan	4.8	5.2	13.5	20.1	111	111	8.0	7.1	17	88	35	114
Kazakhstan	1.0	0.9	5.7	5.5	101	81	1.3	0.9	12	..	42	57
Kenya	1.7	1.9	9.3	8.3	29	29	0.2	0.2	..	..	8	73
Korea, Dem. Rep.	..	..	..	..	1,295	1,379	9.2	9.5	40	..	5	1
Korea, Rep.	2.6	2.7	13.3	13.7	693	660	2.9	2.7	48	95	796	1,131
Kosovo	..	..	..	..	..	..	..	..	..	..	..	..
Kuwait	4.3	4.0	16.7	10.2	23	23	2.0	1.7	..	..	16	17
Kyrgyz Republic	3.1	3.6	20.0	18.9	18	20	0.8	0.8	92	14	3	..
Lao PDR	0.4	0.3	3.8	2.7	129	129	4.7	4.1	..	..	4	26
Latvia	1.7	1.1	5.9	3.0	5	5	0.4	0.4	..	..	7	15
Lebanon	4.4	4.2	16.7	14.0	85	79	6.5	5.4	..	..	1	60
Lesotho	2.5	2.7	5.9	3.1	2	2	0.2	0.2	..	..	1	..
Liberia	1.5	0.8	..	..	15	2	1.4	0.1	..	..	..	..
Libya	1.5	1.2	..	..	76	76	3.6	3.2	113	28	2	7
Lithuania	1.6	1.3	5.7	3.4	29	25	1.8	1.5	..	..	15	81
Macedonia, FYR	2.1	1.5	7.0	5.8	19	8	2.2	0.8	..	..	0	..
Madagascar	1.1	0.7	9.7	9.3	22	22	0.3	0.2	..	..	..	..
Malawi	1.2	..	..	..	7	5	0.1	0.1	..	..	..	2
Malaysia	2.3	1.5	12.3	7.8	135	134	1.2	1.1	..	0	49	411
Mali	2.3	1.9	15.0	13.3	12	12	0.3	0.3	..	..	13	9
Mauritania	3.1	3.8	..	..	21	21	2.2	1.9	..	..	7	4
Mauritius	0.2	0.2	..	..	2	2	0.4	0.3	..	..	6	..
Mexico	0.4	0.5	..	..	204	332	0.5	0.7	..	..	36	188
Moldova	0.4	0.3	1.4	0.9	10	8	0.7	0.6	18	20	..	..
Mongolia	1.2	0.9	4.9	3.3	16	17	1.5	1.5	..	..	..	13
Morocco	3.4	3.5	11.4	11.4	251	246	2.3	2.2	..	..	87	138
Mozambique	0.9	0.9	..	..	11	11	0.1	0.1	..	..	1	0
Myanmar	..	..	..	..	483	513	1.9	1.8	..	..	65	76
Namibia	2.6	3.3	10.3	..	15	15	1.9	1.6	..	..	72	14
Nepal	1.9	1.5	12.8	..	131	158	0.9	1.0	..	..	5	1
Netherlands	1.5	1.4	3.8	3.4	60	43	0.7	0.5	583	503	96	162
New Zealand	1.0	1.1	3.1	..	9	10	0.4	0.4	0	..	8	71
Nicaragua	0.7	0.7	4.0	3.4	14	12	0.7	0.5	..	..	..	..
Niger	1.0	0.9	10.6	..	10	11	0.2	0.2	..	..	14	1
Nigeria	0.6	1.0	12.1	10.8	161	162	0.4	0.3	..	..	14	189
Norway	1.6	1.6	4.9	4.5	47	24	1.9	0.9	12	141	14	205
Oman	11.8	9.6	..	..	46	47	5.1	3.9	1	..	164	36
Pakistan	4.0	3.2	27.6	18.5	921	946	1.8	1.6	22	..	406	2,580
Panama	..	..	..	..	12	12	0.8	0.7	..	..	..	5
Papua New Guinea	0.6	0.5	..	..	3	3	0.1	0.1	..	..	..	..
Paraguay	0.8	0.9	4.8	5.8	25	25	0.9	0.8	..	..	1	3
Peru	1.5	1.4	8.5	8.3	157	192	1.2	1.2	5	..	368	60
Philippines	0.8	0.8	4.9	4.8	147	166	0.4	0.4	4	..	14	8
Poland	1.9	1.9	5.3	5.1	162	121	0.9	0.7	17	8	95	142
Portugal	2.1	2.2	5.1	4.8	93	90	1.7	1.6	..	0	172	941
Puerto Rico	..	..	..	..	..	..	..	..	..	..	..	..
Qatar	2.5	2.3	12.1	15.4	12	12	2.3	0.9	6	..	11	20



# 5.7

## Military expenditures and arms transfers

	Military expenditures				Armed forces personnel				Arms transfers			
	% of GDP		% of central government expenditure		thousands		% of labor force		Trend indicator values 1990 \$ millions			
	2005	2010	2005	2010	2005	2010	2005	2010	Exports		Imports	
	2005	2010	2005	2010	2005	2010	2005	2010	2005	2010	2005	2010
Romania	2.0	1.4	8.3	4.4	177	154	1.8	1.5	2	4	491	109
Russian Federation	3.7	4.0	18.7	14.1	1,452	1,430	2.0	1.9	5,134	6,039	5	19
Rwanda	1.7	1.4	..	..	53	35	1.2	0.7	..	..	3	13
Saudi Arabia	8.0	10.4	..	..	216	249	2.7	2.6	..	58	150	787
Senegal	1.4	1.6	..	..	19	19	0.4	0.3	..	..	15	4
Serbia	2.5	2.2	6.5	5.5	110	29	2.8	0.8	4	5	..	14
Sierra Leone	1.9	2.3	8.3	11.2	13	11	0.7	0.5	..	..	10	..
Singapore	4.4	3.8	33.9	28.2	167	148	7.4	5.3	3	27	537	1,078
Slovak Republic	1.7	1.1	4.9	3.7	20	16	0.8	0.6	7	8	4	8
Slovenia	1.4	1.6	3.6	3.8	12	12	1.2	1.2	..	..	2	73
Somalia	..	..	..	..	..	2	..	0.1	..	..	..	..
South Africa	1.5	1.2	5.1	4.1	56	77	0.3	0.4	26	80	262	183
South Sudan	..	..	..	..	..	140	..	..	..	..	37	1
Spain	1.0	1.1	4.2	3.6	220	223	1.0	1.0	108	513	339	313
Sri Lanka	2.6	2.8	13.1	19.3	200	223	2.5	2.6	..	..	33	5
Sudan	4.3	..	..	..	123	127	1.0	0.9	..	..	104	14
Swaziland	2.3	3.4	7.0	..	..	..	..	..	..	..	..	..
Sweden	1.5	1.2	..	..	29	21	0.6	0.4	538	806	82	35
Switzerland	0.9	0.9	4.9	4.8	109	25	2.6	0.6	246	137	164	34
Syrian Arab Republic	5.0	3.9	..	..	416	403	8.0	7.4	3	25	7	167
Tajikistan	2.2	..	15.8	..	13	16	0.5	0.6	..	..	13	..
Tanzania	1.0	1.0	..	..	28	28	0.1	0.1	..	..	9	9
Thailand	1.1	1.5	6.7	8.2	421	420	1.1	1.1	8	..	63	83
Timor-Leste	2.5	2.8	..	..	1	1	0.3	0.4	..	..	..	20
Togo	1.6	1.8	9.8	13.0	10	9	0.4	0.3	..	..	..	1
Trinidad and Tobago	..	..	..	..	3	4	0.4	0.6	..	..	6	45
Tunisia	1.5	1.2	5.6	4.5	47	48	1.4	1.2	..	..	168	2
Turkey	2.5	2.4	11.5	9.4	617	613	2.7	2.3	47	31	1,065	468
Turkmenistan	..	..	..	..	26	22	1.3	1.0	..	..	22	29
Uganda	2.4	1.7	14.4	15.3	47	47	0.4	0.3	..	..	9	1
Ukraine	2.8	2.7	7.7	7.0	273	215	1.2	0.9	290	201	..	..
United Arab Emirates	4.2	5.4	..	..	51	51	2.0	1.0	11	37	2,199	493
United Kingdom	2.4	2.6	5.9	5.7	217	174	0.7	0.5	1,039	1,054	27	518
United States	4.0	4.8	18.9	17.9	1,546	1,569	1.0	1.0	6,700	8,641	520	893
Uruguay	1.3	1.5	5.0	5.0	25	25	1.6	1.5	..	..	20	36
Uzbekistan	0.5	..	..	..	91	87	0.9	0.7	4	90	..	..
Venezuela, RB	1.4	0.9	5.6	..	82	115	0.7	0.9	7	40	23	365
Vietnam	1.9	2.2	..	..	495	522	1.1	1.0	12	..	328	515
West Bank and Gaza	..	..	..	..	56	56	7.1	5.7	..	..	2	4
Yemen, Rep.	4.9	4.4	..	..	138	138	2.6	2.1	..	..	306	7
Zambia	2.0	1.7	8.5	10.0	16	17	0.3	0.3	..	..	0	..
Zimbabwe	2.3	1.3	..	..	51	51	0.8	0.8	..	..	25	..
<b>World</b>	<b>2.5 w</b>	<b>2.6 w</b>	<b>10.8 w</b>	<b>10.0 w</b>	<b>28,539 s</b>	<b>27,994 s</b>	<b>0.9 w</b>	<b>0.9 w</b>	<b>.. s</b>	<b>.. s</b>	<b>20,973 s</b>	<b>24,960 s</b>
<b>Low income</b>	1.6	1.4	12.0	..	3,330	3,714	1.1	1.0	..	..	..	..
<b>Middle income</b>	2.1	2.0	12.5	12.3	19,030	18,527	0.9	0.8	..	..	10,757	13,328
Lower middle income	2.4	2.1	13.8	12.7	8,635	8,858	0.9	0.9	..	..	3,334	8,426
Upper middle income	2.0	2.0	12.3	12.4	10,395	9,669	0.8	0.7	6,188	7,020	7,423	4,902
<b>Low &amp; middle income</b>	2.1	2.0	12.5	12.2	22,360	22,241	0.9	0.8	..	..	11,031	14,002
East Asia & Pacific	1.9	1.9	13.9	14.6	7,656	7,005	0.7	0.6	311	1,423	4,096	1,912
Europe & Central Asia	2.9	3.0	15.2	11.9	3,398	3,169	1.9	1.6	5,585	6,380	1,152	920
Latin America & Carib.	1.3	1.4	..	..	2,072	2,439	0.8	0.9	..	..	1,213	1,739
Middle East & N. Africa	3.2	3.3	12.5	..	3,123	3,611	3.3	3.5	..	..	1,639	2,523
South Asia	2.8	2.4	18.7	16.2	4,578	4,480	0.7	0.7	41	4	1,554	6,378
Sub-Saharan Africa	1.7	1.6	..	..	1,533	1,536	0.5	0.5	..	..	986	530
<b>High income</b>	2.6	2.9	10.5	10.0	6,179	5,753	1.1	1.0	14,880	16,758	9,942	10,958
Euro area	1.7	1.6	4.5	4.3	1,802	1,606	1.2	1.0	5,473	4,891	1,527	2,620

Note: For some countries data are partial or uncertain or based on rough estimates; see SIPRI (2011).

a. Estimates differ from official statistics of the government of China, which has published the following estimates: military expenditure as 1.4 percent of GDP in 2005 and 1.5 percent in 2009 and 7.3 percent of national government expenditure in 2005 and 6.5 percent in 2009 (see National Bureau of Statistics of China, www.stats.gov.cn).

## About the data

Although national defense is an important function of government and security from external threats that contributes to economic development, high military expenditures for defense or civil conflicts burden the economy and may impede growth. Data on military expenditures as a share of gross domestic product (GDP) are a rough indicator of the portion of national resources used for military activities and of the burden on the economy. As an “input” measure military expenditures are not directly related to the “output” of military activities, capabilities, or security. Comparisons of military spending among countries should take into account the many factors that influence perceptions of vulnerability and risk, including historical and cultural traditions, the length of borders that need defending, the quality of relations with neighbors, and the role of the armed forces in the body politic.

Data on military expenditures are reported to the United Nations Office for Disarmament Affairs (UNODA) by about 60 governments. Data on military expenditures are not compiled using standard definitions and are often incomplete and unreliable due to countries’ reluctance to disclose military information. Even in countries where the parliament vigilantly reviews budgets and spending, military expenditures and arms transfers rarely receive close scrutiny or full, public disclosure (see Ball 1984 and Happe and Wakeman-Linn 1994). However, the Stockholm International Peace Research Institute (SIPRI) has adopted a definition of military expenditure derived from the North Atlantic Treaty Organization’s (NATO) former definition (in use until 2002; see *Definitions*). The data on military expenditures as a share of GDP are SIPRI estimates. Data on military expenditures as a share of central government expenditures use data on central government expenditures from the International Monetary Fund (IMF). Therefore the data in the table may differ from comparable data published by national governments.

SIPRI’s primary source of military expenditure data is official data provided by national governments. These data are derived from budget documents, defense white papers, and other public documents from official government agencies, including government responses to questionnaires sent by SIPRI, the UNODA, or the Organization for Security and Co-operation in Europe. Secondary sources include international statistics, such as those of NATO and the IMF’s *Government Finance Statistics Yearbook*. Other secondary sources include country reports of the Economist Intelligence Unit, country reports by IMF staff, and specialist journals and newspapers.

In the many cases where SIPRI cannot make independent estimates, it uses the national data

provided. Because of the differences in definitions and the difficulty in verifying the accuracy and completeness of data, data on military expenditures are not always comparable across countries. However, SIPRI puts a high priority on ensuring that the data series for each country is comparable over time. More information on SIPRI’s military expenditure project can be found at [www.sipri.org/contents/milap/](http://www.sipri.org/contents/milap/).

Data on armed forces refer to military personnel on active duty, including paramilitary forces. Because data exclude personnel not on active duty, they underestimate the share of the labor force working for the defense establishment. Governments rarely report the size of their armed forces, so such data typically come from intelligence sources.

SIPRI’s Arms Transfers Programme collects data on arms transfers from open sources. Since publicly available information is inadequate for tracking all weapons and other military equipment, SIPRI covers only what it terms *major conventional weapons*. Data cover the supply of weapons through sales, aid, gifts, and manufacturing licenses; therefore the term *arms transfers* rather than *arms trade* is used. SIPRI data also cover weapons supplied to or from rebel forces in an armed conflict as well as arms deliveries for which neither the supplier nor the recipient can be identified with acceptable certainty; these data are available in SIPRI’s database.

SIPRI’s estimates of arms transfers are designed as a trend-measuring device in which similar weapons have similar values, reflecting both the quantity and quality of weapons transferred. The estimated values do not reflect financial value (payments for weapons transferred) because reliable data on the value of the transfer are not available, and even when values are known, the transfer usually includes more than the actual conventional weapons, such as spares, support systems, and training, and details of the financial arrangements (such as credit and loan conditions and discounts) are usually not known.

Given these measurement issues, SIPRI’s method of estimating the transfer of military resources includes an evaluation of the technical parameters of the weapons. Weapons for which a price is not known are compared with the same weapons for which actual acquisition prices are available (core weapons) or for the closest match. These weapons are assigned a value in an index that reflects their military resource value in relation to the core weapons. These matches are based on such characteristics as size, performance, and type of electronics, and adjustments are made for secondhand weapons. More information on SIPRI’s Arms Transfers Programme is available at [www.sipri.org/research/armaments/transfers](http://www.sipri.org/research/armaments/transfers).

## Definitions

- **Military expenditures** are SIPRI data derived from NATO’s former definition, (in use until 2002) which includes all current and capital expenditures on the armed forces, including peacekeeping forces; defense ministries and other government agencies engaged in defense projects; paramilitary forces, if judged to be trained and equipped for military operations; and military space activities. Such expenditures include military and civil personnel, including retirement pensions and social services for military personnel; operation and maintenance; procurement; military research and development; and military aid (in the military expenditures of the donor country). Excluded are civil defense and current expenditures for previous military activities, such as for veterans benefits, demobilization, and weapons conversion and destruction. This definition cannot be applied for all countries, however, since that would require more detailed information than is available about military budgets and off-budget military expenditures (for example, whether military budgets cover civil defense, reserves and auxiliary forces, police and paramilitary forces, and military pensions).
- **Armed forces personnel** are active duty military personnel, including paramilitary forces if the training, organization, equipment, and control suggest they may be used to support or replace regular military forces. Reserve forces, which are not fully staffed or operational in peace time, are excluded. The data also exclude civilians in the defense establishment and so are not consistent with the data on military expenditures on personnel.

- **Arms transfers** cover the supply of military weapons through sales, aid, gifts, and manufacturing licenses and are based on actual deliveries only. Weapons must be transferred voluntarily by the supplier, have a military purpose, and be destined for the armed forces, paramilitary forces, or intelligence agencies of another country. Data cover major conventional weapons such as aircraft, armored vehicles, artillery, radar systems and other sensors, missiles, and ships designed for military use as well as some major components such as turrets for armored vehicles and engines. Excluded are other military equipment such as most small arms and light weapons, trucks, small artillery, ammunition, support equipment, technology transfers, and other services.

## Data sources

Data on military expenditures are from SIPRI’s Military Expenditure Database ([www.sipri.org/databases/milex](http://www.sipri.org/databases/milex)). Data on armed forces personnel are from the International Institute for Strategic Studies’ *The Military Balance 2012*. Data on arms transfers are from SIPRI’s Arms Transfers Database ([www.sipri.org/databases/armstransfers](http://www.sipri.org/databases/armstransfers)).



