

G-7 Countries:



**Transportation
Highlights**


**U.S. Department of Transportation
Bureau of Transportation Statistics**

G-7 Countries:



**U.S. Department of Transportation
Bureau of Transportation Statistics**

November 1999



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Introduction

This report provides summary statistics on the physical characteristics, use, and performance of transportation networks in the United States, Canada, France, Germany, Italy, the United Kingdom, and Japan—the Group of Seven (G-7) countries.¹ Data on safety, transportation-related energy use, and environmental impacts are also given. The Bureau of Transportation Statistics (BTS) used many sources to assemble these data, but relied primarily on statistical compendiums published by international agencies to obtain data about Japan and European G-7 countries. Although basic socioeconomic data are readily available for these countries, transportation statistics are generally less accessible and, for a given country, are often the responsibility of several government agencies.

Data-collection and processing procedures also vary by country, making it very difficult to compare figures. Some data may be compiled from administrative and regulatory documents, while other data are collected through surveys. Furthermore, methodologies, definitions, and terminologies may differ from country to country. Every effort was made in this report to use comparable data or identify differences. In some instances, countries did not report all data requested by the international agency preparing the

compilation. In such cases, the tables indicate that the data are unavailable from the cited sources. In some cases, however, such data could be obtained from sources in the individual country.

Most of the U.S. data were compiled by BTS from various sources. Source and accuracy profiles for much of the U.S. data can be found in the BTS report, *National Transportation Statistics 1998* (NTS98), available on the Internet at <http://www.bts.gov>, or in the forthcoming edition of this report for 1999. Users should note, however, that the data categories in some of the tables in this report differ from those in the NTS98. For other G-7 countries, readers should consult the source documents regarding methods of data collection and measures of statistical reliability.

This report is one of several efforts by BTS to provide international transportation data and analysis to U.S. decisionmakers, as called for in the 1998 Transportation Equity Act for the 21st Century. An electronic version of this report, including downloadable spreadsheet files in metric and U.S. measures, will be available on the BTS website. Other BTS reports are also available on the Internet at <http://www.bts.gov> or can be ordered by calling (202) 366-DATA.

¹In 1975, these countries created the G-7 to promote balanced economic growth and stability of exchange rates. In 1998, the G-8 was formed, when Russia became a full participating member.

However, the G-7 still exists alongside the G-8. Russia was not included in this publication due to its recent introduction to the group and lack of readily available data.



**THE
TRANSPORTATION
SYSTEM**

Table 1**Country Overview: 1996**

	Canada	France	Germany	Italy	Japan	United Kingdom	United States
National population (millions)	30	58	82	57	126	59	265
Population density (number of people per square kilometer)	3	110	230	200	330	240	29
Urban population (% of total national population)	78	75	87	67	78	89	80
Land area (thousands of square kilometers)	9,215	550	349	294	377	242	9,159

Notes**All countries**

- The numbers in this table were taken from many sources. Data-collection and processing procedures vary by country making cross-country comparison difficult. Data users should consult the source documents for indications of statistical reliability and comparability.

Canada

- Urban population: Based on areas with minimum population concentrations of 1,000 and a population density of at least 400 people per square kilometer.

European G-7 countries and Japan

- National population: Taken from country submissions to the World Bank. Annual population figures are generally extrapolated from the most recent national census, but the frequency and quality of these censuses vary by country. Total population

includes all residents, except, for the most part, refugees not permanently settled in the country of asylum.

- Land area: Data are gathered annually from national agencies by the Food and Agriculture Organization, a specialized agency of the United Nations. Land area is a country's total area, excluding area under inland water bodies (generally major rivers and lakes). Land area differs from surface area, which includes inland bodies of water and some coastal waterways, and gross area, which may include offshore territorial waters.

United States

- Urban population: In general, an urbanized area is comprised of one or more places (central place) and the adjacent densely settled surrounding territory (urban fringe) that together have a minimum of 50,000 persons.

Sources

- Land area: Data include U.S. territories. Data exclude U.S. inland water, coastal water, territorial seas, and Great Lakes water.

Canada

National population: Statistics Canada, *Annual Demographics Statistics*, Catalogue 91-213-XPB (Ottawa, Ontario: 1998); and special tabulations.

Urban population: Statistics Canada, Census Division, Ottawa, Ontario, 1996.

Land area: Natural Resources Canada, GeoAccess

Division, Ottawa, Ontario, 1998.

European G-7 countries and Japan

The World Bank, *World Development Indicators* (Washington, DC: 1998).

United States

U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 1998* (Washington, DC: 1998).

U.S. Department of Commerce, Bureau of the Census, *Estimates of the Population of Metropolitan Areas: Annual Time Series, July 1, 1991 to July 1, 1996* (Washington, DC: 1997).

Table 2**Physical System Extent: 1996**

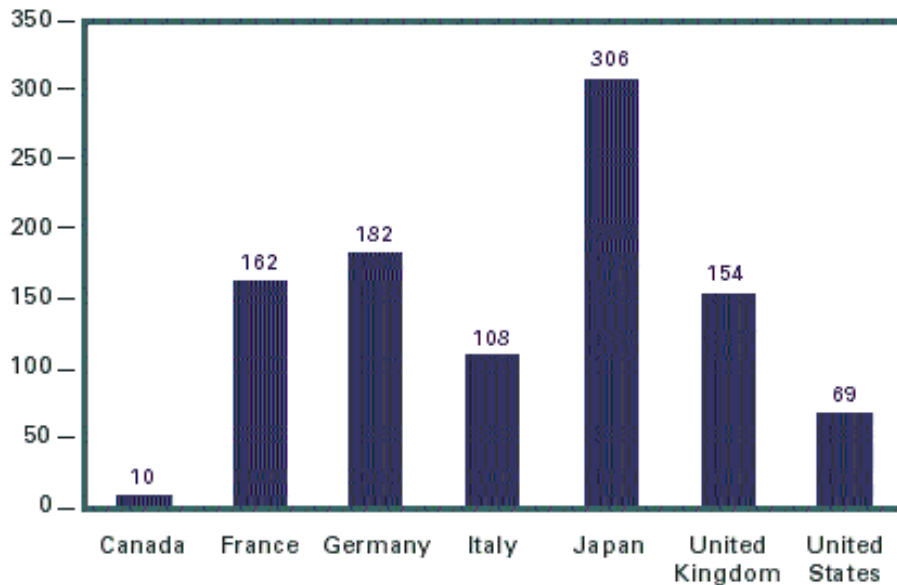
	Canada	France	Germany	Italy	Japan	United Kingdom	United States
SYSTEM LENGTH (kilometers)							
Road, total	^a 912,200	892,500	633,700	316,400	1,152,070	371,870	6,331,000
Motorways	^a 16,600	9,500	11,300	9,500	6,070	3,270	88,605
Highways— main and national	^a 15,000	28,000	41,600	46,900	59,000	15,400	748,972
Secondary/ regional	^a 224,800	355,000	75,800	118,000	121,000	36,200	695,407
Other roads	^a 655,800	500,000	505,000	142,000	966,000	317,000	4,774,585
Inland waterways, total^b	2,825	^c 5,736	^a 6,663	2,400	^a 1,770	^d 1,631	43,000
Pipeline, total	314,124	32,292	105,154	23,251	2,206	16,726	2,364,985
Gas	277,166	24,746	97,564	19,400	1,800	12,800	2,042,312
Oil	36,959	7,546	7,590	3,851	406	3,926	^a 322,673
Rail, total	77,387	^c 52,204	41,718	^a 16,003	^a 27,318	^a 33,063	286,000
Transit rail, total	N	U	U	U	4,259	U	6,961
NUMBER OF FACILITIES							
Airports	1,141	460	613	132	164	387	13,175
Marine ports and facilities	172	U	U	U	U	U	321

^a Data year is 1995.^b Commercially navigable.^c Data year is 1994.^d Data year is 1990.**Key:**

N = data are nonexistent.

U = data are unavailable from cited sources.

Road Density: 1996
(Road-kilometers per 100 square kilometers)



Sources: See tables 1 and 2.

Notes

All countries

■ The numbers in this table were taken from many sources. Data-collection and processing procedures vary by country making cross-country comparison difficult. Data users should consult the source documents for indications of statistical reliability and comparability.

