3.12 | Traffic and congestion

	Motor vehicles				Passenger cars		Two-wheelers		Road traffic		Traffic accidents	
	per 1,000 people		per kilometer of road		per 1,000 people		per 1,000 people		million vehicle kilometers		people injured or killed per 1,000 vehicles	
	1980	1998	1980	1998	1980	1998	1980	1998	1980	1998	1980	1998
Albania	..	40	..	8	..	27	..	1	..	..	..	5
Algeria	..	52	..	15	30	25	1	..	..	..	..	..
Angola	..	20	..	3	..	18	..	..	..	..	..	..
Argentina	155	176	20	29	..	137	..	1	..	..	..	..
Armenia	..	2	..	1	..	0	..	2	..	..	..	347
Australia	502	605	..	12	401	488	24	16	204	..	5	..
Austria	330	521	23	13	297	481	76	74	35,430	..	27	13
Azerbaijan	..	47	..	15	..	36	..	1	..	..	..	8
Bangladesh	..	1	..	1	..	1	..	1	..	..	..	66
Belarus	..	112	..	20	..	..	..	54	..	5,650	..	8
Belgium	349	485	28	33	..	435	..	23	45,779	..	25	14
Benin	..	8	..	7	..	7	..	44	..	..	..	74
Bolivia	19	52	3	7	..	32	..	9	795	1,730	41	..
Bosnia and Herzegovina	..	26	..	5	..	23	..	..	..	..	..	25
Botswana	27	45	3	4	9	15	1	..	..	..	50	94
Brazil	85	77	7	6	75	..	3	..	..	..	3	..
Bulgaria	..	252	..	56	92	220	..	62	665	..	..	4
Burkina Faso	..	5	..	5	..	4	..	10	..	..	..	..
Burundi	..	..	..	..	..	..	..	..	..	..	..	..
Cambodia	..	6	..	2	..	5	..	41	..	1,407	..	31
Cameroon	8	12	4	5	..	7	..	..	..	..	112	..
Canada	548	560	..	19	417	455	19	11	205,515	..	..	13
Central African Republic	8	1	1	0	..	0	..	0	..	1,250	..	138
Chad	..	8	..	1	..	3	..	1	..	..	..	..
Chile	61	110	8	20	45	71	4	2	7,540	..	38	33
China	2	8	2	7	..	3	..	8	2,032	..	12	..
Hong Kong, China	54	77	234	279	41	56	5	5	4,407	10,685	77	37
Colombia	..	40	..	13	11	21	17	..	2,480	..	..	..
Congo, Dem. Rep.	..	..	..	..	..	..	..	..	..	..	..	..
Congo, Rep.	..	20	..	4	..	14	..	..	..	..	..	..
Costa Rica	..	130	..	13	20	85	..	15	..	..	..	29
Côte d'Ivoire	24	28	..	9	..	18	..	..	..	..	..	..
Croatia	..	..	..	..	..	..	..	..	..	..	..	..
Cuba	..	32	..	6	..	16	..	16	..	..	..	28
Czech Republic	..	402	..	32	..	358	..	106	..	43,753	..	9
Denmark	322	413	24	3	271	355	..	11	26,300	44,053	10	4
Dominican Republic	36	45	11	30	20	27	12	..	..	..	18	..
Ecuador	..	45	..	15	28	41	..	2	..	..	..	16
Egypt, Arab Rep.	..	30	..	28	8	23	..	7	..	..	..	..
El Salvador	..	61	..	36	16	30	..	5	..	4,244	..	26
Eritrea	..	2	..	2	..	2	..	..	..	..	..	..
Estonia	..	372	..	11	..	312	..	4	..	..	..	4
Ethiopia	2	2	1	4	1	1	0	0	2	..	38	..
Finland	288	448	18	30	256	392	36	33	26,750	44,800	7	4
France	402	530	27	35	355	442	97	..	298,000	491,300	16	6
Gabon	..	29	..	5	..	17	..	..	..	..	..	..
Gambia, The	..	17	..	7	11	8	1	..	..	..	..	..
Georgia	..	87	..	23	..	80	..	5	..	..	..	5
Germany	399	522	51	69	297	506	38	36	..	583,100	..	12
Ghana	..	7	..	4	..	5	..	..	..	..	..	..
Greece	134	328	35	28	91	238	12	203	..	..	23	10
Guatemala	..	17	..	15	..	9	..	..	..	..	..	..
Guinea	..	5	..	1	..	2	..	..	..	..	..	..
Guinea-Bissau	..	10	..	3	..	6	..	..	..	..	..	..
Haiti	..	7	..	13	..	4	..	..	..	..	..	..
Honduras	..	37	..	13	..	..	..	..	..	..	..	..