# 5.8

## Fragile situations

	International Development Association Resource Allocation Index 1-6 (low to high)	Peacebuilding and peacekeeping		Battle-related deaths number 2000-10 <sup>c</sup>	Intentional homicides per 100,000 people Combined source estimates <sup>b</sup> 2008	Military expenditures % of GDP 2010	Business environment		
		Operation name <sup>a</sup>	Troops, police, and military observers number December 2011				Survey year	Losses due to theft, robbery, vandalism, and arson % of sales	Firms formally registered when operations started % of firms
Afghanistan	2.6	UNAMA	15	35,460	2.4	1.8	2008	1.5	88.0
Angola	2.8		..	2,620	19.0	4.4	2010	1.5	62.7
Bosnia and Herzegovina	3.7		..	..	1.7	1.4	2009	0.4	98.6
Burundi	3.1	BNUB	1	6,413	21.7	3.8	2006	1.1	..
Central African Republic	2.8	BINUCA	4	544	29.3	2.6		..	..
Chad	2.4		..	4,238	15.8	3.0	2009	2.5	77.1
Comoros	2.5		..	..	12.2	..		..	..
Congo, Dem. Rep.	2.7	MONUSCO	18,928	6,348	21.7	1.4	2010	1.8	61.9
Congo, Rep.	2.9		..	167	30.8	1.1	2009	3.3	84.3
Côte d'Ivoire	2.7	UNOCI	10,999	809	56.9	1.6	2009	3.4	56.4
Eritrea	2.2		..	25,057	17.8	..	2009	0.0	100.0
Georgia	4.4		..	648	4.1 <sup>h</sup>	3.9	2008	0.7	99.6
Guinea	2.8		..	647	22.5	..	2006	2.0	..
Guinea-Bissau	2.7	UNIOGBIS	17	0	20.2	..	2006	1.1	..
Haiti	2.9	MINUSTAH	11,611	244	6.9 <sup>h</sup>	..		..	..
Iraq	..	UNAMI	361	24,088	2.0	6.0		..	..
Kiribati	3.0		..	..	7.3	..		..	..
Kosovo	3.4	UNMIK	16	..	..	..	2009	0.3	89.2
Liberia	2.9	UNMIL	9,206	2,427	10.1	0.8	2009	2.8	73.8
Marshall Islands	..		..	..	..	..		..	..
Micronesia, Fed. Sts.	..		..	..	0.9	..	2009	2.1	96.9
Myanmar	..		..	1,590	10.2	..		..	..
Nepal	3.3		..	9,418	2.8 <sup>j</sup>	1.5	2009	0.9	94.0
Sierra Leone	3.3		..	156	14.9	2.3	2009	0.8	89.2
Solomon Islands	2.8	RAMSI	468	..	3.7	..		..	..
Somalia	..	UNPOS	6	7,574	1.5	..		..	..
Sudan	2.4		..	17,658	24.2	..		..	..
Timor-Leste	3.0	UNMIT	1,216	..	6.9	2.8	2009	2.7	91.8
Togo	2.9		..	..	10.9	1.8	2009	2.4	75.8
West Bank and Gaza	..		..	..	..	..	2006	1.2	..
Western Sahara <sup>m</sup>	..	MINURSO	228	..	..	..		..	..
Yemen, Rep.	3.2		..	259	4.2 <sup>j</sup>	4.4	2010	0.6	81.7
Zimbabwe	2.0		..	..	14.3	1.3		..	..
<b>Fragile situations</b>			..	<b>82,763 s</b>	<b>15.8 w</b>	<b>3.8 w</b>			
Low income			..	..	17.5	1.4			

**Note:** The countries and territories with fragile situations in the table are primarily International Development Association-eligible countries and nonmember or inactive countries and territories that have a 3.2 or lower harmonized average of the World Bank's Country Policy and Institutional Assessment rating and the corresponding rating by a regional development bank or that have had a UN or regional peacebuilding and political mission (for example by the African Union, European Union, or Organization of American States) or peacekeeping mission (for example, by the African Union, European Union, North Atlantic Treaty Organization, or Organization of American States) during the last three years. This definition is pursuant to an agreement among the World Bank and other multilateral development banks at the start of the International Development Association 15 round in 2007. The list of countries and territories with fragile situations is imperfect and is used here to reflect a complex concept. The World Bank continues to work with partners and client countries to refine the concept.

a. UNAMA is United Nations Assistance Mission in Afghanistan, BNUB is United Nations Office in Burundi, BINUCA is United Nations Integrated Peacebuilding Office in the Central African Republic, MONUSCO is United Nations Organization Stabilization Mission in the Democratic Republic of the Congo, UNOCI is United Nations Operation in Côte d'Ivoire, UNIOGBIS is United Nations Integrated Peacebuilding Office in Guinea-Bissau, MINUSTAH is United Nations Stabilization Mission in Haiti, UNAMI is United Nations Assistance Mission for Iraq, UNMIK is Interim Administration Mission in Kosovo, UNMIL is United Nations Mission in Liberia, RAMSI is Regional Assistance Mission to Solomon Islands, UNPOS is United Nations Political Office for Somalia, UNMIT is United Nations Integrated Mission in Timor-Leste, and MINURSO is United Nations Mission for the Referendum in Western Sahara. b. Best estimate from the UN Office on Drug and Crime's Intentional Homicide Statistics database. The combined source estimate uses both public health and law enforcement and criminal justice sources. c. Total over the period. d. Data are for the most recent year available. e. Average over the period. f. Covers only Angola-secured territory. g. Covers children ages 10-14. h. Data are for 2010. i. Data are for 2009. j. Northern Sudan only. k. Figure represents the Internal Displacement Monitoring Centre's (IDMC) high estimate; the low estimates is 4,500,000. l. Includes Palestinian refugees under the mandate of the United Nations Relief and Works Agency for Palestine Refugees in the Near East, who are not included in data from the Office of the United Nations High Commissioner for Refugees. m. The designation Western Sahara is used instead of Former Spanish Sahara (the designation used on the maps on the inside front and back cover flaps) because it is the designation used by the UN operation established there by Security Council resolution 690/1991. Neither designation expresses any World Bank view on the status of the territory so-identified. n. Figure represents IDMC's high estimate; the low estimate is 570,000.

	Children in employment		Refugees		Internally displaced persons number 2010	Access to an improved water source % of population 2010	Access to improved sanitation facilities % of population 2010	Maternal mortality ratio per 100,000 live births		Under-five mortality rate per 1,000 live births 2010	Depth of hunger kilocalories per person per day 2006–08 <sup>e</sup>	Primary gross enrollment ratio % of relevant age group 2010
	Survey year	% of children ages 7–14	By country of origin 2010	By country of asylum 2010				National estimates 2005–10 <sup>d</sup>	Modeled estimates 2008			
Afghanistan	..	..	3,054,709	6,434	352,000	50	37	..	1,400	149	..	97
Angola	2001	30.1 <sup>f</sup>	134,858	15,155	..	51	58	..	610	161	320	124
Bosnia and Herzegovina	2006	10.6	63,004	7,016	113,400	99	95	3	9	8	140	88
Burundi	2005	11.7	84,064	29,365	100,000	72	46	620	970	142	390	156
Central African Republic	2000	67.0	164,905	21,574	192,000	67	34	540	850	159	300	93
Chad	2004	60.4	53,733	347,939	171,000	51	13	..	1,200	173	320	90
Comoros	..	..	368	..	..	95	36	..	340	86	300	104
Congo, Dem. Rep.	2000	39.8 <sup>g</sup>	476,693	166,336	1,700,000	45	24	550	670	170	..	94
Congo, Rep.	2005	30.1	20,679	133,112	7,800	71	18	780	580	93	230	115
Côte d'Ivoire	2006	45.7	41,758	26,218	621,000	80	24	540	470	123	230	88
Eritrea	..	..	222,460	4,809	10,000	61	14	..	280	61	350	45
Georgia	2006	31.8	10,640	639	258,000	98	95	52	48	22	160	109
Guinea	1994	48.3	11,985	14,113	..	74	18	980	680	130	260	94
Guinea-Bissau	2006	50.5	1,127	7,679	..	64	20	410	1,000	150	250	123
Haiti	2005	33.4	25,892	3	..	69	17	630	300	165	420	..
Iraq	2006	14.7	1,683,579	34,655	2,800,000	79	73	84	75	39	..	..
Kiribati	..	..	33	..	..	..	..	..	..	49	180	113
Kosovo	..	..	..	..	18,300	..	..	..	..	..	..	..
Liberia	2007	37.4	70,129	24,743	..	73	18	990	990	103	330	96
Marshall Islands	..	..	..	..	..	94	75	..	..	26	..	102
Micronesia, Fed. Sts.	..	..	..	1	..	..	..	..	..	42	..	..
Myanmar	..	..	415,670	..	446,000	83	76	320	240	66	..	126
Nepal	1999	47.2	5,889	89,808	50,000	89	31	280	380	50	220	..
Sierra Leone	2007	14.9	11,275	8,363	..	55	13	860	970	174	340	125
Solomon Islands	..	..	75	..	..	..	..	..	100	27	190	..
Somalia	2006	43.5	770,154	1,937	1,500,000	29	23	1,000	1,200	180	..	..
Sudan	2000	19.1 <sup>j</sup>	387,288	178,308	5,200,000 <sup>k</sup>	58	26	1,100	750	103	240	73
Timor-Leste	..	..	8	1	400	69	47	560	370	81	260	117
Togo	2006	38.7	18,330	14,051	..	61	13	..	350	103	280	140
West Bank and Gaza	..	..	93,323	1,910,677 <sup>l</sup>	160,000	85	92	..	..	22	190	91
Western Sahara <sup>m</sup>	..	..	..	..	..	..	..	..	..	..	..	..
Yemen, Rep.	2006	18.3	2,076	190,092	250,000	55	53	..	210	77	260	87
Zimbabwe	1999	14.3	24,089	4,435	1,000,000 <sup>n</sup>	80	40	730	790	80	300	..
<b>Fragile situations</b>			<b>7,848,793</b>	<b>s 3,237,459</b>	<b>s 14,328,500</b>	<b>65</b>	<b>w 41</b>	<b>..</b>	<b>650</b>	<b>w 120</b>	<b>271</b>	<b>w 102</b>
Low income			5,650,811	1,873,979	7,113,000	65	37	..	590	108	281	104

#### About the data

The table focuses on countries and territories with fragile situations and highlights the links among weak institutions, poor development outcomes, fragility, and risk of conflict. Many of these countries and territories have weak institutions that are ill-equipped to handle economic shocks, natural disasters, and illegal trade or to resist conflict, which increasingly spills across borders. Organized violence, including violent crime, interrupts economic and social development through lost human and social capital, disrupted services, displaced populations, and reduced confidence for future investment. As a result, countries with fragile situations achieve lower development outcomes and make slower progress toward the Millennium Development Goals.

According to the Geneva Declaration on Armed Violence and Development, more than 526,000 people die each year because of the violence associated with armed conflict and large- and small-scale criminality. Recovery and rebuilding can take years, and the challenges are numerous: infrastructure to be rebuilt, persistently high crime, widespread health problems, education systems in disrepair, and unexploded ordnance to be cleared. Most countries emerging from conflict lack the capacity to rebuild the economy. Thus, capacity building is one of the first tasks for restoring growth and is linked to building peace and creating the conditions that lead to sustained poverty reduction. The World Bank and other international development agencies can help, but countries with

fragile situations have to build their own institutions tailored to their own needs. Peacekeeping operations in post-conflict situations have been effective in reducing the risks of reversion to conflict.

The countries and territories with fragile situations in the table are primarily International Development Association–eligible countries and nonmember or inactive countries or territories of the World Bank that have a 3.2 or lower harmonized average of the World Bank's Country Policy and Institutional Assessment rating and the corresponding rating by a regional development bank or that have had a UN or regional peacebuilding mission (for example, by the African Union, European Union, or Organization of American States) or peacekeeping mission (for example, by the

**About the data (continued)**

African Union, European Union, North Atlantic Treaty Organization [NATO], or Organization of American States) during the last three years. Peacebuilding and peacekeeping involve many elements—military, police, and civilian—working together to lay the foundations for sustainable peace. The list of countries and territories with fragile situations is imperfect and is used here to reflect a complex concept. The World Bank continues to work with partners and client countries to refine the concept.

An armed conflict is a contested incompatibility that concerns a government or territory where the use of armed force between two parties (one of them the government) results in at least 25 battle-related deaths in a calendar year. There were 30 active armed conflicts in 2010. This table presents data from the Uppsala Conflict Data Program (UCDP) Battle-Related Deaths Dataset (v.5 2011), which focuses on the incompatibility and lists the country, as well as the battle location and territory where battle-related deaths are reported. When more than one country is listed in the dataset, the assignment of battle-related deaths in the table is determined by the battle location. See country footnotes for additional details.

Data on intentional homicides are from the United Nations Office on Drugs and Crime (UNODC), which uses a variety of national and international sources on homicides—primarily criminal justice sources as well as public health data from the World Health Organization (WHO) and the Pan American Health Organization—and the United Nations Survey of Crime Trends and Operations of Criminal Justice Systems to present accurate and comparable statistics. The UNODC defines homicide as “unlawful death purposefully inflicted on a person by another person.” This definition excludes deaths arising from armed conflict. For additional information, see the UNODC Homicide Statistics database at [www.unodc.org/unodc/en/data-and-analysis/homicide.html](http://www.unodc.org/unodc/en/data-and-analysis/homicide.html).

Data on military expenditures reported by governments are not compiled using standard definitions and are often inconsistent across countries, incomplete, and unreliable. Even in countries where the parliament vigilantly reviews budgets and spending, military expenditures and arms transfers rarely receive close scrutiny or full public disclosure. Data are from the Stockholm International Peace Research Institute (SIPRI), which uses NATO’s former definition of military expenditure (in use until 2002; see *Definitions*). Therefore, the data in the table may differ from comparable data published by national

governments. For a more detailed discussion of military expenditures, see *About the data* for table 5.7.

Along with public sector efforts, private sector development and investment, especially in competitive markets, has tremendous potential to contribute to growth and poverty reduction. The World Bank’s Enterprise Surveys review the business environment, assessing constraints to private sector growth and enterprise performance. Crime, theft, and disorder impose costs on businesses and society. And in many developing countries informal businesses operate without licenses. These firms have less access to financial and public services and can engage in fewer types of contracts and investments, constraining growth. The table presents data on the loss of sales due to theft, robbery, vandalism, and arson and on the percentage of firms operating informally. For further information on enterprise surveys, see *About the data* for table 5.2.

As the table shows, the human toll of armed violence across various contexts is severe. Additionally, in countries with fragile situations weak institutional capacity often results in poor performance and failure to meet expectations of effective service delivery. Failure to deliver water, health, and education services can weaken struggling governments. The table includes several indicators related to living conditions in fragile situations: children in employment, refugees, internally displaced persons, access to water and sanitation, maternal and under-five mortality, depth of hunger, and primary school enrollment. For more detailed information on these indicators, see *About the data* for table 2.6 (children in employment), table 6.14 (refugees), table 2.18 (access to improved water and sanitation), table 2.19 (maternal mortality), table 2.23 (under-five mortality), and table 2.12 (primary school enrollment).

**Definitions**

• **International Development Association Resource Allocation Index** is from the Country Policy and Institutional Assessment rating, which is the average score of four clusters of indicators designed to measure macroeconomic, governance, social, and structural dimensions of development: economic management, structural policies, policies for social inclusion and equity, and public sector management and institutions (see table 5.9). Countries are rated on a scale of 1 (low) to 6 (high). • **Peacebuilding and peacekeeping** refer to operations that engage in peacebuilding (reducing the risk of lapsing or relapsing into conflict by strengthening national capacities for conflict management and laying the foundation for sustainable

peace and development) or peacekeeping (providing essential security to preserve the peace where fighting has been halted and to assist in implementing agreements achieved by the peacemakers). UN peacekeeping operations are authorized by the UN Secretary-General and planned, managed, directed, and supported by the United Nations Department of Peacekeeping Operations and the Department of Field Support. The UN Charter gives the Security Council primary responsibility for maintaining international peace and security, including the establishment of a UN peacekeeping operation. • **Troops, police, and military observers in peacebuilding and peacekeeping** are people active in peacebuilding and peacekeeping as part of an official operation. Peacekeepers deploy to war-torn regions where no one else is willing or able to go to prevent conflict from returning or escalating. • **Battle-related deaths** are deaths of members of warring parties in battle-related conflicts. Typically, battle-related deaths occur in warfare involving the armed forces of the warring parties (battlefield fighting, guerrilla activities, and all kinds of bombardments of military units, cities, and villages). The targets are usually the military and its installations or state institutions and state representatives, but there is often substantial collateral damage of civilians killed in crossfire, indiscriminate bombings, and other military activities. All deaths—civilian as well as military—incurred in such situations are counted as battle-related deaths. • **Intentional homicides** are estimates of unlawful homicides purposely inflicted as a result of domestic disputes, interpersonal violence, violent conflicts over land resources, intergang violence over turf or control, and predatory violence and killing by armed groups. Intentional homicide does not include all intentional killing; the difference is usually in the organization of the killing. Individuals or small groups usually commit homicide, whereas killing in armed conflict is usually committed by fairly cohesive groups of up to several hundred members and is thus usually excluded. • **Military expenditures** are SIPRI data derived from NATO’s former definition (in use until 2002), which includes all current and capital expenditures on the armed forces, including peacekeeping forces; defense ministries and other government agencies engaged in defense projects; paramilitary forces, if judged to be trained and equipped for military operations; and military space activities. Such expenditures include military and civil personnel, including retirement pensions and social services for military personnel; operation and maintenance; procurement; military research and

development; and military aid (in the military expenditures of the donor country). Excluded are civil defense and current expenditures for previous military activities, such as for veterans benefits, demobilization, and weapons conversion and destruction. This definition cannot be applied to all countries, however, since the necessary detailed information is missing in some cases for military budgets and off-budget military expenditures (for example, whether military budgets cover civil defense, reserves and auxiliary forces, police and paramilitary forces, and military pensions). • **Survey year** is the year in which the underlying data were collected. • **Losses due to theft, robbery, vandalism, and arson** are the estimated losses from those causes that occurred on business establishment premises calculated as a percentage of annual sales. • **Firms formally registered when operations started** are firms formally registered when they started operations in the country. • **Children in employment** are children involved in any economic activity for at least one hour in the reference week of the survey. • **Refugees** are people who are recognized as refugees under the 1951 Convention Relating to the Status of Refugees or its 1967 Protocol, the 1969 Organization of African Unity Convention Governing the Specific Aspects of Refugee Problems in Africa, people recognized as refugees in accordance with the UN Refugee Agency (UNHCR) statute, people granted refugee-like humanitarian status, and people provided temporary protection. Asylum seekers—people who have applied for asylum or refugee status and who have not yet received a decision, or who are registered as asylum seekers—are excluded. Palestinian refugees are people (and their descendants) whose residence was Palestine between June 1946 and May 1948 and who lost their homes and means of livelihood as a result of the 1948 Arab-Israeli conflict. • **Country of origin** refers to the nationality or country of citizenship of a claimant. • **Country of asylum** is the country where an asylum claim was filed and granted. • **Internally displaced persons** are people or groups of people who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of armed conflict, or to avoid the effects of armed conflict, situations of generalized violence, violations of human rights, or natural or human-made disasters and who have not crossed an international border. • **Access to an improved water source** refers to people with reasonable access to water from an improved source, such as piped water into a dwelling, public tap, tubewell, protected dug well, and rainwater collection.

Reasonable access is the availability of at least 20 liters a person a day from a source within 1 kilometer of the dwelling. • **Access to improved sanitation facilities** refers to people with at least adequate access to excreta disposal facilities that can effectively prevent human, animal, and insect contact with excreta. Improved facilities range from protected pit latrines to flush toilets. • **Maternal mortality ratio** is the number of women who die from pregnancy-related causes during pregnancy and childbirth per 100,000 live births. National estimates are based on national surveys, vital registration records, and surveillance data or are derived from community and hospital records. Modeled estimates are based on an exercise by the WHO, United Nations Children's Fund (UNICEF), United Nations Population Fund (UNFPA), and the World Bank. See About the data for table 2.19 for further details. • **Under-five mortality rate** is the probability of a child born in a specific year dying before reaching age 5, if subject to the age-specific mortality rate of that year. The probability is derived from life tables and expressed as rate per 1,000 live births. • **Depth of hunger**, or the intensity of food deprivation, indicates how much people who are food-deprived fall short of minimum food needs in terms of dietary energy. It is measured by comparing the average amount of dietary energy that undernourished people get from the foods they eat with the minimum amount of dietary energy they need to maintain body weight and undertake light activity. Depth of hunger is low when it is less than 200 kilocalories per person per day and high when it is above 300. • **Primary gross enrollment ratio** is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the primary level of education. Primary education provides children with basic reading, writing, and mathematics skills along with an elementary understanding of such subjects as history, geography, natural science, social science, art, and music.

#### Data sources

Data on the International Development Association Resource Allocation Index are from the World Bank Group's International Development Association database ([www.worldbank.org/ida](http://www.worldbank.org/ida)). Data on peacebuilding and peacekeeping operations are from the UN Department of Peacekeeping Operations. Data on battle-related deaths are from the UCDP Battle-Related Deaths Dataset (v.5-2011) 1989-2010. Data on intentional homicides are

from the UNODC's International Homicide Statistics database ([www.unodc.org/unodc/en/data-and-analysis/homicide.html](http://www.unodc.org/unodc/en/data-and-analysis/homicide.html)). Data on military expenditures are from SIPRI's Military Expenditure database ([www.sipri.org/databases/milex](http://www.sipri.org/databases/milex)). Data on the business environment are from the World Bank's Enterprise Surveys ([www.enterprise-surveys.org](http://www.enterprise-surveys.org)). Data on children in employment are estimates produced by the Understanding Children's Work project based on household survey data sets made available by the International Labour Organization's International Programme on the Elimination of Child Labour under its Statistical Monitoring Programme on Child Labour, UNICEF under its Multiple Indicator Cluster Survey program, the World Bank under its Living Standards Measurement Study program, and national statistical offices (see table 2.6). Data on refugees are from the UNHCR's *Statistical Yearbook 2010*, complemented by statistics on Palestinian refugees under the mandate of the United Nations Relief and Works Agency for Palestine Refugees in the Near East as published on its website ([www.unrwa.org](http://www.unrwa.org)). Data on internally displaced persons are from the Internal Displacement Monitoring Centre. Data on access to water and sanitation are from the WHO and UNICEF's *Progress on Drinking Water and Sanitation (2012)*. National estimates of maternal mortality are from UNICEF's *The State of the World's Children 2009* and Childinfo and MEASURE DHS Demographic and Health Surveys by ICF International. Modeled estimates for maternal mortality are from WHO, UNICEF, UNFPA, and the World Bank's *Trends in Maternal Mortality: 1990–2008 (2010)*. Data on under-five mortality estimates by the UN Inter-agency Group for Child Mortality Estimation (which comprises UNICEF, WHO, the World Bank, United Nations Population Division, and other universities and research institutes) and are based mainly on household surveys, censuses, and vital registration data, supplemented by the World Bank's Human Development Network estimates based on vital registration and sample registration data (see table 2.23). Data on depth of hunger are from the Food and Agriculture Organization's Food Security Statistics database ([www.fao.org/economic/ess/ess-fs/fs-data/ess-fadata/en/](http://www.fao.org/economic/ess/ess-fs/fs-data/ess-fadata/en/)). Data on primary gross enrollment are from the United Nations Educational, Scientific, and Cultural Organization's Institute for Statistics.