Canada

- Rail: Yard tracks, sidings, and parallel lines; includes freight and intercity rail only.
- Airports: Aerodromes (facilities that are registered with Transport Canada as aircraft landing and takeoff sites). Data do not include heliports, STOLports (air-

ports designed for short takeoff and landing aircraft, separate from conventional airport facilities), and seaplane bases.

- Marine ports or facilities: Those reporting domestic and international cargo via either Statistics Canada's *Domestic Shipping Report* or Revenue Canada's *Customs Declaration*.

European G-7 countries and Japan

- Road: Data represent a sum of the motorways; highways, main and national; secondary/regional; and other roads. This may differ from primary source data.

- **Rail:** One or more adjacent running tracks forming a route between two points. Unless noted, data include yard tracks and sidings. Data also may include transit rail. French, Japanese, and British data include tracks and sidings, while German and Italian data do not. Japanese data are for Japan Rail (a national carrier) and large and mid-sized privatized railroad companies. Japanese transit rail extent is based on data for subways, monorail systems, automated guideway transit systems, cable cars, and tram cars.
- **Airports:** The total number of airports with paved and unpaved runways (concrete or asphalt surfaces), including military landing fields, based on information from the U.S. Department of Defense National Imagery and Mapping Agency. Data exclude heliports. Information is not available as to whether STOLports and seaplane bases are included.

United States

- **Road:** The road total includes data for Puerto Rico, however, data for Puerto Rico are not included in the individual road categories. Individual categories represented include: motorways—Interstate, urban and rural, principal arterial (other freeways and expressways); highways, main and national—principal arterial, other, urban and rural; minor arterial—urban and rural; secondary/regional—major collector, rural; other roads—local, urban and rural; and minor collector—rural.
- **Inland waterways:** Estimated length of inland waterways on which commercial traffic was reported to the U.S. Army Corps of Engineers.
- **Rail:** Length of track owned including yard tracks, sidings, and parallel lines of Class I freight railroads and intercity passenger rail (Amtrak). Class I railroads accounted for 73% of the industry's distance operated.
- **Transit rail:** Commuter rail, heavy rail, and light rail. Data are one-way, fixed guideway.

- **Airports:** Civilian and joint-use civilian-military airports. Purely military airports are excluded. Data do not include heliports, STOLports, and seaplane bases.
- **Marine ports and facilities:** Those with activity exceeding one U.S. short ton per year, either domestic or foreign. Includes ports in U.S. territories.

Sources

Canada

Road: International Road Federation, *World Road Statistics '98* (Geneva, Switzerland: 1998).

Inland waterways: Transport Canada, *Marine Distance Library, 1997* (Ottawa, Ontario: 1998).

Pipeline: Statistics Canada, Gas Utilities, *Transport and Distribution Systems*, Catalogue 57-205-XPB 1997 (Ottawa, Ontario: 1997).

_____. *Oil Pipe Line Transport*, Catalogue 55-201-XPB 1997 (Ottawa, Ontario: 1997).

Rail: Statistics Canada, *Rail in Canada*, Catalogue 52-216-XPB 1997 (Ottawa, Ontario: 1998).

Airports: Natural Resources Canada, *Canada Flight Supplement* (Ottawa, Ontario: 1998).

Marine ports and facilities: Statistics Canada, Transportation Division, special request, 1998.

European G-7 countries

Road: International Road Federation, *World Road Statistics '98* (Geneva, Switzerland: 1998).

Inland waterways and rail: United Nations Economic Commission for Europe, *Annual Bulletin of Transport Statistics for Europe and North America* (Geneva, Switzerland: 1997).

Airport and pipeline: Central Intelligence Agency, *1997 World Fact Book* (Washington, DC: 1997).

Japan

Road: International Road Federation, *World Road Statistics '98* (Geneva, Switzerland: 1998).

Airports, inland waterways, and pipeline: Central Intelligence Agency, *1997 World Fact Book* (Washington, DC: 1997).

Rail: Japan Transport Economics Research Center, *Transportation Outlook in Japan '98* (Tokyo, Japan: 1998).

United States

Road: U.S. Department of Transportation, Federal Highway Administration, special tabulation, 1998.

Inland waterways and marine ports and facilities: U.S. Army Corps of Engineers, Navigation Data Center, special tabulation, 1998.

Gas pipeline: American Gas Association, *Gas Facts 1996* (Arlington, VA: 1997).

Oil Pipeline: Eno Transportation Foundation,

Inc., *Transportation in America* (Lansdowne, VA: 1997).

Rail: Association of American Railroads, *Railroad Facts* (Washington, DC: 1997). National Railroad Passenger Corp., *Amtrak Annual Report 1996* (Washington, DC: 1996), statistical appendix.

Transit rail: American Public Transit Association, *Transit Fact Book 1996* (Washington, DC: 1996).

Air: U.S. Department of Transportation, Federal Aviation Administration, *Statistical Handbook of Aviation 1996*, available at www.bts.gov/ntda/shafaa/prod.html.

Table 3**Number of Road Motor Vehicles: 1996**

	Canada	France	Germany	Italy	Japan	United Kingdom	United States
ROAD VEHICLES, total	17,182,626	29,514,673	45,103,886	U	^a71,776,000	24,444,000	210,236,393
Personal vehicles, total	13,562,927	25,661,000	42,672,000	34,674,671	61,286,000	21,788,000	202,533,376
Passenger vehicles	13,251,146	^b 24,900,000	^c 40,404,000	^c 31,700,000	40,477,000	21,022,000	129,728,341
Light trucks	N	U	U	U	19,584,000	U	68,933,798
Motorcycles	311,781	^b 761,000	^c 2,268,000	^d 2,974,671	1,225,000	766,000	3,871,237
Buses, total	64,550	^b79,300	^c86,258	^c77,100	242,000	159,000	696,609
Commercial freight vehicles, total	206,305	^b3,774,373	^b2,345,628	U	U	2,497,000	7,006,408
Single-unit trucks	35,290	^b 3,606,037	^b 2,215,236	U	U	U	5,264,554
Truck-tractors	92,059	^b 168,336	^b 130,392	U	U	U	1,741,854

^a Includes freight vehicles not separately listed.

^b Data year is 1994.

^c Data year is 1995.

^d Data year is 1990.

Key:

N = data are nonexistent.

U = data are unavailable from cited sources.

Notes**All countries**

- The numbers in this table were taken from many sources. Data-collection and processing procedures vary by country making cross-country comparisons difficult. Data users should consult the source documents for indications of statistical reliability and comparability.
- Personal vehicles: Sum of the passenger vehicles, light trucks, and motorcycles categories. Vehicles in these categories are used mostly for personal transportation, although in some countries an important share is used in business.
- Light trucks: Many countries do not separately break out data for light trucks (e.g., minivans, pickup

trucks, and sport utility vehicles). In many cases, light trucks are included in a country's figures for passenger vehicles.

Canada

- Road vehicles: The total number of registered vehicles. Data for individual vehicle categories do not sum to the overall total for road vehicles because two different data sources are used for the individual vehicle categories. The overall total also includes light trucks. However, light trucks cannot be broken out in any of the road subcategories.
- Personal vehicles: Passenger vehicles and motorcycles. Does not include light trucks, such as minivans and pickup trucks.

- Passenger vehicles: Registered passenger cars, taxis, for-hire cars, and other passenger road vehicles, as defined by provincial and territorial jurisdictions. Does not include light trucks.
- Buses: Intercity, charter, school, local transit buses.
- Commercial freight vehicles: Data are based on Statistics Canada's *Motor Carriers of Freight Survey*, supplemented by data from Canada's vehicle registration files. The figure for commercial freight vehicles is not a sum of single-unit trucks and truck-tractors, because other types of freight vehicles are included in the commercial freight vehicles total. Data for single-unit trucks and truck-tractors are estimates for owner-operators and/or Canadian for-hire motor carriers earning annual revenues greater than or equal to \$25,000 (Canadian).

European G-7 countries

- Personal vehicles: The sum of the passenger vehicles and motorcycles categories. Light trucks are not broken out as a separate category, but may be included in passenger vehicles.
- Passenger vehicles: Defined as road motor vehicles designed to seat no more than 9 persons (including the driver). Includes passenger automobiles, taxis, and hired passenger vehicles with fewer than 10 seats. May also include pickup trucks, minivans, and sport utility vehicles.
- Buses: Road motor vehicles designed to seat more than 9 persons (including the driver), including local, charter, and intercity buses.
- Single-unit trucks: Rigid road motor vehicles designed, exclusively or primarily, to carry goods. Includes commercial vans with a gross vehicle weight of not more than 3,500 kg, and may also include pickup trucks used commercially. Based on trucks in use at the end of the year.
- Truck-tractors: Road motor vehicles designed, exclusively or primarily, to haul semi-trailers or other

road vehicles that are not power-driven. Excludes agricultural tractors.