Traffic and congestion | 3.12

	Motor vehicles				Passenger cars		Two-wheelers		Road traffic		Traffic accidents	
	per 1,000 people		per kilometer of road		per 1,000 people		per 1,000 people		million vehicle kilometers		people injured or killed per 1,000 vehicles	
	1980	1998	1980	1998	1980	1998	1980	1998	1980	1998	1980	1998
Hungary	108	268	13	16	95	229	..	14	..	..	22	10
India	2	7	1	3	..	5	..	24	..	..	..	61
Indonesia	8	22	8	11	..	12	..	59	..	..	59	1
Iran, Islamic Rep.	..	36	..	15	..	26	..	43	..	..	..	14
Iraq	..	56	..	23	..	39	..	..	..	..	..	5
Ireland	236	314	9	12	216	279	8	6	14,917	28,390	11	12
Israel	123	264	114	100	107	215	..	13	10,442	33,456	38	31
Italy	334	591	65	108	303	539	114	66	226,569	..	12	8
Jamaica	..	48	..	7	..	40	..	..	..	..	..	..
Japan	323	560	34	61	203	394	102	115	389,052	744,380	16	14
Jordan	56	66	25	44	41	48	2	0	623	2,154	63	54
Kazakhstan	..	82	..	11	..	62	..	13	..	..	..	10
Kenya	8	14	3	6	7	11	1	1	..	..	74	..
Korea, Dem. Rep.	..	..	..	..	..	..	..	..	..	..	..	..
Korea, Rep.	14	226	11	120	7	163	6	56	8,728	67,266	212	33
Kuwait	390	462	..	156	..	359	..	..	12,189	..	7	..
Kyrgyz Republic	..	32	..	8	..	32	..	1	..	..	..	..
Lao PDR	..	4	..	1	..	3	..	49	..	..	..	..
Latvia	..	237	..	10	..	198	..	8	..	..	..	10
Lebanon	..	..	..	205	..	..	..	15	..	..	..	3
Lesotho	10	17	3	8	3	6	0	..	..	..	85	..
Libya	..	209	..	948	..	154	..	0	..	..	..	8
Lithuania	..	293	..	15	..	265	..	5	..	..	..	8
Macedonia, FYR	..	156	..	35	..	142	..	1	..	4,247	..	12
Madagascar	..	5	3	2	..	4	..	..	1	..	..	9
Malawi	5	5	3	2	2	2	2	..	..	..	..	89
Malaysia	..	172	..	37	52	145	101	212	..	..	..	13
Mali	..	5	..	3	..	3	..	..	..	3	..	..
Mauritania	..	12	..	4	..	8	..	..	..	..	..	..
Mauritius	44	92	23	57	27	71	27	94	46	..	..	35
Mexico	..	144	..	41	60	97	..	3	..	..	..	..
Moldova	..	65	..	19	..	46	..	25	..	910	..	15
Mongolia	..	30	..	2	..	16	..	10	..	1,889	..	25
Morocco	..	48	..	21	..	38	..	1	18	..	..	46
Mozambique	..	1	..	0	..	0	..	..	..	..	..	..
Myanmar	..	1	..	2	..	1	..	..	..	..	..	..
Namibia	..	82	..	2	..	46	..	1	..	2,317	..	5
Nepal	..	..	..	..	..	..	..	..	..	..	..	..
Netherlands	343	421	..	57	322	391	61	67	70,825	109,030	12	3
New Zealand	492	579	17	22	420	470	43	13	16,545	..	11	..
Nicaragua	..	34	..	8	8	18	..	5	..	150	..	29
Niger	6	5	..	5	5	4	..	..	..	240	63	..
Nigeria	4	26	3	14	3	9	4	4	..	..	123	10
Norway	342	498	17	24	302	402	36	52	..	30,974	8	6
Oman	..	152	..	9	..	103	..	2	..	..	..	23
Pakistan	2	8	5	4	2	5	3	14	..	31,950	71	18
Panama	..	102	..	25	..	79	..	3	..	..	..	39
Papua New Guinea	..	27	..	6	..	7	..	..	..	..	..	..
Paraguay	..	24	..	4	..	14	..	..	..	..	..	..
Peru	..	42	..	13	..	26	..	..	..	..	..	32
Philippines	..	31	..	11	6	10	4	14	..	9,548	..	6
Poland	86	273	10	28	67	230	..	40	44,597	153,060	..	8
Portugal	145	347	26	0	..	309	..	77	..	89,130	31	20
Puerto Rico	..	280	..	74	..	229	..	..	..	..	..	..
Romania	..	135	..	20	..	116	..	15	..	35,675	..	3
Russian Federation	..	154	..	44	..	120	..	..	..	..	..	10