	International Development Association Resource Allocation Index 1-6 (low to high)	Economic management 1-6 (low to high)				Structural policies 1-6 (low to high)			
		Macroeconomic management	Fiscal policy	Debt policy	Average	Trade	Financial sector	Business regulatory environment	Average
		2010	2010	2010	2010	2010	2010	2010	2010
Afghanistan	2.6	3.5	3.0	2.5	3.0	3.0	2.0	2.5	2.5
Angola	2.8	3.0	3.0	3.0	3.0	4.0	2.5	2.0	2.8
Armenia	4.1	4.5	5.0	4.5	4.7	4.5	3.5	4.0	4.0
Azerbaijan	3.7	4.0	4.5	4.5	4.3	3.5	3.0	4.0	3.5
Bangladesh	3.5	4.0	4.0	4.0	4.0	3.0	3.5	3.5	3.3
Benin	3.5	4.0	3.0	3.5	3.5	4.0	3.5	3.5	3.7
Bhutan	3.9	4.5	4.5	4.5	4.5	3.0	3.0	3.5	3.2
Bolivia	3.7	4.0	4.0	4.5	4.2	5.0	3.5	2.5	3.7
Bosnia and Herzegovina	3.7	4.0	3.5	4.0	3.8	4.0	4.0	4.0	4.0
Burkina Faso	3.8	4.5	4.5	4.0	4.3	4.0	3.0	3.5	3.5
Burundi	3.1	3.5	3.5	3.0	3.3	4.0	2.5	2.5	3.0
Cambodia	3.4	4.5	4.0	3.5	4.0	4.0	2.5	3.5	3.3
Cameroon	3.2	4.0	3.5	3.0	3.5	3.5	3.0	3.0	3.2
Cape Verde	4.1	4.5	4.5	4.0	4.3	4.0	4.0	3.5	3.8
Central African Republic	2.8	3.5	3.5	3.0	3.3	3.5	2.5	2.0	2.7
Chad	2.4	2.5	2.5	2.5	2.5	3.0	2.5	2.0	2.5
Comoros	2.5	3.0	2.0	2.0	2.3	3.5	2.5	2.5	2.8
Congo, Dem. Rep.	2.7	3.5	3.5	3.0	3.3	3.0	2.0	2.0	2.3
Congo, Rep.	2.9	3.5	3.0	3.0	3.2	3.5	3.0	2.5	3.0
Côte d'Ivoire	2.7	3.5	2.5	2.0	2.7	4.0	3.0	3.0	3.3
Djibouti	3.2	3.5	3.0	2.5	3.0	4.0	3.0	3.5	3.5
Dominica	3.8	4.0	4.5	3.0	3.8	4.0	3.5	4.5	4.0
Eritrea	2.2	2.0	2.0	1.5	1.8	1.5	1.0	2.0	1.5
Ethiopia	3.4	3.5	4.0	3.5	3.7	3.0	3.0	3.5	3.2
Gambia, The	3.4	4.0	3.5	3.0	3.5	3.5	3.5	3.5	3.5
Georgia	4.4	4.5	4.5	5.0	4.7	6.0	3.5	5.5	5.0
Ghana	3.9	3.5	3.5	4.0	3.7	4.0	4.0	4.5	4.2
Grenada	3.8	3.5	3.0	3.0	3.2	4.5	4.0	4.5	4.3
Guinea	2.8	2.5	2.5	2.0	2.3	4.0	3.0	2.5	3.2
Guinea-Bissau	2.7	3.0	2.5	2.0	2.5	4.0	2.5	2.5	3.0
Guyana	3.4	3.5	3.5	4.0	3.7	4.0	3.5	3.0	3.5
Haiti	2.9	4.0	3.5	2.5	3.3	4.0	3.0	2.5	3.2
Honduras	3.6	3.5	3.5	4.0	3.7	4.5	3.0	3.5	3.7
India	3.7	4.5	3.5	4.0	4.0	3.5	4.0	3.5	3.7
Kenya	3.8	4.5	4.0	4.0	4.2	4.0	4.0	4.0	4.0
Kiribati	3.0	2.5	3.0	3.5	3.0	3.0	3.0	3.0	3.0
Kosovo	3.4	3.5	3.0	3.5	3.3	5.0	3.5	3.5	4.0
Kyrgyz Republic	3.7	4.5	4.0	4.0	4.2	5.0	3.0	3.5	3.8

**About the data**

The International Development Association (IDA) is the part of the World Bank Group that helps the poorest countries reduce poverty by providing concessional loans and grants for programs aimed at boosting economic growth and improving living conditions. IDA funding helps these countries deal with the complex challenges they face in meeting the Millennium Development Goals.

The World Bank's IDA Resource Allocation Index (IRAI), presented in the table, is based on the results of the annual Country Policy and Institutional Assessment (CPIA) exercise, which covers the IDA-eligible countries. The table does not include Myanmar and Somalia because they were not rated in the 2010 exercise even though they are IDA eligible. Country

assessments have been carried out annually since the mid-1970s by World Bank staff. Over time the criteria have been revised from a largely macroeconomic focus to include governance aspects and a broader coverage of social and structural dimensions. Country performance is assessed against a set of 16 criteria grouped into four clusters: economic management, structural policies, policies for social inclusion and equity, and public sector management and institutions. IDA resources are allocated to a country on per capita terms based on its IDA country performance rating and, to a limited extent, based on its per capita gross national income. This ensures that good performers receive

a higher IDA allocation in per capita terms. The IRAI is a key element in the country performance rating.

The CPIA exercise is intended to capture the quality of a country's policies and institutional arrangements, focusing on key elements that are within the country's control, rather than on outcomes (such as economic growth rates) that are influenced by events beyond the country's control. More specifically, the CPIA measures the extent to which a country's policy and institutional framework supports sustainable growth and poverty reduction and, consequently, the effective use of development assistance.

All criteria within each cluster receive equal weight, and each cluster has a 25 percent weight in the

# Public policies and institutions

# 5.9

	International Development Association Resource Allocation Index 1–6 (low to high)	Economic management 1–6 (low to high)				Structural policies 1–6 (low to high)			
		Macroeconomic management	Fiscal policy	Debt policy	Average	Trade	Financial sector	Business regulatory environment	Average
		2010	2010	2010	2010	2010	2010	2010	2010
Lao PDR	3.3	4.0	4.0	3.0	3.7	3.5	2.0	3.0	2.8
Lesotho	3.5	4.0	3.5	4.0	3.8	3.5	3.0	3.0	3.2
Liberia	2.9	3.5	3.5	3.0	3.3	3.0	2.5	3.0	2.8
Madagascar	3.4	3.5	3.0	4.0	3.5	4.0	3.0	3.0	3.3
Malawi	3.3	3.0	3.5	3.0	3.2	3.5	3.0	3.0	3.2
Maldives	3.4	2.5	2.0	2.5	2.3	4.0	3.0	4.0	3.7
Mali	3.6	4.5	4.0	4.0	4.2	4.0	3.0	3.5	3.5
Mauritania	3.2	3.5	3.0	3.5	3.3	4.0	2.5	3.0	3.2
Moldova	3.7	3.5	3.5	4.0	3.7	4.5	3.5	3.5	3.8
Mongolia	3.4	3.5	3.0	3.5	3.3	4.5	2.5	3.5	3.5
Mozambique	3.7	4.5	4.5	4.5	4.5	4.5	3.5	3.0	3.7
Nepal	3.3	3.5	4.0	3.0	3.5	3.5	3.0	3.0	3.2
Nicaragua	3.7	4.0	4.0	4.5	4.2	4.5	3.0	3.5	3.7
Niger	3.4	4.0	3.5	4.0	3.8	4.0	3.0	3.0	3.3
Nigeria	3.4	4.0	4.0	4.5	4.2	3.5	3.5	3.5	3.5
Pakistan	3.1	2.5	2.5	3.5	2.8	3.5	3.5	3.5	3.5
Papua New Guinea	3.3	4.0	3.5	4.5	4.0	4.5	3.0	3.0	3.5
Rwanda	3.8	4.0	4.0	3.5	3.8	4.0	3.5	4.0	3.8
Samoa	4.1	4.0	4.0	5.0	4.3	5.0	4.0	3.5	4.2
São Tomé and Príncipe	3.0	3.0	3.0	2.5	2.8	4.0	2.5	2.5	3.0
Senegal	3.7	4.0	4.0	4.0	4.0	4.0	3.5	4.0	3.8
Sierra Leone	3.3	4.0	3.5	3.5	3.7	3.5	3.0	3.0	3.2
Solomon Islands	2.8	3.5	2.5	3.0	3.0	3.0	3.0	2.5	2.8
Sri Lanka	3.5	3.0	3.0	3.5	3.2	3.5	4.0	4.0	3.8
St. Lucia	3.8	4.0	3.5	3.5	3.7	4.0	3.5	4.5	4.0
St. Vincent & Grenadines	3.8	4.0	3.5	3.5	3.7	4.0	3.5	4.5	4.0
Sudan	2.4	3.5	3.0	1.5	2.7	2.5	2.5	2.5	2.5
Tajikistan	3.3	4.0	3.5	3.5	3.7	4.0	2.5	3.0	3.2
Tanzania	3.8	4.5	4.0	4.0	4.2	4.0	4.0	3.5	3.8
Timor-Leste	3.0	3.0	3.5	4.0	3.5	4.5	2.5	1.5	2.8
Togo	2.9	3.0	3.0	3.0	3.0	4.0	2.5	3.0	3.2
Tonga	3.5	3.0	3.0	2.5	2.8	5.0	3.5	3.0	3.8
Uganda	3.8	4.5	4.0	4.5	4.3	4.0	3.5	4.0	3.8
Uzbekistan	3.4	4.0	4.0	4.0	4.0	2.5	3.0	3.0	2.8
Vanuatu	3.4	4.0	3.5	4.5	4.0	3.0	3.0	3.5	3.2
Vietnam	3.8	4.0	4.5	4.0	4.2	3.5	3.0	3.5	3.3
Yemen, Rep.	3.2	3.5	3.0	3.0	3.2	4.5	2.5	3.5	3.5
Zambia	3.4	4.0	3.0	3.5	3.5	4.0	3.5	3.5	3.7
Zimbabwe	2.0	2.0	2.0	1.0	1.7	3.0	2.0	2.0	2.3

overall score, which is obtained by averaging the average scores of the four clusters. For each of the 16 criteria countries are rated on a scale of 1 (low) to 6 (high). The scores depend on the level of performance in a given year assessed against the criteria, rather than on changes in performance compared with the previous year. All 16 CPIA criteria contain a detailed description of each rating level. In assessing country performance, World Bank staff evaluate the country's performance on each of the criteria and assign a rating. The ratings reflect a variety of indicators, observations, and judgments based on country knowledge and on relevant publicly available indicators. In interpreting the assessment scores, it

should be noted that the criteria are designed in a developmentally neutral manner. Accordingly, higher scores can be attained by a country that, given its stage of development, has a policy and institutional framework that more strongly fosters growth and poverty reduction.

The country teams that prepare the ratings are very familiar with the country, and their assessments are based on country diagnostic studies prepared by the World Bank or other development organizations and on their own professional judgment. An early consultation is conducted with country authorities to make sure that the assessments are informed by up-to-date information. To ensure that scores are

consistent across countries, the process involves two key phases. In the benchmarking phase a small representative sample of countries drawn from all regions is rated. Country teams prepare proposals that are reviewed first at the regional level and then in a Bankwide review process. A similar process is followed to assess the performance of the remaining countries, using the benchmark countries' scores as guideposts. The final ratings are determined following a Bankwide review. The overall numerical IRAI score and the separate criteria scores were first publicly disclosed in June 2006.

See IDA's website at [www.worldbank.org/ida](http://www.worldbank.org/ida) for more information.



	Policies for social inclusion and equity 1–6 (low to high)						Public sector management and institutions 1–6 (low to high)					
	Gender equality 2010	Equity of public resource use 2010	Building human resources 2010	Social protection and labor 2010	Policies and institutions for environmental sustainability 2010	Average 2010	Property rights and rule-based governance 2010	Quality of budgetary and financial management 2010	Efficiency of revenue mobilization 2010	Quality of public administration 2010	Transparency, accountability, and corruption in the public sector 2010	Average 2010
Afghanistan	2.0	3.0	3.0	2.5	2.5	2.6	1.5	3.5	3.0	2.0	2.0	2.4
Angola	3.5	2.5	2.5	2.5	3.0	2.8	2.0	2.5	2.5	2.5	2.5	2.4
Armenia	4.5	4.5	4.0	4.5	3.0	4.1	3.5	4.5	3.5	4.0	3.0	3.7
Azerbaijan	4.0	4.0	4.0	4.0	3.0	3.8	3.0	3.5	3.5	3.0	2.5	3.1
Bangladesh	4.0	3.5	4.0	3.5	3.0	3.6	3.0	3.0	3.0	3.0	3.0	3.0
Benin	3.5	3.5	3.5	3.0	3.5	3.4	3.0	3.5	3.5	3.0	3.5	3.3
Bhutan	4.0	4.0	4.5	3.5	4.5	4.1	3.5	3.5	4.0	4.0	4.5	3.9
Bolivia	4.0	4.0	4.0	3.5	3.5	3.8	2.5	3.5	4.0	3.0	3.5	3.3
Bosnia and Herzegovina	4.5	3.5	3.5	3.5	3.5	3.7	3.0	3.5	4.0	3.0	3.0	3.3
Burkina Faso	3.5	4.0	3.5	3.5	3.5	3.6	3.5	4.5	3.5	3.5	3.5	3.7
Burundi	4.0	3.5	3.5	3.0	3.0	3.4	2.5	3.0	3.0	2.5	2.0	2.6
Cambodia	4.0	3.5	3.5	3.0	3.0	3.4	2.5	3.5	3.0	2.5	2.0	2.7
Cameroon	3.0	3.0	3.5	3.0	3.0	3.1	2.5	3.0	3.5	3.0	2.5	2.9
Cape Verde	4.5	4.5	4.5	4.5	3.5	4.3	4.0	4.0	3.5	4.0	4.5	4.0
Central African Republic	2.5	2.5	2.5	2.0	3.0	2.5	2.0	3.0	2.5	2.5	2.5	2.5
Chad	2.5	2.0	2.5	2.5	2.0	2.3	2.0	2.0	2.5	2.5	2.0	2.2
Comoros	3.0	2.5	3.0	2.5	2.0	2.6	2.5	2.0	2.5	2.5	2.5	2.4
Congo, Dem. Rep.	2.5	3.0	3.5	2.5	2.5	2.8	2.0	2.5	2.5	2.0	2.0	2.2
Congo, Rep.	3.0	2.5	3.5	2.5	2.5	2.8	2.5	2.5	3.0	2.5	2.5	2.6
Côte d'Ivoire	2.5	2.0	2.5	2.5	2.5	2.4	2.0	2.5	3.5	2.0	2.0	2.4
Djibouti	3.0	3.0	3.5	3.5	3.5	3.3	2.5	3.0	3.5	2.5	2.5	2.8
Dominica	3.0	3.5	4.0	3.5	3.5	3.5	4.0	4.0	4.0	3.5	4.0	3.9
Eritrea	3.5	2.5	3.5	2.5	2.0	2.8	2.5	2.5	3.5	3.0	2.0	2.7
Ethiopia	3.0	4.5	4.0	3.5	3.0	3.6	3.0	3.5	3.5	3.5	2.5	3.2
Gambia, The	3.5	4.0	3.5	2.5	3.5	3.4	3.0	3.5	3.5	3.0	2.0	3.0
Georgia	4.5	4.5	4.5	4.5	3.0	4.2	3.5	4.0	4.5	4.0	3.5	3.9
Ghana	4.0	4.0	4.5	4.0	3.5	4.0	3.5	3.5	4.0	3.5	4.0	3.7
Grenada	4.5	3.5	4.0	3.5	4.0	3.9	3.5	4.0	3.5	3.5	4.0	3.7
Guinea	3.5	3.0	3.0	3.0	2.5	3.0	2.0	3.0	3.0	3.0	2.0	2.6
Guinea-Bissau	2.5	3.0	2.5	2.5	3.0	2.7	2.5	2.5	3.0	2.5	2.5	2.6
Guyana	3.5	3.5	4.0	3.0	3.0	3.4	3.0	3.5	3.5	2.5	2.5	3.0
Haiti	3.0	3.0	2.5	2.5	2.5	2.7	2.0	3.0	2.5	2.5	2.5	2.5
Honduras	4.0	4.0	4.0	3.0	3.5	3.7	3.0	3.5	4.0	3.0	3.0	3.3
India	3.5	4.0	4.0	3.5	3.5	3.7	3.5	3.5	4.0	3.5	3.5	3.6
Kenya	3.5	4.0	4.0	3.5	3.5	3.7	2.5	3.5	4.0	3.5	3.0	3.3
Kiribati	2.5	4.0	2.5	3.0	3.0	3.0	3.5	3.0	3.0	3.0	3.0	3.1
Kosovo	3.5	3.5	2.5	3.5	3.0	3.2	3.0	4.0	3.5	2.5	3.0	3.2
Kyrgyz Republic	4.5	3.5	3.5	3.5	3.0	3.6	2.5	3.5	3.5	3.0	2.5	3.0

### Definitions

• **International Development Association Resource Allocation Index** is obtained by calculating the average score for each cluster and then by averaging those scores. For each of 16 criteria countries are rated on a scale of 1 (low) to 6 (high) • **Economic management** cluster: **Macroeconomic management** assesses the monetary, exchange rate, and aggregate demand policy framework. • **Fiscal policy** assesses the short- and medium-term sustainability of fiscal policy (taking into account monetary and exchange rate policy and the sustainability of the public debt) and its impact on growth. • **Debt policy** assesses whether the debt management strategy is conducive to minimizing budgetary risks and ensuring

long-term debt sustainability. • **Structural policies** cluster: **Trade** assesses how the policy framework fosters trade in goods. • **Financial sector** assesses the structure of the financial sector and the policies and regulations that affect it. • **Business regulatory environment** assesses the extent to which the legal, regulatory, and policy environments help or hinder private businesses in investing, creating jobs, and becoming more productive. • **Policies for social inclusion and equity** cluster: **Gender equality** assesses the extent to which the country has installed institutions and programs to enforce laws and policies that promote equal access for men and women in education, health, the economy, and

protection under law. • **Equity of public resource use** assesses the extent to which the pattern of public expenditures and revenue collection affects the poor and is consistent with national poverty reduction priorities. • **Building human resources** assesses the national policies and public and private sector service delivery that affect the access to and quality of health and education services, including prevention and treatment of HIV/AIDS, tuberculosis, and malaria. • **Social protection and labor** assess government policies in social protection and labor market regulations that reduce the risk of becoming poor, assist those who are poor to better manage further risks, and ensure a minimal level of welfare