Japan

- Road vehicles: The overall total includes some commercial freight vehicles as well as other Japanese vehicle type categories not separately listed in this table.

United States

- Road vehicles: Registered vehicles, except local motor buses, that are active passenger vehicles.
- Passenger vehicles: Taxis, passenger automobiles.
- Light trucks: Vans, pickup trucks, sport utility vehicles.
- Buses: Intercity, charter, school, local transit buses.

Sources

Canada

Road: Statistics Canada, *Road Motor Vehicles: Registrations*, Catalogue 53-219-XPB (Ottawa, Ontario: 1997).

_____. *Passenger Bus and Urban Transport Statistics*, Catalogue 53-215-XPB (Ottawa, Ontario: 1997).

_____. *Trucking in Canada* (Ottawa, Ontario: 1997).

European G-7 countries

United Nations Economic Commission for Europe, *Annual Bulletin of Transport Statistics for Europe and North America* (Geneva, Switzerland: 1997).

Japan

Japan Transport Economics Research Center, *Transportation Outlook in Japan '98* (Tokyo, Japan: 1998).

United States

U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 1996* (Washington, DC: 1997).

Table 4**Road Vehicle-Kilometers: 1996** (Billions)

	Canada ^a	France	Germany	Italy	Japan	United Kingdom	United States
ROAD, total	E317.1	473.3	575.0	467.2	U	442.5	3,994.7
Personal vehicles, total	271.1	370.0	511.8	407.0	U	366.6	3,690.1
Passenger vehicles	216.4	364.0	500.0	393.0	421.0	362.4	2,362.7
Motorcycles	1.0	^b 6.0	11.8	14.0	U	4.2	15.9
Light trucks	53.7	U	U	U	U	U	1,312.1
Buses, total	1.7	2.3	3.5	5.2	6.8	4.8	10.5
Commercial freight vehicles, total	44.3	101.0	59.7	55.0	U	71.1	294.2
Single-unit trucks	N	U	U	U	U	U	103.0
Truck-tractors	N	U	U	U	U	U	191.2

^a Data year is 1995.

^b Data year is 1993.

Key:

N = data are nonexistent.

E = estimate, see note.

U = data are unavailable from cited sources.

Notes**All countries**

■ The numbers in this table were taken from many sources. Data-collection and processing procedures vary by country making cross-country comparisons difficult. Data users should consult the source documents for indications of statistical reliability and comparability.

Canada

■ All data are based on a Transport Canada estimate for 1995 of the number of vehicle-kilometers traveled by passenger vehicles, light trucks, and commercial freight vehicles.

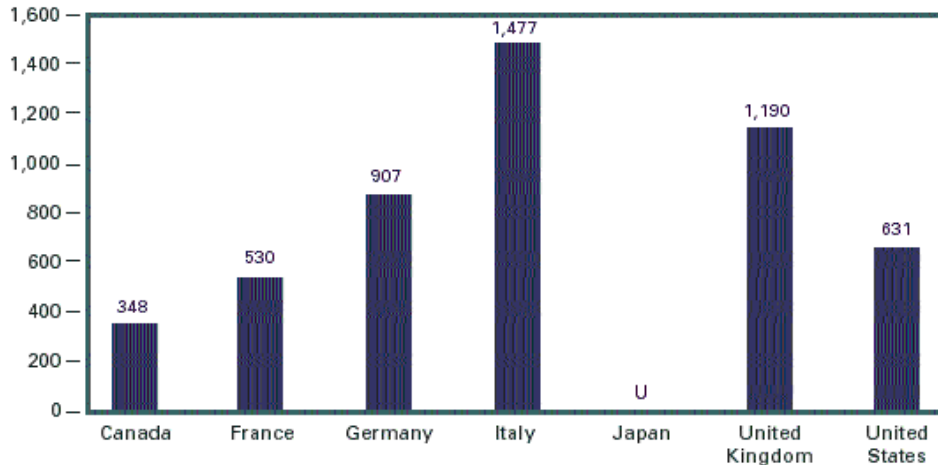
European G-7 countries (excluding the United Kingdom) and Japan

■ Road: Data are based on country submissions to the International Road Federation. Data for Germany, Italy, and Japan are preliminary for 1996. Data for France, Germany, and Italy are the sum of the personal vehicles, buses, and commercial freight vehicles categories.

■ Personal vehicles: Data for France, Germany, and Italy are the sum of the passenger vehicles and motorcycles categories.

■ Passenger vehicles: Generally includes taxis and may include light trucks.

Road Usage: 1996
(1,000 vehicle-kilometers traveled per road-kilometer)



U = data are unavailable.

- Commercial freight vehicles: Includes trucks and vans used in goods transport.

United Kingdom

- Personal vehicles: The sum of the passenger vehicles and motorcycles categories. Light trucks are not broken out as a separate category, but may be included under passenger vehicles.
- Passenger vehicles: Includes taxis.
- Motorcycles: Includes motorcycles, scooters, and mopeds.
- Commercial freight vehicles: All vehicles engaged in goods transport with a gross vehicle weight over 3,500 kilograms.

United States

- Road, total: Includes vehicle categories not separately identified in this table.
- Passenger vehicles: Includes taxis.
- Light trucks: Includes vans, pickup trucks, and sport utility vehicles.

- Buses: Includes intercity, charter, school, and local transit buses.

Sources

Canada

Transport Canada, *Transportation in Canada 1997: Annual Report* (Ottawa, Ontario: 1998).
 Statistics Canada, *Passenger Bus and Urban Transit Statistics*, Catalogue 53-215-XPB, 1996 (Ottawa, Ontario: 1998).

European G-7 countries and Japan

International Road Federation, *World Road Statistics '98* (Geneva, Switzerland: 1998).

United Kingdom

Department of the Environment, Transport and the Regions, *Transport Statistics Great Britain 1998 Edition* (London, England: 1998), table 4-7.

United States

U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 1996* (Washington, DC: 1997).

Table 5**Domestic Passenger Travel by Mode: 1996****(Passenger-kilometers, billions)**

	Canada ^a	France	Germany	Italy	Japan	United Kingdom	United States
PASSENGER-KILOMETERS, total	b523	b824	b915	b831	b1,409	b705	6,843
Air, total	N	U	U	U	U	U	716
Air carriers	25	^a 22	^a 6	^a 7	^a 60	^a 6	700
Road, total	E497	732	836	766	788	^c661	6,082
Personal vehicles	^E 466	691	759	679	693	609	5,860
<i>Passenger vehicles</i>	^E 368	674	748	626	620	<i>U</i>	3,756
<i>Motorcycles</i>	^E 1	17	11	53	<i>U</i>	4	18
<i>Light trucks</i>	^E 97	<i>U</i>	<i>U</i>	<i>U</i>	73	<i>U</i>	2,086
Buses	^E 31	41	77	87	95	44	223
Rail, total							
Intercity passenger rail	2	60	65	53	252	32	8
Transit, total	N	U	U	U	U	U	P66
Transit rail	N	10	8	5	151	7	^P 34

^a Data year is 1995.^b Does not include general aviation and some portions of transit.^c Includes mopeds and scooters.**Key:**

E = estimate, see note.

U = data are unavailable from cited sources.

P = preliminary.

N = data are nonexistent.