	Motor vehicles				Passenger cars		Two-wheelers		Road traffic		Traffic accidents	
	per 1,000 people		per kilometer of road		per 1,000 people		per 1,000 people		million vehicle kilometers		people injured or killed per 1,000 vehicles	
	1980	1998	1980	1998	1980	1998	1980	1998	1980	1998	1980	1998
Rwanda	2	3	2	2	1	1	1	..	..	..	..	..
Saudi Arabia	163	166	26	18	67	98	..	0	..	..	..	10
Senegal	19	14	8	8	..	10	..	0	..	..	56	86
Sierra Leone	..	6	..	3	..	5	..	2	..	529	..	30
Singapore	..	168	..	168	71	108	55	42	..	..	..	14
Slovak Republic	..	253	..	77	..	222	..	19	..	9,593	..	10
Slovenia	..	440	..	44	..	403	..	5	..	7,482	..	9
South Africa	133	..	18	17	85	85	7	7	52,939	..	25	..
Spain	239	467	120	54	202	385	33	34	70,489	178,495	13	7
Sri Lanka	..	34	..	7	8	15	6	40	..	15,630	..	26
Sudan	..	10	..	28	..	9	..	..	..	..	..	..
Sweden	370	468	24	20	347	428	2	29	35,000	66,806	7	5
Switzerland	383	516	38	51	356	477	128	103	..	50,110	14	8
Syrian Arab Republic	..	27	..	10	..	9	..	..	..	..	..	24
Tajikistan	..	2	..	1	..	0	..	..	..	..	..	..
Tanzania	3	5	1	2	2	1	1	..	..	..	..	..
Thailand	13	103	13	97	9	27	19	171	16,824	99,900	29	..
Togo	..	27	1	15	..	19	..	14	..	..	..	..
Trinidad and Tobago	..	108	..	18	..	90	..	..	..	..	..	..
Tunisia	38	64	10	25	20	30	2	..	..	..	45	..
Turkey	23	81	4	10	..	64	..	15	14,785	49,869	26	23
Turkmenistan	..	..	..	..	..	..	..	..	..	..	..	..
Uganda	1	4	1	..	1	2	0	2	479	..	..	130
Ukraine	..	94	..	27	..	..	..	52	..	59,150	..	11
United Arab Emirates	..	14	..	52	..	11	..	..	..	..	..	..
United Kingdom	303	439	50	67	268	375	24	12	245,900	404,500	19	13
United States	..	767	25	33	536	483	30	14	2,418,619	..	..	16
Uruguay	..	169	..	63	..	154	..	110	..	..	..	5
Uzbekistan	..	..	..	..	..	..	..	..	..	..	..	..
Venezuela, RB	112	..	27	23	91	69	41	..	56,900	..	32	3
Vietnam	..	..	..	..	..	..	..	45	..	..	..	..
West Bank and Gaza	..	..	..	..	..	..	..	..	..	..	..	..
Yemen, Rep.	..	32	..	8	8	14	3	..	1,251	11,476	..	15
Yugoslavia, FR (Serb./Mont.)	118	188	23	42	..	173	..	4	..	..	59	11
Zambia	..	23	..	6	..	15	..	..	..	..	..	..
Zimbabwe	..	31	..	19	..	28	..	32	..	..	..	54
World	**72** w	**116** w	..	..	.. w	**91** w	..	..	..	..	..	..
Low income	3	9	..	..	..	5	..	..	..	..	..	..
Excl. China & India	6	13	..	..	..	7	..	..	..	..	..	..
Middle income	..	104	..	..	..	79	..	..	..	..	..	..
Lower middle income	..	78	..	..	..	55	..	..	..	..	..	..
Upper middle income	77	173	..	..	62	140	..	..	..	..	..	..
Low & middle income	14	38	..	..	..	25	..	..	..	..	..	..
East Asia & Pacific	3	21	..	..	..	11	..	..	..	..	..	..
Europe & Central Asia	..	157	..	..	..	138	..	..	..	..	..	..
Latin America & Carib.	93	89	..	..	62	67	..	..	..	..	..	..
Middle East & N. Africa	..	65	..	..	..	45	..	..	..	..	..	..
South Asia	2	6	..	..	..	4	..	..	..	..	..	..
Sub-Saharan Africa	21	21	..	..	14	13	..	..	..	..	..	..
High income	321	585	..	..	355	429	..	..	..	..	..	..
Europe EMU	345	511	..	..	296	453	..	..	..	..	..	..