	Policies for social inclusion and equity 1–6 (low to high)						Public sector management and institutions 1–6 (low to high)					
	Gender equality 2010	Equity of public resource use 2010	Building human resources 2010	Social protection and labor 2010	Policies and institutions for environmental sustainability 2010	Average 2010	Property rights and rule-based governance 2010	Quality of budgetary and financial manage- ment 2010	Efficiency of revenue mobilization 2010	Quality of public administration 2010	Transparency, accountability, and corruption in the public sector 2010	Average 2010
Lao PDR	3.5	4.0	3.5	2.5	4.0	3.5	3.0	3.5	3.5	3.0	2.5	3.1
Lesotho	4.0	3.0	3.5	3.0	3.0	3.3	3.5	3.5	4.0	3.0	3.5	3.5
Liberia	2.5	3.5	2.5	2.5	2.5	2.7	2.5	2.5	3.5	2.5	3.0	2.8
Madagascar	3.5	4.0	3.5	3.5	3.5	3.6	3.0	2.5	3.5	3.5	2.5	3.0
Malawi	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.0	4.0	3.5	3.0	3.4
Maldives	4.0	4.0	4.0	3.5	4.0	3.9	3.5	3.0	4.5	3.5	3.0	3.5
Mali	3.5	4.0	3.5	3.5	3.0	3.5	3.5	3.5	3.5	3.0	3.5	3.4
Mauritania	4.0	3.5	3.0	2.5	3.0	3.2	3.0	3.0	3.5	3.0	2.5	3.0
Moldova	5.0	3.5	4.0	3.5	4.0	4.0	3.5	4.0	3.5	3.0	3.0	3.4
Mongolia	3.5	3.5	3.5	3.5	3.0	3.4	3.0	4.0	3.5	3.5	3.0	3.4
Mozambique	3.5	3.5	3.5	3.0	3.5	3.4	3.0	4.0	4.0	3.0	3.0	3.4
Nepal	4.0	4.0	4.0	3.0	3.5	3.7	2.5	2.5	3.5	3.0	2.5	2.8
Nicaragua	3.5	4.0	3.5	3.5	3.5	3.6	2.5	4.0	4.0	3.0	2.5	3.2
Niger	2.5	3.5	3.5	3.0	3.5	3.2	3.0	3.5	3.5	3.0	3.0	3.2
Nigeria	3.0	3.5	3.0	3.5	3.0	3.2	2.5	3.0	3.0	3.0	3.0	2.9
Pakistan	2.0	3.5	3.0	3.5	2.5	2.9	3.0	3.5	3.0	3.5	2.5	3.1
Papua New Guinea	2.5	4.0	2.5	3.0	2.0	2.8	2.0	3.0	3.5	3.0	3.0	2.9
Rwanda	4.0	4.5	4.5	3.5	3.5	4.0	3.5	4.0	3.5	4.0	3.5	3.7
Samoa	3.5	4.5	4.0	3.5	4.0	3.9	4.0	3.5	4.5	4.0	4.0	4.0
São Tomé and Príncipe	3.0	3.0	3.5	2.5	3.0	3.0	2.5	3.0	3.5	3.0	3.5	3.1
Senegal	3.5	3.5	3.5	3.0	3.5	3.4	3.5	3.5	4.0	3.5	3.0	3.5
Sierra Leone	3.0	3.5	3.5	3.5	2.5	3.2	2.5	3.5	3.0	3.0	3.0	3.0
Solomon Islands	3.0	2.5	3.0	2.5	2.0	2.6	3.0	2.5	3.0	2.0	3.0	2.7
Sri Lanka	4.0	3.5	4.5	3.5	3.0	3.7	3.5	4.0	3.5	3.0	3.0	3.4
St. Lucia	3.5	4.0	4.0	3.5	3.5	3.7	4.0	3.5	4.5	3.5	4.5	4.0
St. Vincent & Grenadines	4.0	3.5	4.0	3.5	3.5	3.7	4.0	3.5	4.0	3.5	4.0	3.8
Sudan	2.5	2.5	2.5	2.5	2.0	2.4	2.0	2.0	3.0	2.5	1.5	2.2
Tajikistan	4.0	3.5	3.0	3.5	3.0	3.4	2.5	3.5	3.0	3.0	2.0	2.8
Tanzania	3.5	4.0	3.5	4.0	3.5	3.7	3.5	3.5	4.0	3.0	2.5	3.3
Timor-Leste	3.5	3.0	3.0	2.5	2.5	2.9	2.0	3.0	3.0	2.5	3.0	2.7
Togo	3.0	2.5	3.0	3.0	2.5	2.8	2.5	3.0	3.0	2.0	2.5	2.6
Tonga	3.0	4.0	4.0	3.0	3.0	3.4	4.0	3.5	4.5	3.5	3.5	3.8
Uganda	3.5	4.0	3.5	3.5	4.0	3.7	3.5	3.5	3.5	3.0	2.5	3.2
Uzbekistan	4.0	4.0	4.0	3.5	3.5	3.8	2.5	3.5	3.5	3.0	1.5	2.8
Vanuatu	3.5	3.5	2.5	2.5	3.0	3.0	3.5	4.0	3.5	3.0	3.0	3.4
Vietnam	4.5	4.5	4.0	3.5	3.5	4.0	3.5	4.0	4.0	3.5	3.0	3.6
Yemen, Rep.	2.0	3.5	3.0	3.5	3.5	3.1	2.5	3.5	3.0	3.0	2.5	2.9
Zambia	3.5	3.5	4.0	3.0	3.5	3.5	3.0	3.5	3.5	3.0	2.5	3.1
Zimbabwe	2.5	2.0	1.5	1.0	2.0	1.8	1.5	2.0	3.5	2.0	1.5	2.1

to all people. • **Policies and institutions for environmental sustainability** assess the extent to which environmental policies foster the protection and sustainable use of natural resources and the management of pollution. • **Public sector management and institutions cluster:** **Property rights and rule-based governance** assess the extent to which private economic activity is facilitated by an effective legal system and rule-based governance structure in which property and contract rights are reliably respected and enforced. • **Quality of budgetary and financial management** assesses the extent to which there is a comprehensive and credible budget linked to policy priorities, effective financial management systems,

and timely and accurate accounting and fiscal reporting, including timely and audited public accounts.

• **Efficiency of revenue mobilization** assesses the overall pattern of revenue mobilization—not only the de facto tax structure, but also revenue from all sources as actually collected. • **Quality of public administration** assesses the extent to which civilian central government staff is structured to design and implement government policy and deliver services effectively. • **Transparency, accountability, and corruption in the public sector** assess the extent to which the executive can be held accountable for its use of funds and for the results of its actions by the electorate, the legislature, and the judiciary and the

extent to which public employees within the executive are required to account for administrative decisions, use of resources, and results obtained. The three main dimensions assessed are the accountability of the executive to oversight institutions and of public employees for their performance, access of civil society to information on public affairs, and state capture by narrow vested interests.

#### Data sources

Data on public policies and institutions are from the World Bank Group's CPIA database ([www.worldbank.org/ida](http://www.worldbank.org/ida)).



	Roads				Railways			Ports	Air		
	Total road network km	Paved roads %	Passengers carried million passenger-km	Goods hauled million ton-km	Rail lines total route-km	Passengers carried million passenger-km	Goods hauled million ton-km	Port container traffic thousand TEU	Registered carrier departures worldwide thousands	Passengers carried thousands	Air freight million ton-km
	2000-09 <sup>a</sup>	2000-09 <sup>a</sup>	2000-09 <sup>a</sup>	2000-09 <sup>a</sup>	2000-10 <sup>a</sup>	2000-10 <sup>a</sup>	2000-10 <sup>a</sup>	2010	2010	2010	2010
Afghanistan	42,150	29.3	232	6,575	..	..	..	..	..	..	..
Albania	18,000	39.0	197	2,200	423	32	46	87	10	920	0
Algeria	112,039	74.0	..	..	3,512	1,045	1,281	266	44	3,686	6
Angola	51,429	10.4	166,045	4,709	..	..	..	..	14	1,283	91
Argentina	231,374	30.0	..	..	25,023	6,979	12,025	2,018	100	10,030	178
Armenia	7,705	93.6	2,356	182	826	50	346	..	9	757	6
Australia	817,089	43.5	301,524	189,847	8,615	1,500	64,172	6,536	418	45,268	2,380
Austria	106,840	100.0	69,000	16	5,066	10,306	23,104	350	184	13,869	430
Azerbaijan	52,942	50.6	15,291	10,634	2,079	917	8,250	..	10	801	8
Bahrain	4,083	82.1	..	..	..	..	..	290	58	5,339	843
Bangladesh	239,226	9.5	..	..	2,835	7,305	710	1,356	12	2,177	85
Belarus	94,797	88.6	8,184	22,767	5,503	7,578	46,224	..	13	888	2
Belgium	153,872	78.2	131,470	36,174	3,578	10,493	5,439	10,985	143	7,263	1,274
Benin	19,000	9.5	..	..	758	..	36	278	..	..	..
Bolivia	80,294	7.9	..	..	2,866	313	1,060	..	36	1,916	14
Bosnia and Herzegovina	21,846	52.3	1,959	1,711	1,026	59	1,227	..	2	133	0
Botswana	25,798	32.6	..	..	888	94	674	..	8	290	0
Brazil	1,751,868	5.5	..	..	29,817	..	267,700	8,121	885	77,255	976
Bulgaria	40,231	98.4	13,839	17,742	4,098	2,100	3,061	143	31	2,243	2
Burkina Faso	92,495	4.2	..	..	622	..	..	..	4	254	0
Burundi	12,322	10.4	..	..	..	..	..	..	..	..	..
Cambodia	38,257	6.3	201	..	650	45	92	224	5	312	18
Cameroon	28,857	17.0	..	..	977	377	978	250	10	466	23
Canada	1,409,000	39.9	493,814	129,600	58,345	2,875	322,741	4,813	1,235	67,325	2,011
Central African Republic	24,307	..	..	..	..	..	..	..	..	..	..
Chad	40,000	0.8	..	..	..	..	..	..	..	..	..
Chile	78,425	22.5	..	..	5,352	840	4,032	3,172	109	10,234	1,400
China	3,860,823	53.5	1,351,144	3,718,882	66,239	791,158	2,451,185	129,611	2,391	267,691	17,441
Hong Kong SAR, China	2,050	100.0	..	..	..	..	..	23,699	151	25,383	7,970
Colombia	129,485	..	157	39,726	1,672	..	9,049	2,444	180	15,111	1,576
Congo, Dem. Rep.	153,497	1.8	..	..	3,641	37	193	..	..	..	..
Congo, Rep.	17,000	7.1	..	..	795	211	234	297	..	..	..
Costa Rica	39,039	26.0	27	1	..	..	..	1,013	49	1,747	20
Côte d'Ivoire	81,996	7.9	..	..	639	10	675	608	..	..	..
Croatia	29,343	90.5	3,438	9,429	2,722	1,742	2,618	137	26	1,641	2
Cuba	..	49.0	6,634	2,315	5,076	1,285	1,351	228	10	862	16
Cyprus	12,380	64.9	..	944	..	..	..	349	22	2,363	38
Czech Republic	130,573	100.0	88,352	44,955	9,569	6,553	13,592	..	94	7,103	23
Denmark	73,330	100.0	68,907	10,003	2,131	7,405	2,030	709	4 <sup>b</sup>	519 <sup>b</sup>	0 <sup>b</sup>
Dominican Republic	12,600	49.4	..	..	..	..	..	1,383	..	..	..
Ecuador	43,670	14.8	11,819	1,193	..	..	..	1,222	50	4,461	115
Egypt, Arab Rep.	100,472	89.4	12,793	..	5,195	40,837	3,840	6,709	113	9,637	188
El Salvador	10,029	19.8	..	..	..	..	..	146	20	2,150	17
Eritrea	4,010	21.8	..	..	..	..	..	..	..	..	..
Estonia	58,382	28.6	2,453	5,249	787	248	6,261	152	11	809	1
Ethiopia	44,359	13.7	219,113	2,456	..	..	..	..	48	3,141	672
Finland	78,925	65.5	72,700	25,200	5,919	3,959	9,760	1,247	183	11,578	736
France	951,260	100.0	773,000	265,000	33,608	86,853	22,840	5,323	751	65,401	5,081
Gabon	9,170	12.0	..	..	810	111	2,238	136	1	96	2
Gambia, The	3,742	19.3	16	..	..	..	..	..	..	..	..
Georgia	20,329	94.1	5,724	611	1,566	655	6,228	226	6	328	15
Germany	643,969	100.0	949,306	427,300	33,708	78,582	105,794	14,625	1,086	112,399	9,245
Ghana	109,515	12.6	..	..	953	85	181	514	..	..	..
Greece	116,929	91.8	..	28,585	2,552	1,413	538	1,165	148	15,588	37
Guatemala	14,095	34.5	..	..	..	..	..	1,012	..	..	..
Guinea	44,348	9.8	..	..	..	..	..	..	..	..	..
Guinea-Bissau	3,455	27.9	..	..	..	..	..	..	..	..	..
Haiti	4,160	24.3	..	..	..	..	..	..	..	..	..

# Transport services

# 5.10

	Roads				Railways			Ports	Air		
	Total road network km	Paved roads %	Passengers carried million passenger-km	Goods hauled million ton-km	Rail lines total route-km	Passengers carried million passenger-km	Goods hauled million ton-km	Port container traffic thousand TEU	Registered carrier departures worldwide thousands	Passengers carried thousands	Air freight million ton-km
	2000-09 <sup>a</sup>	2000-09 <sup>a</sup>	2000-09 <sup>a</sup>	2000-09 <sup>a</sup>	2000-10 <sup>a</sup>	2000-10 <sup>a</sup>	2000-10 <sup>a</sup>	2010	2010	2010	2010
Honduras	13,600	20.4	..	..	..	..	..	620	..	..	..
Hungary	197,519	38.0	20,449	35,373	7,893	5,398	1,000	..	118	11,829	8
India	4,109,592	49.5	..	..	63,974	903,465	600,548	9,753	630	64,144	1,720
Indonesia	476,337	56.9	..	..	3,370	14,344	4,390	8,371	405	35,321	660
Iran, Islamic Rep.	192,685	73.3	..	..	6,073	16,814	20,247	2,593	152	17,585	131
Iraq	40,988	84.3	..	..	2,025	54	121	..	..	..	..
Ireland	96,424	100.0	..	12,787	1,919	1,678	92	773	683	76,488	350
Israel	18,318	100.0	..	..	1,034	1,986	1,062	2,282	54	6,141	865
Italy	487,700	100.0	97,560	192,700	18,011	44,535	12,037	9,787	364	48,748	1,164
Jamaica	22,121	73.3	..	..	..	..	..	1,892	8	974	6
Japan	1,207,867	80.1	905,907	334,667	20,035	244,235	20,432	18,060	650	94,212	8,380
Jordan	7,878	100.0	..	..	294	..	353	619	39	2,972	219
Kazakhstan	96,846	88.5	110,475	66,254	14,202	15,448	213,174	..	27	2,426	48
Kenya	61,945	14.3	..	22	1,917	226	1,399	696	36	3,284	258
Korea, Dem. Rep.	25,554	2.8	..	..	..	..	..	..	1	84	7
Korea, Rep.	104,983	79.3	100,617	12,545	3,379	33,027	9,452	18,538	483	42,763	12,802
Kosovo	..	..	..	..	..	..	..	..	..	..	..
Kuwait	6,524	85.0	..	..	..	..	..	888	22	2,741	274
Kyrgyz Republic	34,000	91.1	6,745	912	417	99	738	..	5	270	1
Lao PDR	39,568	13.7	2,113	287	..	..	..	..	11	645	0
Latvia	69,148	20.9	14,625	8,115	1,897	79	17,164	257	66	4,466	23
Lebanon	6,970	..	..	..	..	..	..	949	17	1,600	43
Lesotho	5,940	18.3	..	..	..	..	..	..	..	..	..
Liberia	10,600	6.2	..	..	..	..	..	..	..	..	..
Libya	83,200	57.2	..	..	..	..	..	162	25	2,345	17
Lithuania	81,331	29.4	20,376	17,757	1,767	373	13,431	295	5	167	120
Macedonia, FYR	13,940	57.6	1,239	3,978	699	155	497	..	2	137	0
Madagascar	49,827	11.6	..	..	854	10	12	141	12	417	22
Malawi	15,451	45.0	..	..	797	44	33	..	3	172	4
Malaysia	98,722	81.3	..	..	1,665	1,527	1,384	18,247	240	26,255	2,451
Mali	22,474	24.6	..	..	733	196	189	..	..	..	..
Mauritania	11,066	26.8	..	..	728	47	7,566	66	1	154	0
Mauritius	2,066	98.0	..	..	..	..	..	445	12	1,268	179
Mexico	366,807	35.3	436,900	211,600	26,704	178	71,136	3,694	186	13,608	1,380
Moldova	12,779	85.8	2,268	2,714	1,157	399	927	..	6	455	1
Mongolia	49,250	3.5	1,215	782	1,814	1,220	10,287	..	8	417	3
Morocco	58,216	70.3	..	800	2,109	4,398	5,572	2,058	92	8,971	11
Mozambique	30,331	20.8	..	..	3,116	114	695	223	14	553	8
Myanmar	27,000	11.9	..	..	..	4,163	885	167	8	396	2
Namibia	42,100	14.7	47	591	..	..	..	256	9	488	0
Nepal	19,875	53.9	..	..	..	..	..	..	2	288	4
Netherlands	136,827	90.0	..	72,675	3,016	15,400	4,331	11,331	243	27,554	5,028
New Zealand	94,301	66.2	..	..	..	..	4,078	2,427	186	10,128	668
Nicaragua	21,975	11.6	133	..	..	..	..	68	..	..	..
Niger	18,948	20.7	..	..	..	..	..	..	..	..	..
Nigeria	193,200	15.0	..	..	3,528	174	77	90	17	1,555	1
Norway	93,853	80.7	64,014	16,109	4,114	2,674	2,092	331	3 <sup>b</sup>	399 <sup>b</sup>	0 <sup>b</sup>
Oman	56,361	46.0	..	..	..	..	..	3,893	35	4,068	27
Pakistan	258,350	65.4	263,788	129,249	7,791	24,731	6,187	2,149	50	6,012	310
Panama	13,974	42.0	..	..	..	..	..	5,906	81	7,366	2
Papua New Guinea	19,600	3.5	..	..	..	..	..	269	20	1,158	26
Paraguay	31,531	50.8	..	..	..	..	..	7	6	606	0
Peru	126,500	13.9	..	..	2,020	76	900	1,534	68	6,130	248
Philippines	200,037	9.9	..	..	479	83	1	4,947	169	18,933	472
Poland	384,104	69.9	24,386	191,484	19,702	15,715	34,266	1,045	91	5,466	91
Portugal	82,900	86.0	..	35,808	2,843	3,718	1,932	1,610	171	11,124	375
Puerto Rico	26,677	95.0	..	10	..	..	..	1,526	..	..	..
Qatar	7,790	90.0	..	..	..	..	..	346	91	12,391	2,946