Notes**All countries**

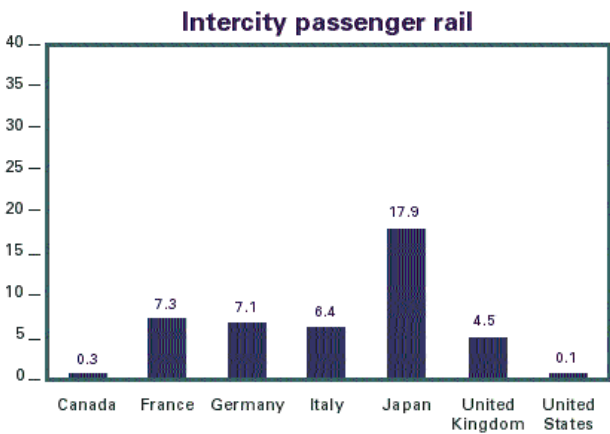
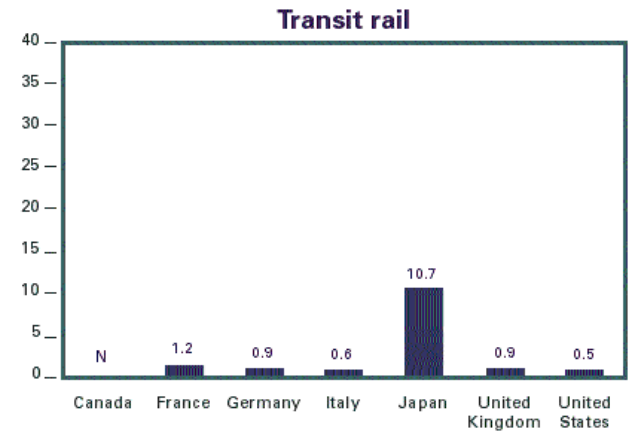
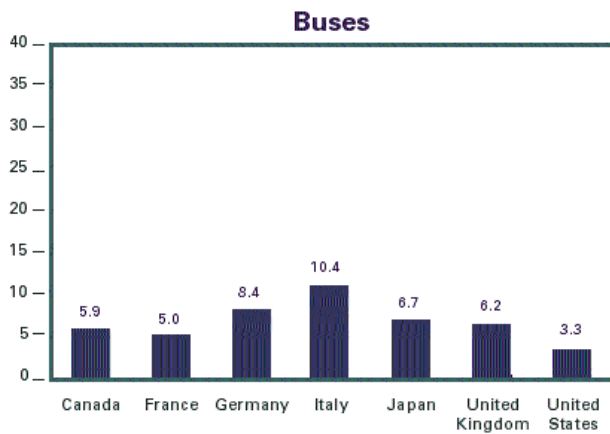
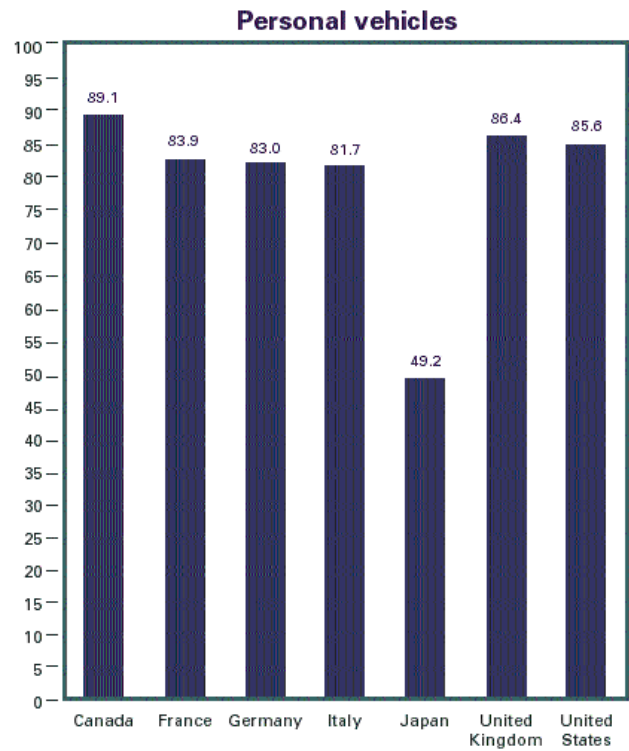
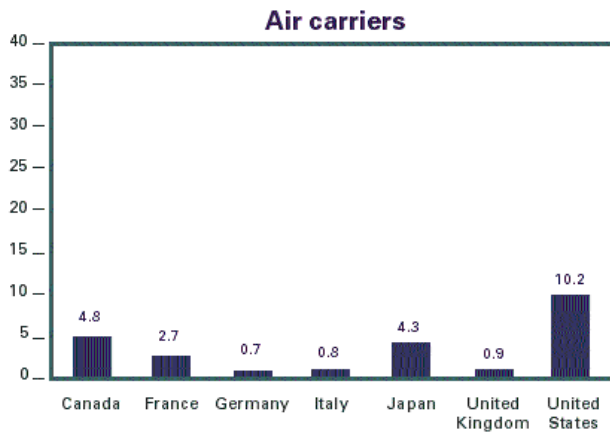
■ The numbers in this table were taken from many sources. Data-collection and processing procedures vary by country making cross-country comparison difficult. Data users should consult the source documents for indications of statistical reliability and comparability. Bicycling and walking are not included in the calculations of total passenger-kilometers as data are unavailable.

Canada

- Road: All data are based on a Transport Canada estimate for 1995 of the number of vehicle-kilometers traveled by personal vehicles (including passenger vehicles, motorcycles, and light trucks) and buses.
- Buses: Includes intercity, charter, school, and local transit buses.

(Notes continued on page 16)

Share of Total Domestic Passenger Travel by Mode: 1996
 (Percentage of total domestic passenger-kilometers)



N = data are nonexistent.

European G-7 countries (excluding the United Kingdom)

- **Air carrier:** Includes domestic scheduled and nonscheduled operations.
- **Road:** The sum of personal vehicles and buses.
- **Personal vehicles:** The sum of passenger vehicles and motorcycles. Some light trucks (e.g., minivans, pickup trucks, and sport utility vehicles) may be included.
- **Passenger vehicles:** Road motor vehicles intended for the carriage of passengers and designed to seat no more than 9 persons (including the driver). Includes taxis and other hired passenger vehicles, and may include light trucks.
- **Buses:** Passenger road motor vehicles designed to seat more than 9 persons (including the driver). Includes intercity, charter, school, and local transit buses.
- **Transit rail:** Defined as urban, suburban, or similar rail lines wholly operating within the boundaries of one or more built-up areas. Includes trams and subways.

Japan

- **Passenger-kilometers, total:** Includes some passenger travel not counted in the subcategories. Hence, the total does not equal the sum of the subcategories.
- **Air carriers:** Includes domestic scheduled and nonscheduled operations.
- **Passenger vehicles:** Includes both commercial and private-use vehicles.
- **Intercity rail:** Includes only Japan Railways (a national carrier).
- **Transit rail:** Includes subways, monorail systems, automated guideway transit systems, cable cars, and tram cars.

United Kingdom

- **Passenger-kilometers, total:** The sum of air carriers, road, buses, intercity passenger rail, and transit rail categories.
- **Air:** Revenue passenger-kilometers on scheduled and nonscheduled services (including Northern Ireland and the Channel Islands), but not passengers paying less than 25% of the full fare on scheduled and nonscheduled services, air taxi services, and private flying.
- **Personal vehicles:** Includes taxis and may include light trucks such as minivans, pickup trucks, and sport utility vehicles.
- **Motorcycles:** Motorcycles only (does not include mopeds or scooters).
- **Transit rail:** See definition under European G-7 countries.

United States

- **Passenger-kilometers, total:** Not the sum of subcategories, because local motor bus is included in both the road and transit totals. This double-counting has been removed from the overall total.
- **Air:** Includes general aviation.
- **Road:** Passenger vehicles include taxis. Light trucks include vans, pickup trucks, and sports utility vehicles. Buses include intercity, charter, school, and local motor bus.
- **Transit rail:** Includes commuter rail, heavy rail, and light rail.
- **Transit:** Total includes other U.S. transit categories not individually specified in subcategories, including local motor bus, ferries, and transit for the disabled. Local motor buses included here are not included in the passenger-kilometers, total.

Sources

Canada

Air carriers: Statistics Canada, *Canadian Civil Aviation*, Catalogue 51-206-XPB, 1997 (Ottawa, Ontario: 1997).

Road: Transport Canada, *Transportation in Canada 1997: Annual Report* (Ottawa, Ontario: 1998).

Intercity passenger rail: Statistics Canada, *Rail in Canada*, Catalogue 52-216-XPB, 1996 (Ottawa, Ontario: 1998).

European G-7 countries (excluding the United Kingdom)

Air carriers: International Civil Aviation Organization, *Civil Aviation Statistics of the World 1995* (Montreal, Canada: 1996).

Passenger vehicles and buses: Organization for Economic Cooperation and Development, European Conference of Ministers of Transport, *ECMT Trends in the Transport Sector, 1970–1996* (Paris, France: 1998).