Traffic and congestion | 3.12

About the data

Traffic congestion in urban areas constrains economic productivity, damages people's health, and degrades the quality of their lives. The particulate air pollution—the dust and soot in exhaust—emitted by motor vehicles is proving to be far more damaging to human health than was once believed. (See table 3.13 for information on suspended particulates and other air pollutants.)

In recent years ownership of passenger cars has increased, and the expansion of economic activity has led to the transport by road of more goods and services over greater distances (see table 5.9). These developments have increased demand for roads and vehicles, adding to urban congestion, air pollution, health hazards, traffic accidents, and injuries.

Congestion, the most visible cost of expanding vehicle ownership, is reflected in the indicators in the table. Other relevant indicators—such as average vehicle speed in major cities or the cost of traffic con-gestion, which exact a heavy toll on economic productivity—are not included here because data are incomplete or difficult to compare.

The data in the table are compiled by the International Road Federation (IRF) through questionnaires sent to national organizations. The IRF uses a hierarchy of sources to gather as much information as possible. The primary sources are national road associations. When such an association is lacking or does not respond, other agencies are contacted, including road directorates, ministries of transport or public works, and central statistical offices. As a result the compiled data are of uneven quality. The coverage of each indicator may differ across countries because of differences in definitions. Comparability also is limited when time-series data are reported. Moreover, the data do not capture the quality or age of vehicles or the condition or width of roads. Thus comparisons over time and between countries should be made with caution.
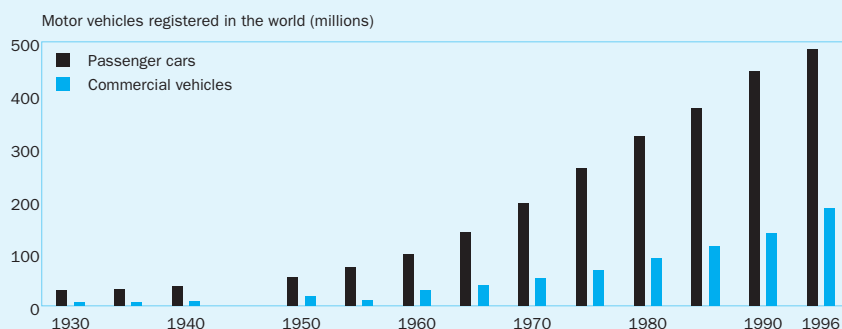
Definitions

• **Motor vehicles** include cars, buses, and freight vehicles but not two-wheelers. Population figures refer to the midyear population in the year for which data are available. Roads refer to motorways, highways, main or national roads, or secondary or regional roads. A motorway is a road specially designed and built for motor traffic that separates the traffic flowing in opposite directions. • **Passenger cars** refer to road motor vehicles, other than two-wheelers, intended for the carriage of passengers and designed to seat no more than nine people (including the driver). • **Two-wheelers** refer to mopeds and motorcycles. • **Road traffic** is the number of vehicles multiplied by the average distances they travel. • **Traffic accidents** refer to accident-related injuries reported to the authorities and to deaths resulting from accidents that occur within 30 days of the accident.

Data sources

The data in the table are from the IRF's electronic files and its annual *World Road Statistics*.

Figure 3.12

Growth in passenger cars accelerates

Motor vehicles registered in the world (millions)

Source: American Automobile Manufacturers Association 1998.

Table 3.12a

The top 10 vehicle-owning countries, 1998

	Vehicles per 1,000 people
United States	767
Australia	605
Italy	591
New Zealand	579
Canada	560
Japan	560
France	530
Germany	522
Austria	521
Switzerland	516
World	116
Low-income countries	9
Middle-income countries	104
High-income countries	585

Source: Table 3.12.