	Roads				Railways			Ports	Air		
	Total road network km	Paved roads %	Passengers carried million passenger-km	Goods hauled million ton-km	Rail lines total route-km	Passengers carried million passenger-km	Goods hauled million ton-km	Port container traffic thousand TEU	Registered carrier departures worldwide thousands	Passengers carried thousands	Air freight million ton-km
	2000-09 <sup>a</sup>	2000-09 <sup>a</sup>	2000-09 <sup>a</sup>	2000-09 <sup>a</sup>	2000-10 <sup>a</sup>	2000-10 <sup>a</sup>	2000-10 <sup>a</sup>	2010	2010	2010	2010
Romania	198,817	30.2	12,805	20,878	13,620	5,248	9,134	557	66	3,996	5
Russian Federation	982,000	80.1	139,034	180,135	85,292	139,028	2,011,308	3,130	673	56,848	4,614
Rwanda	14,008	19.0	..	..	..	..	..	..	..	..	..
Saudi Arabia	221,372	21.5	..	..	1,020	337	1,748	5,313	163	18,998	1,336
Senegal	14,825	32.0	..	..	906	129	384	349	0	573	0
Serbia	44,334	63.2	4,169	1,184	4,058	658	3,868	..	18	1,059	2
Sierra Leone	11,300	8.0	..	..	..	..	..	..	0	24	9
Singapore	3,356	100.0	5,762	..	..	..	..	29,179	81	25,319	4,004
Slovak Republic	43,879	87.1	31,093	27,484	3,587	2,291	7,669	..	14	991	0
Slovenia	38,927	100.0	777	14,762	1,228	813	3,283	477	25	1,170	2
Somalia	22,100	11.8	..	..	..	..	..	..	..	..	..
South Africa	362,099	17.3	..	434	22,051	18,865	113,342	3,806	210	16,779	1,107
South Sudan	..	..	..	..	..	..	..	..	..	..	..
Spain	667,064	99.0	410,192	211,891	15,317	22,304	7,844	12,608	606	58,563	1,684
Sri Lanka	97,286	81.0	21,067	..	1,463	4,767	135	4,080	17	2,800	329
Sudan	11,900	36.3	..	..	4,508	34	766	439	6	602	13
Swaziland	3,594	30.0	..	..	300	0	776	..	..	..	..
Sweden	582,950	24.4	109,100	35,000	9,957	6,774	11,500	1,391	3 <sup>b</sup>	363 <sup>b</sup>	0 <sup>b</sup>
Switzerland	71,371	100.0	95,090	16,734	3,543	17,609	8,725	99	220	21,477	1,275
Syrian Arab Republic	68,157	90.3	589	..	2,139	1,120	2,370	649	11	1,018	3
Tajikistan	27,767	..	8,591	5,013	621	33	808	..	5	951	5
Tanzania	103,706	6.7	8	7	2,600 <sup>c</sup>	475 <sup>c</sup>	728 <sup>c</sup>	427	21	749	2
Thailand	180,053	98.5	..	..	4,429	8,037	3,161	6,649	122	20,303	3,133
Timor-Leste	..	..	..	..	..	..	..	..	..	..	..
Togo	11,652	21.0	..	..	..	..	..	..	..	..	..
Trinidad and Tobago	8,320	51.1	..	..	..	..	..	573	25	1,721	13
Tunisia	19,371	75.2	..	16,611	1,119	1,493	2,073	466	44	5,464	21
Turkey	362,660	88.7	212,464	176,455	9,594	5,491	11,030	5,547	400	51,590	1,101
Turkmenistan	24,000	81.2	..	..	3,115	1,811	11,992	..	3	399	6
Uganda	70,746	23.0	..	..	259	..	218	..	0	70	32
Ukraine	169,495	97.8	54,631	33,193	21,705	50,240	218,091	660	84	5,679	598
United Arab Emirates	4,080	100.0	..	..	..	..	..	15,174	261	42,555	10,126
United Kingdom	419,665	100.0	736,000	143,453	31,471	55,019	12,512	7,389	1,173	123,972	8,555
United States	6,545,839	67.4	7,874,329	1,889,923	228,513	9,518	2,468,738 <sup>d</sup>	42,190	8,934 <sup>e</sup>	707,426 <sup>e</sup>	50,743 <sup>e</sup>
Uruguay	77,732	10.0	2,588	..	2,993	15	284	672	19	744	0
Uzbekistan	81,600	87.3	56,674	21,038	4,227	2,905	22,282	..	24	2,167	166
Venezuela, RB	96,155	33.6	..	..	336	..	81	1,216	125	5,881	5
Vietnam	160,089	47.6	59,735	30,261	2,347	4,378	3,901	5,984	103	14,099	428
West Bank and Gaza	5,588	91.7	..	..	..	..	..	..	..	..	..
Yemen, Rep.	71,300	8.7	..	..	..	..	..	370	11	1,134	28
Zambia	66,781	22.0	..	..	1,273	183	..	..	4	62	..
Zimbabwe	97,267	19.0	..	..	2,583	..	1,580	..	5	302	12
<b>World</b>	<b>64.9 m</b>	<b>.. m</b>	<b>.. m</b>	<b>.. m</b>	<b>.. s</b>	<b>2,134 m</b>	<b>4,532 m</b>	<b>538,284 s</b>	<b>28,078 s</b>	<b>2,595,449 s</b>	<b>189,325 s</b>
<b>Low income</b>	20.7	..	..	..	..	..	..	..	182	13,444	1,142
<b>Middle income</b>	53.5	..	..	..	..	1,220	4,802	260,211	8,539	834,810	41,820
Lower middle income	48.6	..	..	..	..	1,120	3,910	51,323	1,973	185,587	5,190
Upper middle income	57.6	..	..	..	..	1,269	4,032	208,887	6,566	649,224	36,630
<b>Low &amp; middle income</b>	44.8	..	..	..	..	..	3,127	263,722	8,721	848,254	42,962
East Asia & Pacific	30.7	..	..	..	..	4,248	3,384	174,467	3,572	388,023	24,716
Europe & Central Asia	85.8	14,625	9,375	177,892	658	8,250	10,901	1,464	136,681	6,725	..
Latin America & Carib.	22.5	..	..	..	..	..	..	36,495	1,974	160,869	5,967
Middle East & N. Africa	75.2	..	..	..	..	1,493	2,222	15,441	547	54,412	668
South Asia	53.9	..	..	..	..	24,731	6,187	17,396	719	75,735	2,453
Sub-Saharan Africa	18.8	..	..	..	..	..	..	..	445	32,534	2,432
<b>High income</b>	81.1	..	28,585	..	7,090	8,285	274,561	19,357	1,747,195	146,364	..
Euro area	87.3	69,000	28,035	131,414	10,306	7,669	73,233	4,711	457,356	30,754	..

a. Data are for the most recent year available in the period shown. b. Covers international nonscheduled carriers only. Total for scheduled international and domestic carriers for Scandinavian countries are 621,715 registered carrier departures worldwide, 48,916,632 passengers carried, and 583,140,000 ton-kilometers of air freight. c. Includes Tazara railway. d. Refers to class 1 railways only. e. Covers only carriers designated by the U.S. Department of Transportation as major and national air carriers.

## About the data

Transport infrastructure—highways, railways, ports and waterways, and airports and air traffic control systems—and the services that flow from it are crucial to the activities of households, producers, and governments. Because performance indicators vary widely by transport mode and focus (whether physical infrastructure or the services flowing from that infrastructure), highly specialized and carefully specified indicators are required. The table provides selected indicators of the size, extent, and productivity of roads, railways, and air transport systems and of the volume of traffic in these modes as well as in ports. Indicators on traffic and congestion are presented in table 3.15, and indicators on logistics performance are presented in table 6.8.

Data for transport sectors are not always internationally comparable. Unlike for demographic statistics, national income accounts, and international trade data, the collection of infrastructure data has not been “internationalized.” But data on roads are collected by the International Road Federation (IRF), and data on air transport by the International Civil Aviation Organization (ICAO).

National road associations are the primary source of IRF data. In countries where a national road association is lacking or does not respond, other agencies are contacted, such as road directorates, ministries of transport or public works, or central statistical offices. As a result, definitions and data collection methods and quality differ, and the compiled data are of uneven quality. Moreover, the quality of transport service (reliability, transit time, and condition of goods delivered) is rarely measured, though it may be as important as quantity in assessing an economy’s transport system.

Unlike the road sector, where numerous qualified motor vehicle operators can operate anywhere on the road network, railways are a restricted transport system with vehicles confined to a fixed guideway. Considering the cost and service characteristics, railways generally are best suited to carry—and can effectively compete for—bulk commodities and containerized freight for distances of 500–5,000 kilometers, and passengers for distances of 50–1,000 kilometers. Below these limits road transport tends to be more competitive, while above these limits air transport for passengers and freight and sea transport for freight tend to be more competitive. The railways indicators in the table focus on scale and output measures: total route-kilometers, passenger-kilometers, and goods (freight) hauled in ton-kilometers.

Measures of port container traffic, much of it commodities of medium to high value added, give some indication of economic growth in a country. But when traffic is merely transshipment, much of the economic benefit goes to the terminal operator and ancillary services for ships and containers rather than to the country more broadly. In transshipment centers empty containers may account for as much as 40 percent of traffic.

The air transport data represent the total (international and domestic) scheduled traffic carried by the air carriers registered in a country. Countries submit air transport data to ICAO on the basis of standard instructions and definitions issued by ICAO. In many cases, however, the data include estimates by ICAO for nonreporting carriers. Where possible, these estimates are based on previous submissions supplemented by information published by the air carriers, such as flight schedules.

The data cover the air traffic carried on scheduled services, but changes in air transport regulations in Europe have made it more difficult to classify traffic as scheduled or nonscheduled. Thus recent increases shown for some European countries may be due to changes in the classification of air traffic rather than actual growth. For countries with few air carriers or only one, the addition or discontinuation of a home-based air carrier may cause significant changes in air traffic.

## Definitions

- **Total road network** covers motorways, highways, main or national roads, secondary or regional roads, and all other roads in a country.
- **Paved roads** are roads surfaced with crushed stone (macadam) and hydrocarbon binder or bituminized agents, with concrete, or with cobblestones.
- **Passengers carried by road** are the number of passengers transported by road times kilometers traveled.
- **Goods hauled by road** are the volume of goods transported by road vehicles, measured in millions of metric tons times kilometers traveled.
- **Rail lines** are the length of railway route available for train service, irrespective of the number of parallel tracks.
- **Passengers carried by railway** are the number of passengers transported by rail times kilometers traveled.
- **Goods hauled by railway** are the volume of goods transported by railway, measured in metric tons times kilometers traveled.
- **Port container traffic** measures the flow of containers from land to sea transport modes and vice versa in twenty-foot-equivalent units (TEUs), a standard-size container. Data cover coastal shipping as well as international journeys. Transshipment traffic is counted as two lifts at the intermediate port (once to off-load and again as an outbound lift) and includes empty units.
- **Registered carrier departures worldwide** are domestic takeoffs and takeoffs abroad of air carriers registered in the country.
- **Passengers carried by air** include both domestic and international passengers of air carriers registered in the country.
- **Air freight** is the volume of freight, express, and diplomatic bags carried on each flight stage (operation of an aircraft from takeoff to its next landing), measured in metric tons times kilometers traveled.

## Data sources

Data on roads are from the IRF’s *World Road Statistics*, supplemented by World Bank staff estimates. Data on railways are from a database maintained by the World Bank’s Transport, Water, and Information and Communication Technologies Department, Transport Division, based on data from the International Union of Railways. Data on port container traffic are from Containerisation International’s *Containerisation International Yearbook* and the United Nations Conference on Trade and Development’s UNCTADstat database (<http://unctadstat.unctad.org>). Data on air transport are from the ICAO’s *Civil Aviation Statistics of the World* and ICAO staff estimates.





	Electric power		Telephones <sup>a</sup>								
	Consumption per capita kWh	Transmission and distribution losses % of output	Access and use				Quality	Affordability and efficiency			
			Subscriptions per 100 people		International voice traffic minutes per person		Population covered by mobile cellular network %	\$ per month		Telecommunications revenue % of GDP	Mobile cellular and fixed-telephone subscriptions per employee
			Fixed telephone	Mobile cellular	Fixed telephone	Mobile cellular network		Residential fixed-telephone tariff	Mobile cellular prepaid tariff		
2009	2009	2010	2010	2010	2010	2010	2010	2010	2010	2010	
Afghanistan	..	..	0	38	..	..	75	..	..	..	..
Albania	1,747	21	10	142	46	201	98	6.4	25.8	4.7	1,151
Algeria	971	21	8	92	17	36	..	5.4	12.5	3.6	..
Angola	202	10	2	47	..	..	..	16.5	19.2	..	..
Argentina	2,759	15	25	142	44	..	..	3.8	30.7	3.2	..
Armenia	1,550	15	19	125	185	233	99	4.2	8.8	4.4	969
Australia	11,113	7	39	101	..	..	99	27.6	27.7	..	315
Austria	7,944	5	39	146	..	..	99	25.3	13.9	1.8	961
Azerbaijan	1,620	22	17	101	20	74	100	2.5	6.9	2.7	645
Bahrain	9,214	12	18	124	..	..	100	4.8	15.0	4.4	698
Bangladesh	252	2	1	46	..	..	..	1.3	2.0	..	..
Belarus	3,299	11	44	109	98	25	100	1.3	7.9	3.1	..
Belgium	7,903	5	43	112	..	..	100	31.4	40.2	2.6	907
Benin	91	..	2	80	12	52	90	9.0	13.0	5.4	3,146
Bolivia	558	11	9	72	84	..	..	23.7	11.3	7.3	..
Bosnia and Herzegovina	2,867	12	27	83	190	73	100	9.3	15.4	5.3	499
Botswana	1,503	79	7	118	113	..	99	18.7	13.2	3.5	4,031
Brazil	2,206	17	22	104	..	..	100	23.0	57.2	4.9	..
Bulgaria	4,401	11	30	135	70	84	100	12.5	30.6	3.2	543
Burkina Faso	..	..	1	35	..	..	..	10.9	21.2	..	2,306
Burundi	..	..	0	14	..	..	83	..	..	3.1	838
Cambodia	131	18	3	58	..	..	99	7.4	6.7	5.5	1,333
Cameroon	271	9	3	44	3	26	..	15.0	20.1	3.8	2,251
Canada	15,471	8	50	70	..	..	99	19.4	34.3	2.7	..
Central African Republic	..	..	0	22	0	12	55	10.1	12.9	2.9	..
Chad	..	..	0	24	..	..	..	16.7	15.4	..	..
Chile	3,283	11	20	116	30	9	100	25.0	23.7	..	646
China	2,631	5	22	64	9	..	99	4.7	6.0	2.0	1,254
Hong Kong SAR, China	5,925	13	62	195	1,463	504	100	8.5	1.4	3.5	1,066
Colombia	1,047	15	16	96	83	..	..	5.9	16.9	4.2	466
Congo, Dem. Rep.	104	5	0	18	0	7	50	..	..	4.9	5,538
Congo, Rep.	146	73	0	94	..	..	..	..	..	..	..
Costa Rica	1,813	11	32	65	141	77	70	6.9	3.4	2.1	498
Côte d'Ivoire	203	25	1	76	30	47	92	19.6	13.6	6.7	3,912
Croatia	3,712	16	42	144	248	66	100	17.0	17.1	4.6	945
Cuba	1,348	14	10	9	19	16	78	0.3	33.9	..	129
Cyprus	4,620	4	37	94	367	504	100	23.8	7.7	3.6	458
Czech Republic	6,114	5	23	137	90	80	100	26.8	28.1	3.4	778
Denmark	6,246	6	47	125	189	186	..	27.8	9.8	2.3	616
Dominican Republic	1,358	11	10	90	322	..	81	15.5	15.6	2.2	1,394
Ecuador	1,115	14	14	102	55	20	93	14.1	13.8	..	..
Egypt, Arab Rep.	1,549	11	12	87	11	22	100	2.9	7.0	3.2	1,217
El Salvador	845	12	16	124	..	..	..	10.2	9.5	3.5	2,748
Eritrea	51	12	1	4	6	18	90	..	..	3.2	149
Estonia	5,950	10	36	123	85	99	100	11.5	22.3	4.9	631
Ethiopia	46	10	1	8	6	4	..	1.0	4.1	1.5	604
Finland	15,242	4	23	156	..	..	100	16.8	13.1	2.7	708
France	7,488	6	54	97	288	74	99	26.6	48.6	2.3	789
Gabon	922	18	2	107	26	23	..	..	..	..	..
Gambia, The	..	..	3	86	..	..	..	2.4	6.3	..	..
Georgia	1,585	13	25	89	56	64	99	2.3	11.6	3.7	697
Germany	6,779	4	56	128	..	43	99	27.0	13.1	2.4	851
Ghana	265	23	1	71	10	60	77	7.3	7.4	3.7	3,764
Greece	5,540	5	46	109	185	114	100	23.8	38.5	3.0	804
Guatemala	548	14	10	126	..	..	..	5.6	7.8	..	..
Guinea	..	..	0	40	..	..	80	1.6	4.1	..	..
Guinea-Bissau	..	..	0	39	..	..	..	..	..	..	..
Haiti	36	51	1	40	..	..	..	..	..	..	..

# Power and communications

# 5.11

	Electric power		Telephones <sup>a</sup>								
	Consumption per capita kWh	Transmission and distribution losses % of output	Access and use				Quality	Affordability and efficiency			
			Subscriptions per 100 people		International voice traffic minutes per person		Population covered by mobile cellular network %	\$ per month		Telecommunications revenue % of GDP	Mobile cellular and fixed-telephone subscriptions per employee
			Fixed telephone	Mobile cellular	Fixed telephone	Mobile cellular network		Residential fixed-telephone tariff	Mobile cellular prepaid tariff		
2009	2009	2010	2010	2010	2010	2010	2010	2010	2010	2010	
Honduras	678	22	9	125	39	197	..	6.3	8.9	6.2	..
Hungary	3,773	10	30	120	..	..	99	21.2	25.7	3.8	1,127
India	571	24	3	61	..	..	83	3.3	3.4	2.3	..
Indonesia	590	10	16	92	..	..	..	5.0	7.8	..	..
Iran, Islamic Rep.	2,238	17	36	91	..	..	..	0.2	3.6	..	..
Iraq	1,069	40	5	75	0	..	..	..	..	..	1,466
Ireland	6,034	8	46	105	..	..	99	26.3	37.3	2.5	534
Israel	6,608	3	43	130	413	..	100	15.7	34.1	4.0	..
Italy	5,271	7	36	150	..	..	99	25.6	29.8	2.1	1,341
Jamaica	1,902	7	10	118	119	978	..	11.6	12.0	5.4	..
Japan	7,819	5	32	95	..	..	100	26.4	55.9	3.0	1,304
Jordan	2,112	14	8	109	23	217	99	9.5	10.5	5.9	1,499
Kazakhstan	4,448	8	25	119	23	54	95	2.4	14.4	2.2	463
Kenya	147	16	1	62	1	23	89	14.2	10.8	6.3	2,546
Korea, Dem. Rep.	733	16	5	2	..	..	..	..	..	..	..
Korea, Rep.	8,980	4	58	104	24	45	100	5.3	14.4	4.6	703
Kosovo	..	..	..	..	..	..	..	..	..	..	..
Kuwait	17,610	12	21	161	..	..	100	8.6	7.8	..	..
Kyrgyz Republic	1,386	30	9	97	40	19	96	1.2	3.6	7.9	442
Lao PDR	..	..	2	65	..	..	80	4.0	6.3	3.8	1,283
Latvia	2,875	13	24	103	..	..	..	10.1	10.1	3.6	661
Lebanon	3,130	13	21	68	..	..	95	10.3	27.3	..	..
Lesotho	..	..	2	45	..	26	..	13.0	24.1	3.1	6,933
Liberia	..	..	0	39	..	52	..	..	..	..	..
Libya	4,170	14	19	172	..	..	98	..	..	..	..
Lithuania	3,431	7	22	149	49	61	100	13.1	9.6	2.7	..
Macedonia, FYR	3,442	17	20	105	165	86	100	11.9	23.4	5.7	329
Madagascar	..	..	1	37	1	6	..	18.2	15.4	2.8	3,203
Malawi	..	..	1	20	5	1	85	4.3	21.2	3.6	..
Malaysia	3,614	4	16	119	85	..	95	5.1	7.5	..	..
Mali	..	..	1	48	2	21	..	8.5	14.4	6.1	4,091
Mauritania	..	..	2	79	4	..	62	18.0	14.6	6.9	2,842
Mauritius	..	..	30	93	105	148	99	5.1	6.8	2.4	..
Mexico	1,943	16	18	81	159	..	100	18.9	17.4	3.0	918
Moldova	1,018	40	33	89	126	133	..	1.9	12.6	8.5	461
Mongolia	1,411	12	7	91	4	48	85	0.7	3.6	5.6	372
Morocco	756	12	12	100	66	63	98	21.3	33.1	4.7	2,770
Mozambique	453	9	0	31	..	9	32	12.4	17.0	3.9	2,430
Myanmar	104	16	1	1	..	..	..	0.9	12.8	..	83
Namibia	1,576	15	7	67	..	..	..	15.1	17.0	..	..
Nepal	91	31	3	31	..	..	35	3.1	2.7	..	981
Netherlands	6,896	4	44	115	..	84	98	22.4	33.2	2.3	..
New Zealand	9,346	7	43	115	..	..	97	34.1	47.2	3.2	600
Nicaragua	460	24	4	65	39	..	100	4.5	13.2	..	..
Niger	..	..	1	25	..	..	..	11.7	20.8	..	..
Nigeria	121	6	1	55	1	30	90	14.0	13.7	3.4	..
Norway	23,550	8	34	116	..	..	..	32.7	20.5	1.3	..
Oman	5,724	13	10	166	24	406	98	13.1	9.1	3.5	1,275
Pakistan	449	20	2	57	5	33	92	3.3	2.5	2.4	1,888
Panama	1,735	13	16	185	53	77	91	12.0	8.5	3.3	712
Papua New Guinea	..	..	2	28	..	..	..	4.5	23.3	..	..
Paraguay	1,056	6	6	92	41	21	94	6.8	8.6	4.0	..
Peru	1,136	8	11	100	..	..	97	14.6	43.2	2.9	2,512
Philippines	593	12	7	86	..	..	99	15.3	10.1	..	4,504
Poland	3,591	8	20	123	..	..	99	20.2	15.8	3.0	945
Portugal	4,815	8	42	143	..	121	99	25.3	22.9	4.5	1,507
Puerto Rico	..	..	22	74	..	..	68	..	..	..	411
Qatar	14,421	7	17	132	..	..	100	9.1	18.4	1.6	927