Motorcycles, intercity passenger rail, and transit rail: The European Commission, Directorate General VII, *Transport in Figures* (Brussels, Belgium: 1998).

Japan

Air carriers: International Civil Aviation Organization, *Civil Aviation Statistics of the World 1995* (Montreal, Canada: 1996).

Rail and transit: Japan Transport Economics Research Center, Washington, DC, special tabulation, February 1999.

All data with the exception of air carriers, rail, and transit: Japan Transport Economics Research Center, *Transportation Outlook in Japan '98* (Tokyo, Japan: 1998).

United Kingdom

All data with the exception of rail and transit: Department of the Environment, Transport and the Regions, *Transport Statistics Great Britain 1998 Edition* (London, England: 1998).

Rail and transit: The European Commission, Directorate General VII, *Transport in Figures* (Brussels, Belgium: 1998).

United States

Air and air carrier: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics 1996* (Washington, DC: 1997).

U.S. Department of Transportation, Federal Aviation Administration, *Statistical Handbook of Aviation 1996*, available at www.bts.gov/ntda/shafaa/prod.html.

Road: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 1996* (Washington, DC: 1997).

Intercity passenger rail: Association of American Railroads, *Railroad Facts* (Washington, DC: 1997). National Railroad Passenger Corp., *Amtrak Annual Report 1996* (Washington, DC: 1996), statistical appendix.

Transit and transit rail: American Public Transit Association, *Transit Fact Book 1996* (Washington, DC: 1996).

Table 6**Domestic Passenger-Kilometers Traveled per Capita: 1996**

Country	Total passenger travel (billions of passenger-kilometers ^a)	Passenger-kilometers per capita ^b
Canada	523	17,000
France	824	14,000
Germany	915	11,000
Italy	831	15,000
Japan	1,409	11,000
United Kingdom	705	12,000
United States	6,843	26,000

^a Rounded to the nearest billion.^b Rounded to the nearest thousand.**Notes and Sources****All countries**

- Data are from table 5, Domestic Passenger Travel by Mode, and table 1, Country Overview. For specific notes and sources for individual countries, refer to tables 1 and 5.

Table 7**Passenger Vehicles per 1,000 Residents
and per Square Kilometer: 1996**

Country	Number of passenger vehicles (millions)	Passenger vehicles per 1,000 residents	Passenger vehicles per square kilometer
Canada	13.3	442	1
France	24.9	429	45
Germany	40.4	493	116
Italy	31.7	556	108
Japan^a			
Passenger vehicles	40.5	321	107
Passenger vehicles and light trucks	60.0	477	159
United Kingdom	21.0	356	87
United States^a			
Passenger vehicles	129.7	490	14
Passenger vehicles and light trucks	198.7	750	22

^a Number of passenger vehicles: Data generally represent passenger automobiles and taxis. Data for France, Germany, and Italy may include light trucks (e.g., minivans, pickup trucks, and sport utility vehicles). It is not possible to separate light trucks for these countries, while it is for the United States and Japan. Therefore, for this table, Japan and the United States data are represented two ways: one with light trucks and one without. For additional technical notes, see table 3, Number of Road Motor Vehicles.

Notes**All countries**

- The numbers in this table were taken from many sources. Data-collection and processing procedures vary by country making cross-country comparison difficult. Data users should consult the source documents for indications of statistical reliability and comparability.

Canada

- Canadian data for passenger vehicles are underrepresented because light trucks are not included in Canada's total for passenger vehicles.

Sources**All countries**

Number of passenger vehicles: See table 3, Number of Road Motor Vehicles.

Passenger vehicles per 1,000 inhabitants and per square kilometer: See table 1, Country Overview, for the population and land data for these calculations.

Table 8**Domestic Freight Activity by Mode: 1996** (Metric ton-kilometers, billions)

	Canada	France	Germany	Italy	Japan	United Kingdom	United States
TON-KILOMETERS,							
total	438.7	243.5	347.6	268.7	^a791.0	238.1	5,455.6
Air	0.6	^b 0.2	^b 0.02	^b 0.3	^b 0.7	^b 0.03	16.0
Water	40.2	12.7	61.2	34.8	461.8	56.1	1,116.4
<i>Coastal shipping</i>	10.3	^b 7.0	^c 0.5	34.6	241.8	46.9	595.8
<i>Inland waterways^d</i>	24.5	5.7	60.7	0.2	220.0	^c 0.2	435.5
Pipeline (oil only)	105.0	21.9	14.4	12.6	U	13.0	904.0
Rail	221.4	50.5	68.2	23.5	25.0	15.0	1,979.7
Road	71.5	158.2	203.8	197.6	303.4	154.0	1,439.5

^a Does not include pipeline.^b Data year is 1995.^c Data year is 1991.^d Commercially navigable.**Key:**

U = data are unavailable from cited sources.

Notes**All countries**

- The numbers in this table were taken from many sources. Data-collection and processing procedures vary by country making cross-country comparison difficult. Data users should consult the source documents for indications of statistical reliability and comparability.

Canada

- Air: Weight of freight, express, and diplomatic bags carried on each flight stage multiplied by the stage distance. Data include domestic activity, and scheduled and nonscheduled operations.
- Water: Total includes Great Lakes data which are not separately identified in this table.
- Pipeline: Natural gas totaled 175.6 billion

ton-kilometers in 1996. If natural gas activity was included in Canada's overall total, it would be 614.3 rather than 438.7.

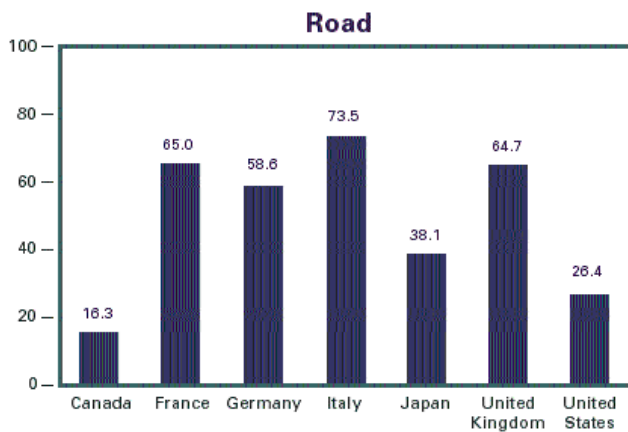
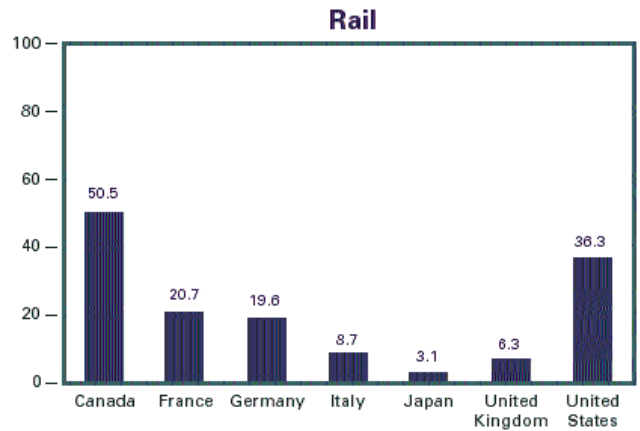
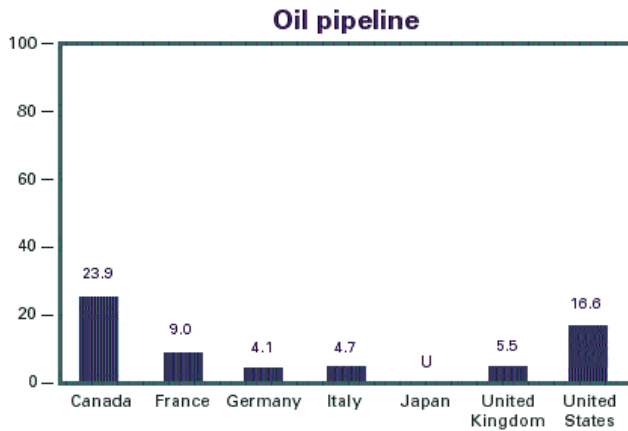
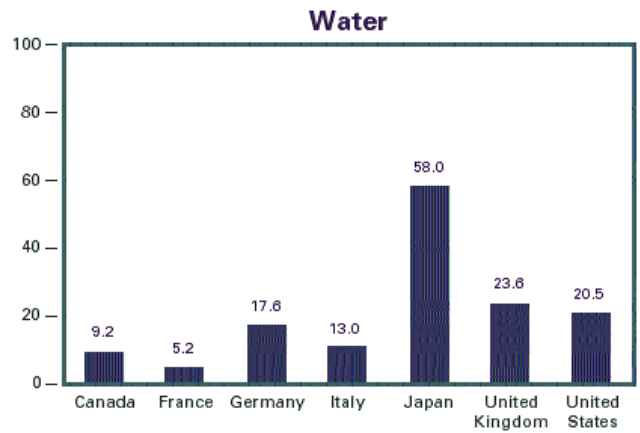
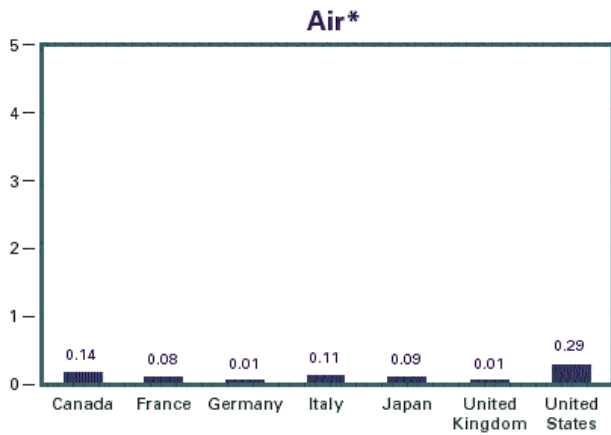
- Road: Includes only the activity of Canadian-domiciled for-hire carriers with annual intercity revenues greater than or equal to \$1 million Canadian; excludes local (less than 24 kilometers) deliveries and deliveries made by private trucks and small for-hire carriers.