# 5.11

## Power and communications

	Electric power			Telephones <sup>a</sup>								
	Consumption per capita kWh	Transmission and distribution losses % of output	Access and use				Quality	Affordability and efficiency				
			Subscriptions per 100 people		International voice traffic minutes per person		Population covered by mobile cellular network %	\$ per month			Mobile cellular and fixed-telephone subscriptions per employee	
			Fixed telephone	Mobile cellular	Fixed telephone	Mobile cellular network		Residential fixed-telephone tariff	Mobile cellular prepaid tariff	Telecommunications revenue % of GDP		
2009	2009	2010	2010	2010	2010	2010	2010	2010	2010	2010		
Romania	2,267	12	21	115	49	97	100	13.3	21.8	3.0	883	
Russian Federation	6,136	11	32	168	..	..	..	6.2	9.2	2.8	820	
Rwanda	..	..	0	33	0	15	96	13.2	13.9	3.0	3,892	
Saudi Arabia	7,427	8	15	188	..	..	99	9.2	14.1	3.8	2,381	
Senegal	196	17	3	67	12	101	90	10.3	12.7	9.9	3,710	
Serbia	4,224	16	43	136	125	59	97	5.4	11.6	5.1	865	
Sierra Leone	..	..	0	34	..	..	..	..	..	..	..	
Singapore	7,949	5	39	145	..	..	100	8.2	8.1	4.0	..	
Slovak Republic	4,925	3	20	109	170	109	100	20.4	38.2	3.0	688	
Slovenia	6,103	5	44	104	81	117	100	17.9	20.8	3.6	552	
Somalia	..	..	1	7	..	..	..	..	..	..	..	
South Africa	4,532	10	8	101	..	..	..	25.0	23.3	..	..	
South Sudan	..	..	..	..	..	..	..	..	..	..	..	
Spain	6,006	3	44	112	163	..	100	27.0	53.2	2.7	923	
Sri Lanka	408	15	17	83	..	..	98	4.9	1.9	..	1,524	
Sudan	114	28	1	41	6	..	66	3.9	3.4	3.2	2,168	
Swaziland	..	..	4	69	..	..	91	5.0	24.2	4.5	2,000	
Sweden	14,142	7	53	116	..	..	99	25.5	17.2	1.6	813	
Switzerland	8,021	6	56	122	..	..	100	29.4	57.0	3.2	599	
Syrian Arab Republic	1,563	28	20	58	35	74	98	1.3	19.9	11.7	..	
Tajikistan	1,985	17	5	86	..	..	..	0.9	1.8	..	..	
Tanzania	86	19	0	47	0	7	85	8.8	9.7	..	..	
Thailand	2,045	6	10	104	..	..	..	8.8	8.7	..	..	
Timor-Leste	..	..	0	53	98	22	69	17.3	16.1	8.1	1,751	
Togo	111	53	4	41	4	42	75	11.0	19.9	9.5	1,896	
Trinidad and Tobago	5,662	2	22	141	..	..	100	19.5	12.1	2.8	1,862	
Tunisia	1,311	13	12	105	21	52	100	2.5	10.0	3.9	1,130	
Turkey	2,298	15	22	85	73	29	100	16.8	43.9	2.0	2,069	
Turkmenistan	2,446	14	10	63	..	..	..	..	..	..	..	
Uganda	..	..	1	38	..	..	100	8.8	12.2	4.3	2,046	
Ukraine	3,200	12	28	118	..	..	100	3.0	7.5	4.0	..	
United Arab Emirates	11,464	12	20	145	..	..	100	4.1	8.6	3.6	1,094	
United Kingdom	5,692	7	54	130	..	..	100	21.0	31.0	4.5	..	
United States	12,914	6	49	90	..	..	100	12.8	32.7	2.0	478	
Uruguay	2,671	13	29	132	..	..	100	13.3	17.8	3.1	765	
Uzbekistan	1,636	9	7	74	..	..	93	1.1	3.0	..	739	
Venezuela, RB	3,152	27	25	97	46	..	..	1.7	22.3	3.3	1,490	
Vietnam	918	10	19	177	..	..	..	2.4	5.4	7.1	..	
West Bank and Gaza	..	..	9	45	..	..	..	..	..	..	..	
Yemen, Rep.	219	24	4	46	20	61	84	1.1	8.1	3.3	1,273	
Zambia	635	23	1	42	..	..	90	24.1	16.9	..	..	
Zimbabwe	1,026	7	3	61	15	23	80	9.1	20.5	..	2,369	
<b>World</b>	<b>2,803 w</b>	<b>8 w</b>	<b>17 w</b>	<b>78 w</b>	<b>.. w</b>	<b>.. w</b>	<b>93 w</b>	<b>11.3 m</b>	<b>14.4 m</b>	<b>2.7 w</b>	<b>887 m</b>	
<b>Low income</b>	229	12	1	33	..	..	..	8.8	13.0	..	2,306	
<b>Middle income</b>	1,675	11	14	78	..	..	92	7.1	12.6	3.2	1,044	
Lower middle income	644	19	6	72	..	..	86	5.3	10.7	3.4	..	
Upper middle income	2,714	9	22	84	30	..	99	9.8	14.9	2.4	765	
<b>Low &amp; middle income</b>	1,525	11	12	72	..	..	91	8.8	12.7	3.2	1,168	
East Asia & Pacific	2,095	5	19	73	11	..	99	5.1	7.7	2.1	1,283	
Europe & Central Asia	3,859	12	26	124	..	..	..	4.8	10.8	2.7	697	
Latin America & Carib.	1,892	16	18	98	..	..	98	10.9	14.7	4.2	..	
Middle East & N. Africa	1,497	18	16	86	17	..	..	4.1	11.5	..	1,131	
South Asia	517	23	3	59	..	..	84	3.3	2.5	2.3	1,363	
Sub-Saharan Africa	511	11	1	45	..	21	..	12.0	15.0	..	1,840	
<b>High income</b>	9,064	6	44	111	..	..	100	21.2	22.3	2.6	784	
Euro area	6,592	5	46	122	..	..	99	25.3	29.8	2.4	789	

a. Data are from the International Telecommunication Union's (ITU) World Telecommunication/ICT Indicators database. Please cite the ITU for third-party use of these data.

## About the data

The quality of an economy's infrastructure, including power and communications, is an important element in investment decisions for both domestic and foreign investors. Government effort alone is not enough to meet the need for investments in modern infrastructure; public-private partnerships, especially those involving local providers and financiers, are critical for lowering costs and delivering value for money. In telecommunications, competition in the marketplace, along with sound regulation, is lowering costs, improving quality, and easing access to services around the globe.

An economy's production and consumption of electricity are basic indicators of its size and level of development. Although a few countries export electric power, most production is for domestic consumption. Expanding the supply of electricity to meet the growing demand of increasingly urbanized and industrialized economies without incurring unacceptable social, economic, and environmental costs is one of the great challenges facing developing countries.

Data on electric power production and consumption are collected from national energy agencies by the International Energy Agency (IEA) and adjusted by the IEA to meet international definitions (for data on electricity production, see table 3.8). Electricity consumption is equivalent to production less power plants' own use and transmission, distribution, and transformation losses less exports plus imports. It includes consumption by auxiliary stations, losses in transformers that are considered integral parts of those stations, and electricity produced by pumping installations. Where data are available, it covers electricity generated by primary sources of energy—coal, oil, gas, nuclear, hydro, geothermal, wind, tide and wave, and combustible renewables. Neither production nor consumption data capture the reliability of supplies, including breakdowns, load factors, and frequency of outages.

Over the past decade new financing and technology, along with privatization and market liberalization, have spurred dramatic growth in telecommunications in many countries. With the rapid development of mobile telephony and the global expansion of the Internet, information and communication technologies are increasingly recognized as essential tools of development, contributing to global integration and enhancing public sector effectiveness, efficiency, and transparency. The table presents telecommunications indicators covering access and use, quality, and affordability and efficiency.

Access to telecommunication services rose on an unprecedented scale over the past 15 years. This

growth was driven primarily by wireless technologies and liberalization of telecommunications markets, which have enabled faster and less costly network rollout. Developing countries' share of world mobile subscriptions rose from 53 percent in 2005 to 73 percent in 2010. And the number of short message service texts sent globally tripled between 2007 and 2010, from 1.8 trillion to 6.1 trillion. The International Telecommunication Union (ITU) estimates that there were 5.9 billion mobile subscriptions globally in 2011. No technology has ever spread faster around the world. Mobile communications have a particularly important impact in rural areas. The mobility, ease of use, flexible deployment, and relatively low and declining rollout costs of wireless technologies enable them to reach rural populations with low levels of income and literacy. The next billion mobile subscribers will consist mainly of the rural poor.

Access is the key to delivering telecommunications services to people. If the service is not affordable to most people, goals of universal usage will not be met. Two indicators of telecommunications affordability are presented in the table: fixed-telephone service tariff and prepaid mobile cellular service tariff. Telecommunications efficiency is measured by total telecommunications revenue divided by GDP and by mobile cellular and fixed-telephone subscriptions per employee.

Operators have traditionally been the main source of telecommunications data, so information on subscriptions has been widely available for most countries. This gives a general idea of access, but a more precise measure is the penetration rate—the share of households with access to telecommunications. During the past few years more information on information and communication technology use has become available from household and business surveys. Also important are data on actual use of telecommunications services. Ideally, statistics on telecommunications (and other information and communications technologies) should be compiled for all three measures: subscriptions, access, and use. The quality of data varies among reporting countries as a result of differences in regulations covering data provision and availability.

## Definitions

• **Electric power consumption per capita** is the production of power plants and combined heat and power plants less transmission, distribution, and transformation losses and own use by heat and power plants, divided by midyear population. • **Electric power transmission and distribution losses** are losses in transmission between sources of supply and points of distribution and in distribution to consumers, including pilferage. • **Fixed-telephone subscriptions** are the sum of the active number of analog fixed-telephone lines, voice-over-IP subscriptions, fixed wireless local loop subscriptions, Integrated Services Digital Network voice-channel equivalents, and fixed public payphones. • **Mobile cellular telephone subscriptions** are subscriptions to a public mobile telephone service using cellular technology, which provide access to the public switched telephone network. Post-paid and prepaid subscriptions are included. • **International voice traffic** is the sum of international incoming and outgoing telephone traffic (in minutes) divided by total population. • **Population covered by mobile cellular network** is the percentage of people that live in areas served by a mobile cellular signal regardless of whether they use it. • **Residential fixed-telephone tariff** is the monthly subscription charge plus the cost of 30 three-minute local calls (15 peak and 15 off-peak). • **Mobile cellular prepaid tariff** is based on the Organisation for Economic Co-operation and Development's low-user definition, which includes the cost of monthly mobile use for 25 outgoing calls per month spread over the same mobile network, other mobile networks, and mobile to fixed-telephone calls and during peak, off-peak, and weekend times as well as 30 text messages per month. • **Telecommunications revenue** is the revenue from the provision of telecommunications services such as fixed telephone, mobile, and Internet divided by GDP. • **Mobile cellular and fixed-telephone subscriptions per employee** are telephone subscriptions (fixed telephone plus mobile) divided by the total number of telecommunications employees.

## Data sources

Data on electricity consumption and losses are from the IEA's *Energy Statistics of Non-OECD Countries 2011*, *Energy Balances of Non-OECD Countries 2011*, and *Energy Statistics of OECD Countries 2011* and from the United Nations Statistics Division's *Energy Statistics Yearbook*. Data on telecommunications are from the ITU's World Telecommunication/ICT Indicators database and TeleGeography.



	Daily newspapers per 1,000 people 2000–05 <sup>b</sup>	Households with television <sup>a</sup> % 2010	Personal computers and the Internet						Information and communications technology trade			
			Use		Quality		Affordability	Application	Goods		Services	
			per 100 people		Fixed broadband Internet subscriptions <sup>a</sup> per 100 people	International Internet bandwidth <sup>a</sup> bits per second per capita	Fixed broadband Internet access tariff <sup>b</sup> \$ per month	Secure Internet servers per million people December 2011	Exports % of total goods exports	Imports % of total goods imports	Exports % of total services exports	
			Computers users <sup>a</sup>	Internet users <sup>a</sup>	2010	2010	2010	2010	2010	2010	2010	
Afghanistan	..	..	..	3.7	0.00	58	..	1	..	0.4	..	
Albania	24	..	..	45.0	3.29	5,304	11	14	0.8	4.1	4.8	
Algeria	..	98	..	12.5	2.54	1,015	15	1	0.0	3.0	3.5	
Angola	2	38	..	10.0	0.10	63	133	3	..	..	5.4	
Argentina	36	..	..	36.0	9.56	9,898	26	34	0.1	9.1	11.7	
Armenia	8	97	..	44.0	2.75	3,411	32	28	0.8	4.7	16.8	
Australia	155	..	..	75.9	24.15	31,392	37	2,006	1.0	10.6	4.9	
Austria	311	..	..	77.8	72.7	23.86	53,635	26	996	3.9	5.8	6.2
Azerbaijan	16	100	38.6	46.7	5.08	4,524	12	5	0.0	3.5	4.0	
Bahrain	..	..	72.0	55.0	5.36	7,924	27	118	0.9	4.4	..	
Bangladesh	..	36	..	3.7	0.04	103	15	1	..	..	13.0	
Belarus	81	98	..	32.1	17.55	7,060	18	12	0.5	2.4	8.8	
Belgium	165	..	78.8	73.7	30.96	82,599	25	604	2.3	3.5	9.2	
Benin	0	25	..	3.1	0.04	70	50	1	..	..	..	
Bolivia	..	69	..	20.0	0.97	854	35	10	0.0	3.4	11.8	
Bosnia and Herzegovina	..	97	..	52.0	8.18	8,138	14	20	0.1	2.9	..	
Botswana	41	..	..	6.0	0.60	386	30	9	0.3	3.1	5.5	
Brazil	36	98	44.1	40.7	6.81	5,130	17	54	1.0	9.5	2.0	
Bulgaria	79	99	48.0	46.0	14.44	29,520	13	139	2.5	5.6	8.9	
Burkina Faso	..	18	..	1.4	0.09	49	83	1	0.0	2.5	10.5	
Burundi	..	..	..	2.1	0.00	2	..	0	0.4	5.8	..	
Cambodia	..	60	..	1.3	0.25	354	47	3	0.1	2.5	5.5	
Cameroon	..	33	..	4.0	0.01	16	80	1	0.0	2.6	3.6	
Canada	175	99	..	81.3	29.71	43,955	26	1,369	2.8	8.4	11.4	
Central African Republic	..	..	..	2.3	0.00	4	1,329	0	0.0	6.8	..	
Chad	..	..	..	1.7	0.00	2	12	..	..	..	..	
Chile	51	..	42.8	45.0	10.45	8,613	39	67	0.4	8.2	2.2	
China	74	..	..	34.4	9.44	821	18	2	29.1	20.4	6.1	
Hong Kong SAR, China	222	..	70.0	71.8	29.87	557,998	19	568	44.2	42.8	1.8	
Colombia	23	91	43.1	36.5	5.60	3,739	35	21	0.1	9.6	6.2	
Congo, Dem. Rep.	..	..	..	0.7	0.01	2	..	0	..	..	..	
Congo, Rep.	..	38	..	5.0	0.00	2	..	1	..	..	..	
Costa Rica	65	96	42.6	36.5	6.19	4,630	7	111	19.9	17.7	26.6	
Côte d'Ivoire	..	..	..	2.6	0.04	203	40	1	0.2	3.3	11.0	
Croatia	..	97	58.0	60.1	18.19	25,804	18	225	2.1	5.5	3.6	
Cuba	65	..	..	15.9	0.03	35	1,753	0	..	..	..	
Cyprus	..	100	57.2	53.0	17.63	27,380	21	1,121	9.1	4.8	2.3	
Czech Republic	183	..	70.7	68.6	14.46	47,529	31	387	15.0	17.8	8.6	
Denmark	353	98	89.9	88.8	37.72	126,194	44	2,185	3.6	7.9	..	
Dominican Republic	39	86	..	39.5	3.63	4,029	19	20	2.3	4.8	4.5	
Ecuador	99	85	37.5	29.0	1.37	2,394	20	20	0.1	6.3	..	
Egypt, Arab Rep.	..	94	21.6	26.7	1.79	1,762	8	3	0.1	3.7	4.2	
El Salvador	38	83	21.0	15.9	2.83	242	25	17	0.3	5.6	17.7	
Eritrea	..	..	..	5.4	0.00	6	..	..	..	..	..	
Estonia	191	99	75.6	74.2	25.10	17,164	21	534	7.8	9.5	8.9	
Ethiopia	5	..	..	0.7	0.00	40	294	0	0.2	8.4	4.5	
Finland	431	..	88.7	86.9	28.57	93,214	35	1,489	6.4	8.2	24.5	
France	164	99	78.0	77.5	32.89	53,933	30	356	4.4	7.3	4.2	
Gabon	..	..	..	7.2	0.27	3,767	..	8	0.0	3.5	..	
Gambia, The	..	76	..	9.2	0.02	98	307	3	0.4	1.5	17.8	
Georgia	4	94	..	26.3	5.70	5,615	39	19	0.2	5.3	2.2	
Germany	267	95	85.4	82.5	31.90	61,142	39	1,026	5.1	9.2	9.1	
Ghana	..	47	..	9.5	0.21	139	32	2	0.0	7.1	..	
Greece	..	100	49.5	44.6	19.95	13,816	19	154	2.5	5.0	2.4	
Guatemala	..	71	..	10.5	1.80	417	33	14	0.9	6.8	14.3	
Guinea	..	..	..	1.0	0.01	15	800	0	0.0	5.2	21.6	
Guinea-Bissau	..	..	..	2.5	0.00	1	..	1	..	..	..	
Haiti	..	..	..	8.4	0.00	9	..	1	..	..	..	