European G-7 countries (excluding the United Kingdom)

- Air: Weight of the freight, express, and diplomatic bags carried on each flight stage multiplied by the stage distance. Data include domestic activity, and scheduled and nonscheduled operations.

(Notes continued on page 22)

Share of Total Domestic Freight Activity by Mode: 1996
 (Percentage of total domestic metric ton-kilometers)



U = oil pipeline data are unavailable from cited sources for Japan.

* Scale for Air differs from other modal scales.

Note: For Japan, shares are calculated without reference to pipeline.

- Coastal shipping: Includes all coastwise and one-port freight movement of goods shipped to offshore installations, for dumping at sea, or reclaimed from the seabed and unloaded in ports. Movements of goods on inland waterways vessels between seaports and inland waterway ports are excluded, as are movements of goods carried internally between different basins or docks of the same port.

Japan

- Total: Data represent a sum of air, water, rail, and road. Data for pipeline are unavailable.
- Air: See definition under European G-7 countries.

United Kingdom

- Air: See definition under European G-7 countries.
- Water: Includes all coastwise and one-port freight movements by sea, and inland waterway traffic. Data are collected only for Great Britain and do not include Northern Ireland. Data will not equal the sum of coastal shipping and inland waterways because other United Kingdom water categories are not separately represented in this table. These other categories are included in the water total for the United Kingdom.
- Road: Does not include Northern Ireland.

United States

- Air: Enplaned revenue ton-kilometers of all certificated carriers (scheduled and nonscheduled service, excluding military cargo moved by civilian carriers).
- Water: Total includes Great Lakes data, which are not shown separately in this table.
- Inland waterways: The sum of internal and intraport waterway data.
- Rail: Data are measured in revenue ton-kilometers and tons originated and are for Class I railroads

only. (Class I railroads have annual gross operating revenues in excess of about \$255 million (based on \$1996) and comprise only 2% of railroads in the United States, but account for 73% of the industry's operating distance, 89% of its employees, and 91% of its freight revenues). Rail data reflect shipments that originated in the United States.

- Road: Data are based on estimates for intercity traffic only.

Sources

Canada

Air: Statistics Canada, *Canadian Civil Aviation*, Catalogue 51-206-XPB (Ottawa, Ontario: 1997).

Water and rail: Transport Canada, Economic Analysis Directorate, adapted from Statistics Canada data, 1998.

Pipeline: Statistics Canada, *Oil Pipeline Transport*, Catalogue 55-201-XPB (Ottawa, Ontario: 1997).

_____. *Gas Utilities Transport and Distribution Systems*, Catalogue 57-205-XPB (Ottawa, Ontario: 1998).

Road: Statistics Canada, *Trucking in Canada*, Catalogue 53-222-XPB, 1997 (Ottawa, Ontario: 1998).

European G-7 countries (excluding the United Kingdom)

Air: International Civil Aviation Organization, *Civil Aviation Statistics of the World 1995* (Montreal, Canada: 1996).

All other data taken from: Organization for Economic Cooperation and Development, European Conference of Ministers of Transport, *ECMT Trends in the Transport Sector, 1970–1996* (Paris, France: 1998).

Japan

Air: International Civil Aviation Organization, *Civil Aviation Statistics of the World 1995* (Montreal, Canada: 1996).

Inland waterways: Organization for Economic Cooperation and Development, European Conference of Ministers of Transport, *ECMT Trends in the Transport Sector, 1970–1996* (Paris, France: 1998).

All other data are from: Japan Transport Economics Research Center, *Transportation Outlook in Japan '98* (Tokyo, Japan: 1998).

United Kingdom

Air: International Civil Aviation Organization, *Civil Aviation Statistics of the World 1995* (Montreal, Canada: 1996).

Coastal shipping and inland waterways: Organization for Economic Cooperation and Development, European Conference of Ministers of Transport, *ECMT Trends in the Transport Sector, 1970–1996* (Paris, France: 1998).

All other data are from: Department of the Environment, Transport and the Regions (DETR), *Focus on Freight* (London, England: 1998).

United States

Air: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics 1996* (Washington, DC: 1997).

Water: U.S. Army, Corps of Engineers, *Waterborne Commerce of the U.S., Part 5* (New Orleans, LA: Annual issues), section 1, table 1-4.

Pipeline: Association of Oil Pipelines, *Shifts in Petroleum Transportation* (Washington, DC: 1998).

Rail: Association of American Railroads, *Railroad Facts* (Washington, DC: 1997).

Road: Eno Transportation Foundation, Inc., *Transportation in America* (Lansdowne, VA: 1997).



**TRANSPORTATION,
AND THE
ECONOMY**



Table 2**Economic Overview: 1996**

	Canada	France	Germany	Italy	Japan	United Kingdom	United States
Gross Domestic Product (billions of current \$U.S.)	P608	1,540	2,353	1,208	4,600	1,146	7,662
International merchandise trade, total (billions of current \$U.S.)	369	557	955	454	758	543	1,416
<i>Exports</i>	199	283	512	251	410	259	625
<i>Imports</i>	170	274	443	203	347	284	791
National labor force (thousands)	15,100	26,000	41,000	25,000	66,000	29,000	133,900
Employment in transportation and related industries (thousands)	1,068	^a 854	U	^{a1} 1,183	U	^a 872	10,261

^a Data year is 1992.

Key:

P = data are preliminary.

U = data are unavailable from cited sources.

Notes**All countries**

- The numbers in this table were taken from many sources. Data-collection and processing procedures vary by country making cross-country comparison difficult. Data users should consult the source documents for indications of statistical reliability and comparability.

Canada

- International merchandise trade: Includes value of exported goods, free on board (f.o.b. is the cost of the goods delivered to the frontier of the exporting country for shipment and includes inland freight charges) to the rest of the world valued in U.S. dollars. The value of imported goods is c.i.f. (cost, insurance, and freight) and is generally recorded as the cost of the goods when purchased by the importer plus the cost of transportation and insurance to the frontier of the importing country.

- National labor force: All Canadian residents over the age of 15 who are employed or unemployed.

- Employment in transportation and related industries: Businesses that have transportation as their primary function are included. Related industries include transportation equipment manufacturing and others. Employment data for these related industries include nontransportation occupations. Government employment is not included in Canada's totals.

European G-7 countries and Japan

- International merchandise trade: See notes above for Canada.
- National labor force: The economically active population defined as people who supply labor for the production of goods and services during a specified period. National practices vary. Part-time

or seasonal workers may or may not be counted. Generally, the labor force includes the armed forces, the unemployed, and first-time job seekers, but not homemakers, other unpaid caregivers, and workers in the informal sector.

- Employment in transportation and related industries: The average number of persons working during a given period in the transportation sector, as well as persons working outside the sector but who are directly paid by it.

United States

- International merchandise trade: Import value is for U.S. general imports, custom value basis. Export value is f.a.s. (free along ship) and represents the value of exports at the port of export, including the transaction price and inland freight, insurance, and other charges. Excludes data for imports that are valued at less than \$1,250, and exports that are valued at less than \$2,500.
- National labor force: The U.S. civilian labor force, which includes all U.S. citizens ages 16 and older who have jobs, excluding those who work for the U.S. military, and those without jobs, who are available and looking for work. Includes Puerto Rico and the U.S. territories.
- Employment in transportation and related industries: Businesses that have transportation as their primary function are included. Related industries include transportation equipment manufacturing and others. Employment data for these related industries include nontransportation occupations. Annual employment estimates are arithmetic averages of the 12 monthly estimates for a particular year.

Sources

Canada

Gross Domestic Product: Statistics Canada, Input-Output Division, special tabulations, 1998.

International merchandise trade: World Bank, *World Development Indicators* (Washington, DC: 1998).
National labor force: Statistics Canada, *Labor Force Annual Averages* (Ottawa, Ontario: 1998).

Employment in transportation: Statistics Canada, *Employment, Earnings and Hours: Payrolls and Hours*, Catalogue 72-002-XPB (Ottawa, Ontario: 1998); and special tabulations.

European G-7 countries

All data with the exception of employment in transportation was taken from: The World Bank, *World Development Indicators* (Washington, DC: 1998).

Employment in transportation and related industries: Organization for Economic Cooperation and Development, European Conference of Ministers of Transport, *Statistical Trends in Transport, 1965–1994* (Paris, France: 1998).

United States

Gross Domestic Product: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business* (Washington, DC: January 1999).

International merchandise trade: U.S. Department of Commerce, Bureau of the Census, Foreign Trade Division, *Statistical Abstract of the United States, 1997* (Washington, DC: 1998), table 1313.

National labor force: U.S. Department of Labor, Bureau of Labor Statistics, Bulletin 2307. _____. *Employment and Earnings* (Washington, DC: Monthly 1997 issues).

Employment in transportation and related industries: U.S. Department of Transportation, Bureau of Transportation Statistics, special tabulation, based on U.S. Department of Labor, Bureau of Labor Statistics, *National Employment, Hours, and Earnings 1996* (Washington, DC: 1997).

Table 10

U.S. Merchandise Trade with G-7 Countries: 1996 (Millions of current \$U.S.)

	Canada ^a	France	Germany	Italy	Japan	United Kingdom	Total U.S. trade with G-7 countries
Total U.S. merchandise trade with	290,174	33,058	62,417	27,007	182,754	59,808	655,218
Exports to	133,668	14,428	23,474	8,785	67,536	30,916	278,807
Imports from	156,506	18,630	38,943	18,222	115,218	28,892	376,411
Total U.S. maritime trade with	7,034	11,287	30,114	12,151	116,720	20,710	198,017
Exports to	2,066	3,862	7,630	3,513	36,384	8,176	61,631
Imports from	4,968	7,424	22,485	8,638	80,336	12,535	136,386
Total U.S. air trade with	18,866	17,202	25,770	12,088	60,915	32,026	166,867
Exports to	12,541	9,083	13,416	4,138	28,514	18,392	86,085
Imports from	6,325	8,119	12,354	7,950	32,401	13,634	80,783

^a The majority of U.S. trade with Canada is conducted by land modes of transportation.

Notes

U.S. merchandise trade with Canada, the European G-7 countries and Japan

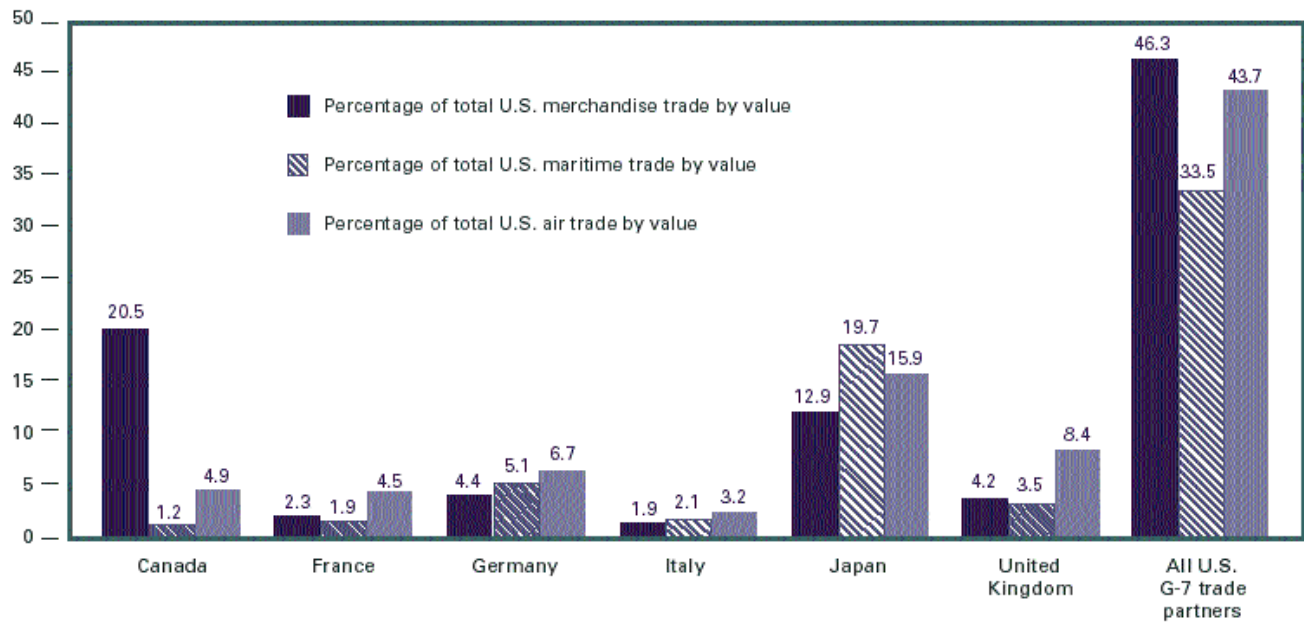
- Import value is for U.S. general imports, custom value basis. Export value is f.a.s. (free along ship) and represents the value of exports at the port of export, including the transaction price and inland freight, insurance, and other charges. Excludes data for imports that are valued at less than \$1,250, and exports that are valued at less than \$2,500. Although U.S. total merchandise trade figures are adjusted and revised, individual modal totals are not. Therefore, U.S. total trade with a particular country will not equal the sum of air and maritime trade.

Sources

U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 1998* (Washington, DC: 1997), table 1313.

U.S. Department of Commerce, Bureau of the Census, Foreign Trade Division, *FT920 Report, U.S. Merchandise Trade: Selected Highlights* (Washington, DC: December 1996).

Share of the Value of U.S. International Merchandise Trade (Percent)





**TRANSPORTATION
SAFETY**



Table 11**Transportation Fatalities
by Mode: 1996**

	Canada	France	Germany	Italy	Japan	United Kingdom	United States
FATALITIES, total	3,502	U	U	U	U	U	44,697
Air	75	67	106	U	U	50	1,089
Air carriers	28	1	10	U	U	7	457
General aviation	47	66	96	U	18	43	632
Road	3,091	8,541	8,758	6,688	11,674	3,740	42,065
Passenger cars and light trucks	2,264	U	U	U	U	U	32,437
<i>Passenger cars</i>	<i>U</i>	<i>5,539</i>	<i>5,622</i>	<i>4,112</i>	<i>3,111</i>	<i>1,884</i>	<i>22,505</i>
Motorcycles	128	1,288	998	1,805	2,154	447	2,161
Buses	0	U	U	U	U	U	21
Large trucks	59	U	U	U	U	U	621
Pedestrians	460	1,043	1,178	1,957	3,298	1,039	5,449
Other	180	U	U	U	U	U	1,374
Pipeline	0	U	U	U	U	U	53
Rail	119	150	^a309	^b213	U	^a210	1,039

^a Data year is 1995.^b Data year is 1990.**Key:**

U = data are unavailable from cited sources.

Notes**All countries**

- The numbers in this table were taken from many sources. Data-collection and processing procedures vary by country making cross-country comparison difficult. Data users should consult the source documents for indications of statistical reliability and comparability.