	Daily newspapers per 1,000 people 2000–05 <sup>b</sup>	Households with television <sup>a</sup> %	Personal computers and the Internet						Information and communications technology trade			
			Use		Quality		Affordability	Application	Goods		Services	
			per 100 people		Fixed broadband Internet subscriptions <sup>a</sup>	International Internet bandwidth <sup>a</sup>	Fixed broadband Internet access tariff <sup>b</sup>	Secure Internet servers	Exports % of total goods exports	Imports % of total goods imports	Exports % of total services exports	
			Computers users <sup>a</sup>	Internet users <sup>a</sup>	per 100 people	second per capita	\$ per month	per million people	2010	2010	2010	
Honduras	..	69	..	11.1	1.00	658	22	8	0.1	6.3	25.2	
Hungary	217	99	67.1	65.2	19.56	6,500	21	220	25.6	21.3	8.5	
India	71	60	..	7.5	0.90	437	5	3	2.0	6.6	47.0	
Indonesia	..	72	..	9.9	0.79	292	22	3	5.1	8.6	7.4	
Iran, Islamic Rep.	..	97	..	13.0	0.68	406	30	1	0.0	3.6	..	
Iraq	..	98	13.5	2.5	0.00	2	..	0	..	..	0.6	
Ireland	182	..	72.0	69.8	21.04	44,693	33	1,145	7.5	10.2	39.0	
Israel	..	90	65.6	65.4	24.46	5,247	8	471	12.3	9.2	33.0	
Italy	137	..	55.7	53.7	21.92	33,067	26	192	2.1	7.4	8.9	
Jamaica	..	88	..	26.5	4.32	5,551	25	48	0.4	3.9	6.4	
Japan	551	99	66.9	77.6	26.71	12,293	23	743	10.7	12.0	1.3	
Jordan	..	98	56.0	38.9	3.24	2,481	19	25	1.3	4.3	..	
Kazakhstan	..	87	..	33.4	8.74	2,868	13	6	0.1	2.9	2.4	
Kenya	..	28	..	25.9	0.01	499	38	3	1.4	7.2	9.8	
Korea, Dem. Rep.	..	..	..	0.0	0.00	..	..	0	..	..	..	
Korea, Rep.	..	..	81.5	82.5	35.18	9,802	24	2,536	21.4	11.9	1.2	
Kosovo	..	..	..	..	..	..	..	..	..	..	..	
Kuwait	..	..	..	38.3	1.68	3,655	19	180	0.3	6.4	..	
Kyrgyz Republic	1	..	..	19.6	0.28	55	55	3	0.6	2.7	3.3	
Lao PDR	3	..	..	7.0	0.19	161	140	1	..	..	..	
Latvia	154	..	69.7	71.5	19.42	21,438	13	205	5.8	6.4	6.2	
Lebanon	54	..	..	31.0	4.73	591	23	41	7.1	2.8	3.0	
Lesotho	..	..	..	3.9	0.02	12	51	0	20.9	2.7	4.5	
Liberia	..	9	..	7.0	0.00	14	..	1	..	..	..	
Libya	..	..	..	14.0	1.15	1,574	..	1	..	..	..	
Lithuania	108	99	64.2	62.8	20.81	28,533	10	237	2.7	4.1	3.7	
Macedonia, FYR	89	..	57.5	51.9	12.47	8,738	13	29	0.4	4.7	14.1	
Madagascar	..	16	..	1.7	0.03	94	91	1	0.2	3.1	..	
Malawi	..	..	..	2.3	0.03	1	562	0	0.4	5.2	..	
Malaysia	109	..	..	56.3	7.32	6,443	20	54	34.0	29.8	7.0	
Mali	..	31	..	2.7	0.02	50	50	1	0.1	2.6	23.2	
Mauritania	..	25	..	3.0	0.19	81	24	2	..	0.9	..	
Mauritius	77	97	35.8	28.7	6.18	2,646	16	117	1.1	5.1	3.8	
Mexico	93	95	40.1	31.1	9.98	2,272	17	27	20.2	19.2	..	
Moldova	..	93	42.4	40.1	7.55	26,390	6	20	0.7	3.9	22.7	
Mongolia	20	89	..	12.9	2.60	6,237	8	14	..	..	2.0	
Morocco	12	93	50.9	49.0	1.56	2,347	12	4	3.8	5.9	8.0	
Mozambique	3	..	..	4.2	0.06	55	22	1	0.1	1.8	7.0	
Myanmar	..	..	..	0.2	0.03	21	28	0	..	..	..	
Namibia	28	42	..	6.5	0.42	287	95	20	0.5	4.0	1.7	
Nepal	..	36	..	7.9	0.20	134	23	2	0.4	7.2	..	
Netherlands	307	99	91.7	90.7	38.10	139,986	33	2,757	12.5	14.5	11.7	
New Zealand	182	97	82.7	83.0	24.93	16,026	29	1,597	1.2	8.3	4.6	
Nicaragua	..	66	..	10.0	0.82	864	34	10	0.1	4.8	..	
Niger	0	10	0.9	0.8	0.02	19	60	0	0.3	1.9	12.8	
Nigeria	..	41	..	28.4	0.06	32	53	2	0.0	6.6	..	
Norway	516	..	93.8	93.3	35.26	102,270	49	1,822	1.4	7.5	9.5	
Oman	..	..	..	62.0	1.63	3,786	31	53	0.1	3.1	..	
Pakistan	50	68	..	16.8	0.31	435	14	1	0.2	3.3	6.6	
Panama	65	92	..	42.7	7.84	9,096	17	143	9.6	9.6	4.8	
Papua New Guinea	9	..	..	1.3	0.09	41	140	7	..	..	0.7	
Paraguay	..	88	..	19.8	0.44	1,644	19	10	0.1	27.0	1.4	
Peru	..	77	..	34.3	3.14	2,911	42	19	0.1	7.4	3.1	
Philippines	79	74	..	25.0	1.85	2,681	22	8	35.6	31.6	12.6	
Poland	114	..	65.4	62.5	12.99	23,570	18	270	9.5	9.7	6.4	
Portugal	..	..	58.2	51.3	19.30	75,202	26	224	4.0	5.7	4.2	
Puerto Rico	..	..	61.3	42.7	13.86	57,818	..	98	..	..	..	
Qatar	..	95	84.6	81.6	8.19	13,930	55	126	0.0	4.3	..	



	Daily newspapers per 1,000 people 2000-05 <sup>b</sup>	Households with television <sup>a</sup> % 2010	Personal computers and the Internet						Information and communications technology trade		
			Use		Quality		Affordability	Application	Goods		Services
			per 100 people		Fixed broadband Internet subscriptions <sup>a</sup>	International Internet bandwidth <sup>a</sup>	Fixed broadband Internet access tariff <sup>b</sup>	Secure Internet servers	Exports % of total goods exports	Imports % of total goods imports	Exports % of total services exports
			Computers users <sup>a</sup>	Internet users <sup>a</sup>	per 100 people	bits per second per capita	\$ per month	per million people	2010	2010	2010
Romania	70	..	45.9	40.0	13.90	20,571	5	54	8.4	9.3	18.0
Russian Federation	92	99	40.3	43.4	11.08	13,346	10	27	0.2	7.9	6.0
Rwanda	..	3	..	13.0	0.02	155	86	1	0.6	11.7	4.4
Saudi Arabia	..	..	..	41.0	5.45	11,584	27	22	0.1	7.2	..
Senegal	9	57	29.9	16.0	0.63	386	36	1	0.4	3.3	12.9
Serbia	..	..	54.5	43.1	11.77	20,241	15	29	1.6	4.2	9.2
Sierra Leone	..	10	..	0.3	..	29	..	1	..	..	..
Singapore	361	..	69.1	71.1	24.99	122,454	27	607	34.3	27.9	2.8
Slovak Republic	126	..	82.4	79.9	12.79	9,208	26	164	19.3	15.4	9.2
Slovenia	173	..	71.0	69.3	24.02	48,804	34	433	2.2	4.6	7.3
Somalia	..	..	..	1.2	0.00	..	..	0	..	..	..
South Africa	30	75	..	12.3	1.49	211	27	74	1.0	9.4	3.7
South Sudan	..	..	..	..	..	..	..	..	..	..	..
Spain	144	..	69.7	65.8	22.87	36,900	26	284	2.2	6.7	6.9
Sri Lanka	26	..	..	12.0	1.09	398	5	6	0.5	2.9	14.1
Sudan	..	..	..	10.2	0.38	305	23	0	0.0	3.3	25.8
Swaziland	24	..	..	9.0	0.15	52	875	15	..	..	9.0
Sweden	481	..	92.8	90.0	31.85	213,265	35	1,455	9.8	11.3	13.9
Switzerland	420	..	..	82.2	37.16	127,779	33	2,153	1.6	5.9	..
Syrian Arab Republic	..	..	..	20.7	0.33	280	22	0	0.0	1.1	1.9
Tajikistan	..	..	..	11.5	0.07	..	362	1	..	..	37.0
Tanzania	2	10	..	11.0	0.01	77	21	0	0.4	3.8	2.1
Thailand	..	97	30.9	21.2	4.61	2,296	19	17	18.9	14.2	..
Timor-Leste	..	..	..	0.2	0.04	28	99	3	..	..	..
Togo	2	..	..	5.4	0.06	230	166	2	0.2	5.1	18.6
Trinidad and Tobago	149	..	..	48.5	10.81	8,656	13	85	0.2	3.0	..
Tunisia	23	..	..	36.6	4.57	4,854	11	19	6.5	6.3	5.9
Turkey	..	..	41.0	39.8	9.73	7,601	19	143	1.8	4.5	1.6
Turkmenistan	9	..	..	2.2	0.01	77	..	0	..	..	..
Uganda	..	6	..	12.5	0.16	108	14	2	5.7	7.4	5.2
Ukraine	131	95	..	44.6	6.44	2,616	8	18	1.1	3.2	5.5
United Arab Emirates	..	96	74.0	78.0	10.47	13,991	41	180	2.0	4.5	..
United Kingdom	290	..	86.7	84.7	31.46	112,482	25	1,594	5.9	9.3	8.8
United States	193	..	..	74.2	27.71	29,093	20	1,562	10.5	14.2	4.6
Uruguay	..	94	49.1	47.9	10.95	11,004	19	70	0.1	6.4	8.2
Uzbekistan	..	..	..	19.4	0.32	53	200	0	..	..	..
Venezuela, RB	93	96	..	35.9	5.40	2,428	16	8	0.0	7.6	8.2
Vietnam	..	87	..	27.9	4.18	1,546	10	5	5.8	8.6	..
West Bank and Gaza	10	96	55.6	36.4	..	..	..	4	0.9	3.2	6.0
Yemen, Rep.	4	..	..	12.3	0.35	133	119	0	0.0	2.0	..
Zambia	5	27	..	10.1	0.08	39	59	2	0.0	2.3	8.0
Zimbabwe	..	..	..	11.5	0.26	35	406	1	0.0	3.6	..
<b>World</b>	<b>104 w</b>	<b>.. m</b>	<b>.. w</b>	<b>30.2 w</b>	<b>7.75 w</b>	<b>8,662 w</b>	<b>26 m</b>	<b>184 w</b>	<b>11.1 w</b>	<b>12.7 w</b>	<b>9.3 w</b>
<b>Low income</b>	..	..	..	5.6	0.05	93	55	1	..	..	..
<b>Middle income</b>	68	87	..	23.8	4.65	1,856	20	12	14.2	14.2	13.6
Lower middle income	..	72	..	13.5	1.04	656	32	3	8.3	10.4	27.9
Upper middle income	69	96	..	34.1	8.36	3,084	18	20	15.5	15.0	5.8
<b>Low &amp; middle income</b>	65	84	..	21.5	4.05	1,628	23	10	14.1	14.0	13.5
East Asia & Pacific	74	..	..	29.8	7.18	992	22	4	26.2	21.3	7.1
Europe & Central Asia	..	..	40.9	39.3	9.12	9,777	13	48	1.2	5.5	5.9
Latin America & Carib.	64	87	..	34.0	6.59	4,062	23	36	10.3	14.0	..
Middle East & N. Africa	..	97	..	20.9	1.36	1,139	17	3	..	4.2	..
South Asia	68	48	..	8.1	0.73	394	14	2	1.6	5.7	43.8
Sub-Saharan Africa	..	26	..	11.3	0.18	116	52	6	0.5	7.0	..
<b>High income</b>	255	..	..	73.4	26.46	44,235	26	1,068	10.4	12.5	8.1
Euro area	201	..	73.7	71.2	27.65	53,594	26	647	5.2	8.2	10.7

a. Data are from the International Telecommunication Union's (ITU) World Telecommunication/ICT Indicators database. Please cite the ITU for third-party use of these data. b. Data are for the most recent year available.

### About the data

The digital and information revolution has changed the way the world learns, communicates, does business, and treats illnesses. New information and communications technologies (ICT) offer vast opportunities for progress in all walks of life in all countries—opportunities for economic growth, improved health, better service delivery, learning through distance education, and social and cultural advances.

Comparable statistics on access, use, quality, and affordability of ICT are needed to formulate growth-enabling policies for the sector and to monitor and evaluate the sector's impact on development. Although basic access data are available for many countries, in most developing countries little is known about who uses ICT; what they are used for (school, work, business, research, government); and how they affect people and businesses. The global Partnership on Measuring ICT for Development is helping to set standards, harmonize information and communications technology statistics, and build statistical capacity in developing countries. For more information see [www.itu.int/ITU-D/ict/partnership/](http://www.itu.int/ITU-D/ict/partnership/).

Data on daily newspaper circulation are from United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics surveys on newspaper statistics.

Estimates of households with television are derived from household surveys. Some countries report only the number of households with a color television set, and so the true number may be higher than reported.

Data on computer users, Internet users, and related indicators (broadband and bandwidth) are collected by national statistics offices through household surveys. Since survey questions and definitions differ, the estimates may not be strictly comparable across countries. In particular, in the "post-PC age" what constitutes a computer is becoming harder to define. Today's smartphones and tablets have computer power equivalent to that of yesterday's computers and provide a similar range of functions. Device convergence is thus rendering the conventional definition obsolete. Countries without surveys generally derive their estimates by multiplying subscriber counts reported by Internet service providers by a multiplier. This method may undercount actual users, particularly in developing countries, where many commercial subscribers rent out computers connected to the Internet or prepaid cards are used to access the Internet.

Broadband refers to technologies that provide Internet speeds of at least 256 kilobits a second

of upstream and downstream capacity and includes digital subscriber lines, cable modems, satellite broadband Internet, fiber-to-home Internet access, Ethernet local access networks, and wireless area networks. Bandwidth refers to the range of frequencies available for signals. The higher the bandwidth, the more information that can be transmitted at one time. Reporting countries may have different definitions of broadband, so data are not strictly comparable.

The number of secure Internet servers, from the Netcraft Secure Server Survey, indicates how many companies conduct encrypted transactions over the Internet. The survey examines the use of encrypted transactions through extensive automated exploration, tallying the number of Web sites using a secure socket layer (SSL). The country of origin of more than a third of the 1.5 million distinct valid third-party certificates is unknown. Some countries, such as the Republic of Korea, use application layers to establish the encryption channel, which is SSL equivalent; these data are reported in the table.

Information and communication technology goods exports and imports are defined by the Working Party on Indicators for the Information Society and are reported in the Organisation for Economic Co-operation and Development's *Guide to Measuring the Information Society* (2005). Information and communication technology service exports data are based on the International Monetary Fund's (IMF) *Balance of Payments Statistics Yearbook* classification.

### Definitions

- **Daily newspapers** are newspapers published at least four times a week that report mainly on events since the previous issue. The indicator is average circulation per 1,000 people.
- **Households with television** are the percentage of households with a television set.
- **Computer users** are individuals who have used a computer (in any location) in the last 12 months. Computers include desktop, portable, or handheld computers (such as a personal digital assistant) and exclude equipment with some embedded computing abilities (such as mobile phones or television sets).
- **Internet users** are individuals who have used the Internet (in any location) with a device such as a computer, smartphone, or digital television in the last 12 months via a fixed or mobile network. The Internet provides access to the worldwide network.
- **Fixed broadband Internet subscriptions** are the number of fixed broadband subscriptions with a digital subscriber line, cable modem, or other

- high-speed technology (excluding wireless).
- **International Internet bandwidth** is the contracted capacity of international connections between countries for transmitting Internet traffic.
- **Fixed broadband Internet access tariff** is the lowest sampled cost per 100 kilobits a second per month and are calculated from low- and high-speed monthly service charges. Monthly charges do not include installation fees or modem rentals.
- **Secure Internet servers** are servers using encryption technology in Internet transactions.
- **Information and communication technology goods exports and imports** include telecommunications, audio and video, computer and related equipment; electronic components; and other information and communication technology goods. Software is excluded.
- **Information and communication technology services exports** include computer and communications services (telecommunications and postal and courier services) and information services (databases, data processes, software design and development, maintenance and repair, and news-related service transactions).

### Data sources

Data on newspapers are compiled by the UNESCO Institute for Statistics. Data on televisions, computer users, Internet users, Internet broadband users and cost, and Internet bandwidth are from the ITU's World Telecommunication/ICT Indicators database and TeleGeography. Data on secure Internet servers are from Netcraft ([www.netcraft.com](http://www.netcraft.com)) and official government sources. Data on information and communication technology goods trade are from the United Nations Conference on Trade and Development's UNCTADstat database (<http://unctadstat.unctad.org>). Data on information and communication technology services exports are from the IMF's Balance of Payments Statistics database.





	Research and development (R&D)		Scientific and technical journal articles 2009	Expenditures for R&D % of GDP 2005-09 <sup>d</sup>	High-technology exports		Royalty and license fees		Patent applications filed <sup>a,b</sup>		Trademark applications filed <sup>a,c</sup> Total 2010
	full-time equivalent per million people				\$ millions	% of manufactured exports 2010	\$ millions		Residents 2010	Non-residents 2010	
	Researchers 2005-09 <sup>d</sup>	Technicians 2005-09 <sup>d</sup>					Receipts 2010	Payments 2010			
Afghanistan	..	..	12	..	..	..	..	..	..	..	..
Albania	147	38	8	0.15	9	0.9	1	12	..	361	2,920
Algeria	170	34	607	0.07	5	0.5	2	17	76	730	5,632
Angola	..	..	6	..	..	..	12	6	..	..	..
Argentina	1,046	207	3,655	0.52	1,635	7.5	119	1,541	801	4,781	69,565
Armenia	..	..	164	0.27	4	1.8	..	..	136	6	4,620
Australia	4,259	1,144	18,923	2.35	3,826	11.9	703	3,026	2,409	22,478	59,459
Austria	4,122	1,959	4,832	2.75	13,721	11.9	646	1,403	2,424	249	10,375
Azerbaijan	..	..	151	0.26	6	1.1	0	17	222	5	3,310
Bahrain	..	..	36	..	1	0.1	..	..	..	..	2,044
Bangladesh	..	..	260	..	134	1.2	1	18	66	276	10,231
Belarus	..	..	380	0.64	408	3.0	9	101	1,759	174	10,695
Belgium	3,491	1,406	7,218	1.96	32,227	10.5	2,138	1,904	620	140	25,799 <sup>e</sup>
Benin	..	..	48	..	..	..	0	3	..	..	..
Bolivia	..	..	45	..	37	8.6	3	20	..	..	6,081
Bosnia and Herzegovina	197	71	64	0.02	71	2.6	15	5	56	9	4,730
Botswana	..	..	45	0.52	15	0.4	0	11	..	..	674
Brazil	696	560	12,306	1.08	8,122	11.2	397	2,850	2,705	19,981	125,654
Bulgaria	1,587	492	735	0.53	802	7.9	34	115	243	17	7,140
Burkina Faso	..	..	50	0.21	3	7.8	0	1	2	..	34
Burundi	..	..	3	..	1	8.5	..	..	..	..	..
Cambodia	..	..	27	..	5	0.1	0	6	..	..	2,866
Cameroon	..	..	145	..	14	4.9	0	12	..	..	..
Canada	4,335	1,740	29,017	1.95	23,966	14.1	3,813	8,665	4,550	30,899	45,220
Central African Republic	..	..	4	..	..	..	..	..	..	..	..
Chad	..	..	2	..	..	..	..	..	..	..	..
Chile	355	293	1,868	0.39	483	5.5	64	496	328	748	45,104
China	1,199	..	74,019	1.47	406,090	27.5	830	13,040	293,066	98,111	1,057,480
Hong Kong SAR, China	2,759	352	..	0.79	1,106	16.1	383	1,700	133	11,569	28,872
Colombia	157	..	608	0.16	425	5.1	56	362	133	1,739	25,990
Congo, Dem. Rep.	..	..	19	0.48	..	..	..	..	..	..	..
Congo, Rep.	..	..	18	..	..	..	..	..	..	..	..
Costa Rica	257	..	98	0.40	2,193	40.0	8	64	8	1,212	11,265
Côte d'Ivoire	70	..	56	..	126	8.2	0	21	..	..	..
Croatia	1,571	636	1,164	0.83	732	9.2	32	225	257	21	7,950
Cuba	..	..	222	0.49	..	..	..	..	59	172	1,397
Cyprus	752	216	195	0.46	140	37.1	8	31	4	4	2,381
Czech Republic	2,755	1,533	3,946	1.53	17,469	15.3	105	771	868	114	11,048
Denmark	6,390	2,628	5,306	3.02	8,291	14.2	..	..	1,626	142	5,788
Dominican Republic	..	..	6	..	102	2.9	..	63	..	..	6,453
Ecuador	106	31	68	0.26	145	8.4	..	54	4	690	16,195
Egypt, Arab Rep.	420	394	2,247	0.21	96	0.9	122	226	605	1,625	3,955
El Salvador	..	..	6	0.11	186	5.8	0	31	..	..	..
Eritrea	..	..	4	..	..	..	..	..	..	..	..
Estonia	3,210	627	518	1.44	721	9.1	20	60	84	13	3,140
Ethiopia	21	13	175	0.17	6	3.1	0	1	12	25	719
Finland	7,647	..	4,949	3.96	5,776	10.8	2,340	1,236	1,731	102	5,504
France	3,690	1,872	31,748	2.23	99,736	24.9	10,407	5,559	14,748	1,832	93,187
Gabon	..	..	18	0.64	7	3.0	..	..	..	..	..
Gambia, The	..	..	20	0.02	0	1.1	..	..	..	..	327
Georgia	..	..	129	0.18	11	1.8	5	7	179	180	4,301
Germany	3,780	1,329	45,003	2.82	158,507	15.3	14,384	13,051	47,047	12,198	74,339
Ghana	17	15	102	0.23	8	2.0	..	..	..	..	884
Greece	1,849	756	4,881	0.58	1,090	10.2	69	627	728	16	6,559
Guatemala	39	35	22	0.06	205	5.7	13	94	7	374	9,175
Guinea	..	..	3	..	0	0.1	0	1	..	..	..
Guinea-Bissau	..	..	6	..	..	..	..	0	..	..	6
Haiti	..	..	7	..	..	..	..	0	..	..	..