Canada

- Fatalities, total: Figures will be less than the sum of the individual modes because some fatalities are counted in more than one mode. Water transporta-

tion fatalities are included in Canada's total, although they do not appear in this table.

- Air carriers: Data represent Canadian flag carriers comprising both scheduled and nonscheduled flights for domestic and international operations of passenger and all-cargo flights. Commuter flights and on-demand air taxis are also included.

European G-7 countries and Japan**■ Air:**

France and Germany: Air carrier data represent French flag carriers comprising both scheduled and

nonscheduled flights for domestic and international operations of passenger and all-cargo flights.

Japan: One death in general aviation was the result of natural causes.

United Kingdom: Air carrier data represent British flag carriers comprising both scheduled and non-scheduled flights for domestic and international operations of passenger and all-cargo flights. Includes five fatalities from a helicopter crash.

- Road: Data are based on country information supplied to the Organization for Economic Cooperation and Development's International Road Traffic Accident Database. Road total does not represent the sum of the individual categories, because not all road fatality categories for European G-7 countries and Japan are included in this table.
- Passenger cars: Data are based on occupants of passenger cars.
- Rail (except Japan): Data include persons killed in accidents involving freight rail and passenger carriers.

United States

- Fatalities, total: Data are different from the sum of the components because some types of fatalities are counted in more than one category. Water transportation and transit fatalities are included in the United States total although those categories do not appear in this table.
- Air carrier: Fatalities include crashes of U.S. flag carriers (scheduled and nonscheduled flights; domestic and international flights), commuter air, and air taxis.
- Road total: Data include two fatalities that could not be assigned to a subcategory. Data are for occupant fatalities unless otherwise noted.
- Buses: Occupant fatalities in intercity buses, school buses, and local transit buses.

- Light truck: Occupants fatalities in trucks of 4,536 kg (10,000 pounds) gross vehicle weight rating or less.
- Large truck: Occupants fatalities in trucks over 4,536 kg gross vehicle weight rating.
- Other: Pedalcyclists, other nonoccupants, and unknown.
- Rail: Data are for fatalities at rail grade crossings and railroad facilities including workers, trespassers, and others not on trains, and fatalities involving train and nontrain incidents. Data include intercity passenger, commuter, and freight rail fatalities.

Sources

Canada

Air: Transportation Safety Board of Canada, special tabulation, 1998.

Road: Transport Canada, Road Safety and Motor Vehicle Regulation, *Traffic Accident Information Database*, special tabulation (Ottawa, Ontario: 1998).

Rail: Transportation Safety Board of Canada, *TSB Statistical Summary: Railway Occurrences—1997* (Ottawa, Ontario: 1998).

European G-7 countries and Japan

All data, except as listed below, are from: Organization for Economic Cooperation and Development, *International Road Traffic and Accident Database* (Paris, France: 1998).

Air:

France—French Embassy, Transportation Branch, Washington, DC, special tabulation, 1999.

Germany—German Embassy, Washington, DC, personal communication, June 1999.

Japan—Aircraft Accident Investigation Commission of Japan, special tabulation, 1999.

United Kingdom—British Embassy, Transportation Branch, Washington, DC special tabulation, 1999.
General Aviation:
United Kingdom—Department of the Environment, Transport and the Regions, *Transport Statistics Great Britain 1998 Edition* (Great Britain: 1998).

Rail: The European Commission, Directorate General VII, *Transport in Figures* (Brussels, Belgium: 1998).

United States

Road: U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 1997* (Washington, DC: 1998).

All other data: U.S. Department of Transportation, Bureau of Transportation Statistics, *National Transportation Statistics 1999* (Washington, DC: Forthcoming)

Table 12**Motor Vehicle Fatalities
and Fatality Rates: 1996**

	Canada ^a	France	Germany	Italy	Japan	United Kingdom	United States
Road motor vehicle fatalities	3,351	8,541	8,758	6,688	11,674	3,740	42,065
Fatality rate per 100 million vehicle-kilometers ^b	E1.1	1.8	1.5	1.4	U	0.8	1.1
Fatality rate per 10,000 road motor vehicles	2.0	2.9	1.9	U	1.6	1.5	2.0
Road vehicle-kilometers (billions)	E317.1	473.3	575.0	467.2	U	442.5	3,994.7
Number of road motor vehicles (millions)	17.0	29.5	45.1	U	71.8	24.4	210.2
National population (millions)	30.0	58.0	82.0	57.0	126.0	59.0	265.0

^a Data year is 1995.

^b Fatality rate per 100 million vehicle-kilometers: Caution must be used in drawing conclusions about the relative road safety among these countries because of the error bar in vehicle road-kilometers.

Key:

E = estimate, see note on page 12.

U = data are unavailable from cited sources.

Notes and Sources**All countries**

- The numbers in this table were taken from many sources. Data-collection and processing procedures vary by country making cross-country comparison difficult. Data users should consult the source documents for indications of statistical reliability and comparability.
- Road motor vehicle fatalities: See notes and sources in table 11, Transportation Fatalities by Mode.

- Road vehicle-kilometers: See notes and sources in table 4, Road Vehicle-Kilometers.
- Number of road motor vehicles: See notes and sources in table 3, Number of Road Motor Vehicles.
- National population: See notes and sources in table 1, Country Overview.



**TRANSPORTATION,
ENERGY. AND
THE ENVIRONMENT**

Table 13**Energy Consumption by the Transportation Sector: 1995**(Exajoules, 10¹⁸)

	Canada	France	Germany	Italy	Japan	United Kingdom	United States	G-7 total
Energy consumption, total for all sectors	9.5	9.1	13.6	7.0	18.8	9.2	92.4	159.7
Transportation consumption	2.1	2.0	2.7	1.7	3.6	2.0	22.8	34.8
Transportation's share of total energy consumption	22%	21%	20%	24%	19%	22%	25%	22%

Notes**All countries**

- The numbers in this table were taken from many sources. Data-collection and processing procedures vary by country making cross-country comparison difficult. Data users should consult the source documents for indications of statistical reliability and comparability.

United States

- Energy consumption, total: Data reported by the U.S. Department of Energy (USDOE), Energy Information Administration in their *Annual Energy Review, 1997* (table 2.1) are 95.86 exajoules (i.e., 90.86 quadrillion Btu), which differs slightly from the number reported by the United Nations in this table. The difference arises from a combination of factors, including the treatment of renewable resources, the treatment of fuel in international bunkers, the attribution of different heating values for fossil fuels, and possibly other factors.
- Transportation consumption, total: Data as reported by USDOE as cited above are 25.40 exajoules (i.e., 24.07 quadrillion Btu), which differs from the

number reported by the Organization for Economic Cooperation and Development (OECD) in this table. The difference is probably largely explained by two factors: 1) USDOE's *Annual Energy Review* uses the higher heating value of fossil fuels, and OECD uses the lower heating value; 2) the *Annual Energy Review* counts fuel in bunkers and OECD does not. The *Annual Energy Review* also includes electricity and electrical system energy losses, but these are small for transportation.

Sources**European G-7 countries, Canada, Japan, and the United States**

Energy consumption: United Nations, Department for Economic and Social Information and Policy Analysis, Statistics Division, *1995 Energy Statistics Yearbook* (New York, NY: 1997).

Transportation consumption: Organization for Economic Cooperation and Development, International Energy Agency, *Energy Balances of OECD Countries 1994–1995* (Paris, France: 1997).

Table 14**Unleaded Gasoline as a Percentage of Motor Vehicle Gasoline Consumption: 1992-93**

Country	Unleaded gasoline (percent)
Canada	100
France	62
Germany	95
Italy	44
Japan	100
United Kingdom	67
United States	100

Source

The World Bank, *Phasing Out Lead from Gasoline: World-Wide Experience and Policy Implications* (Washington, DC: 1997), annex A update.

Metric to U.S. Conversions and Energy Equivalents**Length (approximate)**

1 kilometer (km) = 0.6 miles (mi)

Area (approximate)

1 square kilometer (km²) = 0.4 square miles
(sq mi, mi²)

Mass/Weight (approximate)

1 metric ton (t) = 1,000 kilograms (kg)
= 1.1 short tons

Energy

1 joule = 0.24 calories (cal)

1055 joules = 250 calories = 1 British
thermal unit (Btu)

1 exajoule = 10¹⁸ joules

Source: U.S. Department of Commerce, National
Institute of Standards and Technology.



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