# Science and technology

# 5.13

	Research and development (R&D)		Scientific and technical journal articles 2009	Expenditures for R&D % of GDP 2005–09 <sup>d</sup>	High-technology exports		Royalty and license fees		Patent applications filed <sup>a,b</sup>		Trademark applications filed <sup>a,c</sup> Total 2010
	full-time equivalent Researchers 2005–09 <sup>d</sup>	Technicians 2005–09 <sup>d</sup>			\$ millions 2010	% of manu- factured exports 2010	\$ millions Receipts 2010	\$ millions Payments 2010	Residents 2010	Non- residents 2010	
Honduras	..	..	6	..	12	1.3	..	30	..	..	7,403
Hungary	2,006	553	2,397	1.15	18,771	24.2	1,051	1,386	649	47	6,298
India	136	93	19,917	0.76	10,087	7.2	129	2,438	7,262	27,025	141,943
Indonesia	90	..	262	0.08	6,673	11.4	60	1,616	..	..	47,794
Iran, Islamic Rep.	751	..	6,313	0.79	584	4.5	..	..	..	..	3,096
Iraq	49	26	70	..	0	0.1	1,312	396	..	..	..
Ireland	3,373	742	2,799	1.77	21,232	21.2	2,252	37,823	733	59	3,769
Israel	..	..	6,304	4.27	7,979	14.7	849	860	1,450	5,856	8,614
Italy	1,690	..	26,755	1.27	26,366	7.2	3,603	6,986	8,814	903	4,387
Jamaica	..	..	51	..	3	0.6	5	36	..	..	1,708
Japan	5,189	597	49,627	3.45	122,047	18.0	26,680	18,769	290,081	54,517	124,726
Jordan	..	..	383	0.42	122	2.9	..	..	45	429	5,971
Kazakhstan	..	..	99	0.23	2,110	29.9	..	86	11	162	3,615
Kenya	56	63	291	0.42	100	5.7	54	18	77	120	4,321
Korea, Dem. Rep.	..	..	8	..	..	..	..	..	8,018	39	1,231
Korea, Rep.	4,947	825	22,271	3.36	92,856	28.7	3,146	8,965	131,805	38,296	129,486
Kosovo	..	..	..	..	..	..	..	..	..	..	..
Kuwait	152	35	214	0.11	16	0.5	..	..	..	..	..
Kyrgyz Republic	..	..	15	0.16	2	1.0	1	3	134	6	2,535
Lao PDR	..	..	12	..	..	..	..	..	..	..	..
Latvia	1,601	561	162	0.46	396	7.6	12	33	178	7	3,589
Lebanon	..	..	256	..	279	12.8	7	13	..	..	..
Lesotho	21	22	4	0.03	0	0.2	..	3	..	..	566
Liberia	..	..	0	..	..	..	..	..	..	..	612
Libya	..	..	34	..	..	..	..	..	..	..	..
Lithuania	2,541	445	388	0.84	1,190	10.6	1	35	108	6	4,351
Macedonia, FYR	472	82	57	0.23	40	2.9	7	18	34	406	3,436
Madagascar	46	25	35	0.15	5	1.0	..	..	9	34	1,773
Malawi	30	58	53	..	1	1.3	..	0	..	..	..
Malaysia	365	43	1,351	0.63	59,332	44.5	266	1,133	1,233	5,230	26,370
Mali	38	12	25	0.25	2	2.4	0	3	..	..	..
Mauritania	..	..	3	..	..	..	..	..	..	..	..
Mauritius	..	..	22	0.37	6	0.7	1	12	2	22	2,032
Mexico	347	183	4,128	0.37	37,657	16.9	..	..	951	13,625	94,457
Moldova	794	78	80	0.53	17	8.3	5	13	134	5	5,459
Mongolia	..	..	42	0.24	7	7.4	0	3	110	69	2,403
Morocco	661	61	391	0.64	897	7.7	4	30	152	882	11,030
Mozambique	16	35	29	0.21	1	1.3	0	4	18	22	891
Myanmar	..	..	10	..	..	..	..	..	..	..	..
Namibia	..	..	14	..	19	0.9	0	8	..	..	804
Nepal	..	..	56	..	4	0.6	..	..	..	..	1,132
Netherlands	2,818	1,131	14,866	1.84	59,510	21.3	5,491	3,707	2,575	279	..
New Zealand	4,324	886	3,188	1.17	548	9.0	183	669	1,585	5,051	17,124
Nicaragua	..	..	12	..	6	4.8	..	..	..	..	5,975
Niger	8	11	16	..	4	6.6	0	2	..	..	..
Nigeria	39	13	462	0.22	63	1.1	..	224	..	..	..
Norway	5,504	..	4,440	1.80	3,830	16.1	498	536	1,117	696	13,835
Oman	..	..	114	..	18	0.6	..	..	..	..	1,913
Pakistan	162	64	1,043	0.46	262	1.7	4	123	170	1,375	15,734
Panama	111	..	73	0.21	1	0.8	..	46	..	468	9,629
Papua New Guinea	..	..	17	..	..	..	..	..	1	45	612
Paraguay	75	..	11	0.06	32	6.6	254	3	18	347	22,102
Peru	..	..	159	..	252	6.6	3	197	39	261	23,120
Philippines	78	11	223	0.11	29,792	67.8	4	445	166	3,223	16,838
Poland	1,598	189	7,355	0.68	8,378	6.6	237	2,248	3,203	227	18,251
Portugal	4,308	383	4,157	1.66	1,213	3.4	41	548	499	46	19,636
Puerto Rico	668	..	..	0.49	..	..	..	..	..	..	..
Qatar	..	..	64	..	1	0.0	..	..	..	..	..



# 5.13

## Science and technology

	Research and development (R&D)		Scientific and technical journal articles 2009	Expenditures for R&D % of GDP 2005-09 <sup>d</sup>	High-technology exports		Royalty and license fees		Patent applications filed <sup>a,b</sup>		Trademark applications filed <sup>a,c</sup> Total 2010
	full-time equivalent per million people				% of manu- factured exports 2010	\$ millions		Residents 2010	Non- residents 2010		
	Researchers 2005-09 <sup>d</sup>	Technicians 2005-09 <sup>d</sup>				Receipts 2010	Payments 2010				
Romania	895	185	1,367	0.48	4,249	10.9	466	453	1,382	36	12,063
Russian Federation	3,091	475	14,016	1.25	5,193	8.8	625	5,066	28,722	13,778	56,856
Rwanda	12	..	12	..	1	5.9	0	0	..	..	238
Saudi Arabia	..	..	710	0.08	201	0.7	..	..	288	643	..
Senegal	384	53	56	0.37	9	1.2	1	12	..	..	..
Serbia	1,060	224	1,173	0.89	..	..	39	156	290	39	7,005
Sierra Leone	..	..	3	..	..	..	1	0	..	..	676
Singapore	5,834	597	4,187	2.66	126,982	49.9	1,867	15,857	895	8,878	17,504
Slovak Republic	2,438	345	1,000	0.48	3,921	7.0	45	147	234	48	5,027
Slovenia	3,679	1,863	1,234	1.86	1,131	5.5	69	369	442	11	3,894
Somalia	..	..	1	..	..	..	..	..	..	..	..
South Africa	396	124	2,864	0.93	1,420	4.3	59	1,941	821	5,562	30,549
South Sudan	..	..	..	..	..	..	..	..	..	..	..
Spain	2,932	1,148	21,543	1.38	11,290	6.4	877	2,649	3,566	213	47,120
Sri Lanka	96	77	135	0.11	57	1.0	..	..	225	235	6,244
Sudan	..	..	63	0.29	10	29.4	3	11	3	13	1,026
Swaziland	..	..	8	..	1	0.1	0	16	..	..	659
Sweden	5,018	2,006	9,478	3.62	16,133	13.9	6,133	1,383	2,196	353	12,662
Switzerland	3,320	2,874	9,469	3.00	42,820	24.8	..	..	1,622	533	27,972
Syrian Arab Republic	..	..	72	..	86	1.8	1	37	..	..	2,362
Tajikistan	..	..	12	0.09	..	..	1	0	7	3	2,293
Tanzania	..	..	152	0.43	25	3.5	0	0	..	..	556
Thailand	316	140	2,033	0.21	34,156	24.0	153	3,084	1,214	723	37,656
Timor-Leste	..	..	..	..	..	..	..	..	..	..	..
Togo	38	18	7	..	0	0.1	..	5	..	..	..
Trinidad and Tobago	..	..	48	0.04	3	0.2	..	..	1	280	..
Tunisia	1,863	43	1,022	1.10	611	4.9	25	15	..	..	..
Turkey	804	122	8,301	0.85	1,714	1.9	..	816	2,555	177	8,241
Turkmenistan	..	..	1	..	..	..	..	..	..	..	2,245
Uganda	..	..	143	0.41	6	2.4	4	4	6	1	..
Ukraine	1,353	288	1,639	0.86	1,441	4.3	132	744	2,556	2,756	28,915
United Arab Emirates	..	..	265	..	50	3.2	..	..	..	..	..
United Kingdom	3,947	871	45,649	1.87	59,447	20.9	13,822	8,499	15,490	6,439	36,484
United States	4,673	..	208,601	2.79	145,498	19.9	105,583	33,450	241,977	248,249	281,867
Uruguay	346	..	246	0.66	79	5.8	0	17	23	761	5,730
Uzbekistan	..	..	139	..	..	..	..	..	370	262	4,863
Venezuela, RB	183	..	354	..	145	5.1	..	340	..	..	..
Vietnam	..	..	326	..	2,101	6.2	..	..	306	3,276	32,289
West Bank and Gaza	144	27	..	..	..	..	0	0	..	..	..
Yemen, Rep.	..	..	25	..	0	0.4	33	5	20	55	4,165
Zambia	43	67	35	0.34	4	1.0	..	1	..	..	765
Zimbabwe	..	..	56	..	9	0.8	..	..	..	..	..
<b>World</b>	<b>1,269 w</b>	<b>.. w</b>	<b>788,333 s</b>	<b>2.15 w</b>	<b>1,572,076 s</b>	<b>17.5 w</b>	<b>210,577 s</b>	<b>216,352 s</b>	<b>1,060,313 s</b>	<b>621,207 s</b>	<b>3,023,628 s</b>
<b>Low income</b>	..	..	1,561	..	..	3.1	62	56	..	..	..
<b>Middle income</b>	591	..	167,803	1.07	490,375	17.9	3,612	37,290	281,357	190,556	1,826,974
Lower middle income	..	..	28,049	0.61	46,413	11.0	665	6,170	11,816	44,547	352,071
Upper middle income	1,197	..	139,753	1.10	569,935	19.5	2,947	31,120	333,407	164,472	1,737,397
<b>Low &amp; middle income</b>	574	..	169,364	1.07	527,339	17.8	3,674	37,346	289,428	191,053	1,850,304
East Asia & Pacific	1,199	..	78,373	1.47	..	28.7	1,049	18,196	304,113	110,671	1,222,061
Europe & Central Asia	2,006	329	29,089	0.96	17,622	6.7	1,352	7,678	36,143	17,415	187,119
Latin America & Carib.	482	346	23,970	0.65	51,633	10.9	970	6,291	4,216	40,206	466,522
Middle East & N. Africa	..	..	11,421	..	1,572	3.2	37	326	..	..	36,211
South Asia	129	86	21,432	0.75	..	6.7	142	2,578	7,519	27,500	172,509
Sub-Saharan Africa	..	..	5,079	0.58	2,570	2.8	124	2,277	..	..	..
<b>High income</b>	3,982	..	618,970	2.44	1,081,514	17.4	206,903	179,006	775,219	450,049	1,183,907
Euro area	3,119	1,355	171,873	2.09	439,190	14.9	42,900	76,676	72,951	14,959	305,982

a. Original information was provided by the World Intellectual Property Organization (WIPO). The International Bureau of WIPO assumes no responsibility with respect to the transformation of these data. b. Excludes applications filed under the auspices of the European Patent Office (150,961 by nonresidents) and the Eurasian Patent Organization (3,329 by nonresidents). c. Excludes applications filed under the auspices of the Office for Harmonization in the Internal Market (98,616). d. Data are for the most recent year available. e. Includes Luxembourg and the Netherlands.

## About the data

The United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics collects data on researchers, technicians, and expenditure on research and development (R&D) through its biennial R&D survey and from other international partners such as the Organisation for Economic Co-operation and Development (OECD), Eurostat, and the Network for Science and Technology Indicators—Ibero-American and Inter-American. The OECD's *Frascati Manual 2002* (OECD 2002) defines research and experimental development as "creative work undertaken on a systemic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications." R&D covers basic research, applied research, and experimental development. Data on researchers and technicians in R&D are measured in both full-time equivalent and headcount but are shown in full-time equivalent only.

Scientific and technical article counts are from journals classified by the Institute for Scientific Information's Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Counts are based on fractional assignments; articles with authors from different countries are allocated proportionately to each country (see *Definitions* for fields covered). The SCI and SSCI databases cover the core set of scientific journals but may exclude some of local importance and may reflect some bias toward English-language journals.

R&D expenditures include expenditures from all sources for R&D performed within a country, including capital expenditures and current costs (wages and associated costs of researchers, technicians, and other supporting staff and other current costs, including noncapital purchases of materials, supplies, and minor equipment to support R&D such as utilities, reference materials, subscriptions to libraries and scientific societies, and materials for laboratories).

The method for determining high-technology exports was developed by the Organisation for Economic Co-operation and Development in collaboration with Eurostat. It takes a "product approach" (rather than a "sectoral approach") based on R&D intensity (expenditure divided by total sales) for groups of products from Germany, Italy, Japan, the Netherlands, Sweden, and the United States. Because industrial sectors specializing in a few high-technology products may also produce low-technology products, the product approach is more appropriate for international trade. The method takes only R&D intensity into account, but other characteristics

of high technology are also important, such as know-how, scientific personnel, and technology embodied in patents. Considering these characteristics would yield a different list (see Hatzichronoglou 1997).

A patent is an exclusive right granted for a specified period (generally 20 years) for a new way of doing something or a new technical solution to a problem—an invention. The invention must be of practical use and display a characteristic unknown in the existing body of knowledge in its field. Most countries have systems to protect patentable inventions. The Patent Cooperation Treaty ([www.wipo.int/pct](http://www.wipo.int/pct)) provides a two-phase system for filing patent applications in 144 eligible countries (as of November 2011). International applications under the treaty provide for a national patent grant only—there is no international patent. The national filing represents the applicant's seeking of patent protection for a given territory, whereas international filings, while representing a legal right, do not accurately reflect where patent protection is sought. Resident filings are those from residents of the country concerned. Nonresident filings are from applicants abroad. For regional offices applications from residents of any member state of the regional patent convention are considered nonresident filings. Some offices (notably the U.S. Patent and Trademark Office) use the residence of the inventor rather than the applicant to classify filings.

A trademark is a distinctive sign identifying goods or services as produced or provided by a specific person or enterprise. A trademark protects the owner of the mark by ensuring exclusive right to use it to identify goods or services or to authorize another to use it. The period of protection varies, but a trademark can be renewed indefinitely for an additional fee. Detailed components of trademark filings, available on the *World Development Indicators* CD-ROM and at <http://data.worldbank.org>, include applications filed by direct residents (domestic applicants filing directly at a given national or regional intellectual property [IP] office); direct nonresident (foreign applicants filing directly at a given national or regional IP office); aggregate direct (applicants not identified as direct resident or direct nonresident by the national or regional office); and Madrid (designations received by the national or regional IP office based on international applications filed via the World Intellectual Property Organization—administered Madrid System). Data are based on information supplied to WIPO by IP offices in annual surveys, supplemented by data in national IP office reports. Data may be missing for some offices or periods.

## Definitions

- **Researchers in research and development (R&D)** are professionals engaged in conceiving of or creating new knowledge, products, processes, methods, and systems and in managing the projects concerned. Postgraduate doctoral students (International Standard Classification of Education 1997 level 6) engaged in R&D are considered researchers.
- **Technicians in R&D** and equivalent staff are people whose main tasks require technical knowledge and experience in engineering, physical and life sciences (technicians), and social sciences and humanities (equivalent staff). They engage in R&D by performing scientific and technical tasks involving the application of concepts and operational methods, normally under researcher supervision.
- **Scientific and technical journal articles** are published articles in physics, biology, chemistry, mathematics, clinical medicine, biomedical research, engineering and technology, and earth and space sciences.
- **Expenditures for R&D** are current and capital expenditures on creative work undertaken on a systematic basis to increase the stock of knowledge, including knowledge on humanity, culture, and society, and the use of knowledge to devise new applications.
- **High-technology exports** are products with high R&D intensity, such as in aerospace, computers, pharmaceuticals, scientific instruments, and electrical machinery.
- **Royalty and license fees** are payments and receipts between residents and nonresidents for authorized use of intangible, nonproduced, nonfinancial assets and proprietary rights (such as patents, copyrights, trademarks, and industrial processes) and for the use, through licensing, of produced originals of prototypes (such as films and manuscripts).
- **Patent applications filed** are patent applications at a national or regional patent office; an international patent application (Patent Cooperation Treaty filing) provides a national patent grant only.
- **Trademark applications filed** are applications to register a trademark with a national or regional IP office.

## Data sources

Data on R&D are provided by the UNESCO Institute for Statistics. Data on scientific and technical journal articles are from the U.S. National Science Board's *Science and Engineering Indicators 2012*. Data on high-technology exports are from the United Nations Statistics Division's Commodity Trade (Comtrade) database. Data on royalty and license fees are from the International Monetary Fund's *Balance of Payments Statistics Yearbook*. Data on patents and trademarks are from the World Intellectual Property Organization ([www.wipo.int/ipstats](http://www.wipo.int/ipstats)).