

Chapter 5

Transportation and the Economy

Summary Statistics from Tables/Figures in this Chapter

Source		
Figure 5.1	Share of gasoline cost attributed to taxes, 1998	
	<i>Canada</i>	47%
	<i>France</i>	80%
	<i>Germany</i>	74%
	<i>Japan</i>	60%
	<i>United Kingdom</i>	76%
Table 5.4	Retail prices for motor fuel in the U.S., 1998 (current cents per gallon)	
	<i>Gasoline, average for all types</i>	111.5
	<i>Diesel fuel</i>	112.0
Table 5.10	Average price of a new car, 1997 (current dollars)	
	<i>Domestic</i>	18,624
	<i>Import</i>	29,708
Table 5.11	Automobile operating costs, 1998	
	<i>Variable costs (constant 1997 dollars per 10,000 miles)</i>	1,058
	<i>Fixed costs (constant 1997 dollars per 10,000 miles)</i>	4,315
Table 5.17	Transportation share of total employment	
	<i>1960</i>	13.5%
	<i>1980</i>	11.3%
	<i>1997</i>	11.1%





Table 5.1
Gasoline Prices for Selected Countries, 1978–98

	Current dollars per gallon									Average annual percentage change	
	1978 ^a	1982	1986 ^a	1990 ^b	1992 ^b	1994 ^b	1996 ^b	1997 ^b	1998 ^b	1978-98	1990-98
China	d	d	d	d	d	d	0.93 ^a	d	d	d	d
India	d	d	d	1.92	2.59	2.28	2.25 ^a	2.65 ^a	d	d	d
Japan	2.00 ^a	2.60 ^a	2.79 ^a	3.05 ^a	3.78 ^a	4.14	3.77	3.28 ^a	2.94	1.9%	-0.5%
France	2.15	2.56	2.58	3.40	3.69	3.31	4.41	4.22	3.82	2.9%	1.5%
United Kingdom	1.22	2.42	2.07	2.55	3.28	2.86	3.47	4.25	3.90	6.0%	5.5%
Germany	1.75	2.17	1.88	2.72	3.84	3.34	4.32	3.87	3.33	3.3%	2.6%
United States ^c	0.69 ^a	1.37 ^a	1.31 ^a	1.92 ^a	2.11 ^a	1.57	1.80	1.92	1.55	4.1%	-2.6%
Canada	0.66 ^a	1.32	0.93 ^a	1.04 ^a	1.07 ^a	1.24	1.28	1.42	1.27	3.3%	2.5%

	Constant 1997 dollars ^f per gallon									Average annual percentage change	
	1978 ^a	1982 ^a	1986 ^a	1990 ^b	1992 ^b	1994 ^b	1996 ^b	1997 ^b	1998 ^b	1978-98	1990-98
China	d	d	d	d	d	d	0.95	d	d	d	d
India	d	d	d	2.36	2.95	2.46	2.30	2.65 ^a	d	d	d
Japan	4.92 ^a	4.32 ^a	4.07 ^a	3.75 ^a	4.31 ^a	4.47	3.85	3.28 ^a	2.88	-2.6%	-3.2%
France	5.29	4.25	3.77	4.18	4.21	3.57	4.50	4.22	3.74	-1.7%	-1.4%
United Kingdom	3.00	4.02	3.02	3.14	3.74	3.09	3.54	4.25	3.82	1.2%	2.5%
Germany	4.31	3.60	2.74	3.35	4.38	3.61	4.41	3.87	3.26	-1.4%	-0.3%
Canada	1.70 ^a	2.27 ^a	1.91 ^a	2.36 ^a	2.41 ^a	1.70	1.84	1.92	1.52	-0.6%	-5.4%
United States ^c	1.62 ^a	2.19 ^a	1.36 ^a	1.28 ^a	1.22 ^a	1.34	1.31	1.42	1.24	-1.3%	-0.4%

Source:

U.S. Department of Energy, Energy Information Administration, *International Energy Annual* 1997, Washington, DC, April 1999, Table 7.2 and annual.

(Additional resources: <http://www.eia.doe.gov>)

Note:

Comparisons between prices and price trends in different countries require care. They are of limited validity because of fluctuations in exchange rates; differences in product quality, marketing practices, and market structures; and the extent to which the standard categories of sales are representative of total national sales for a given period.

^a Prices represent the retail prices (including taxes) for premium leaded gasoline. Prices are representative for each country based on quarterly data averaged for the year.

^b Prices represent the retail prices (including taxes) for premium gasoline on January 1 of the year, or the available time period closest to January 1.

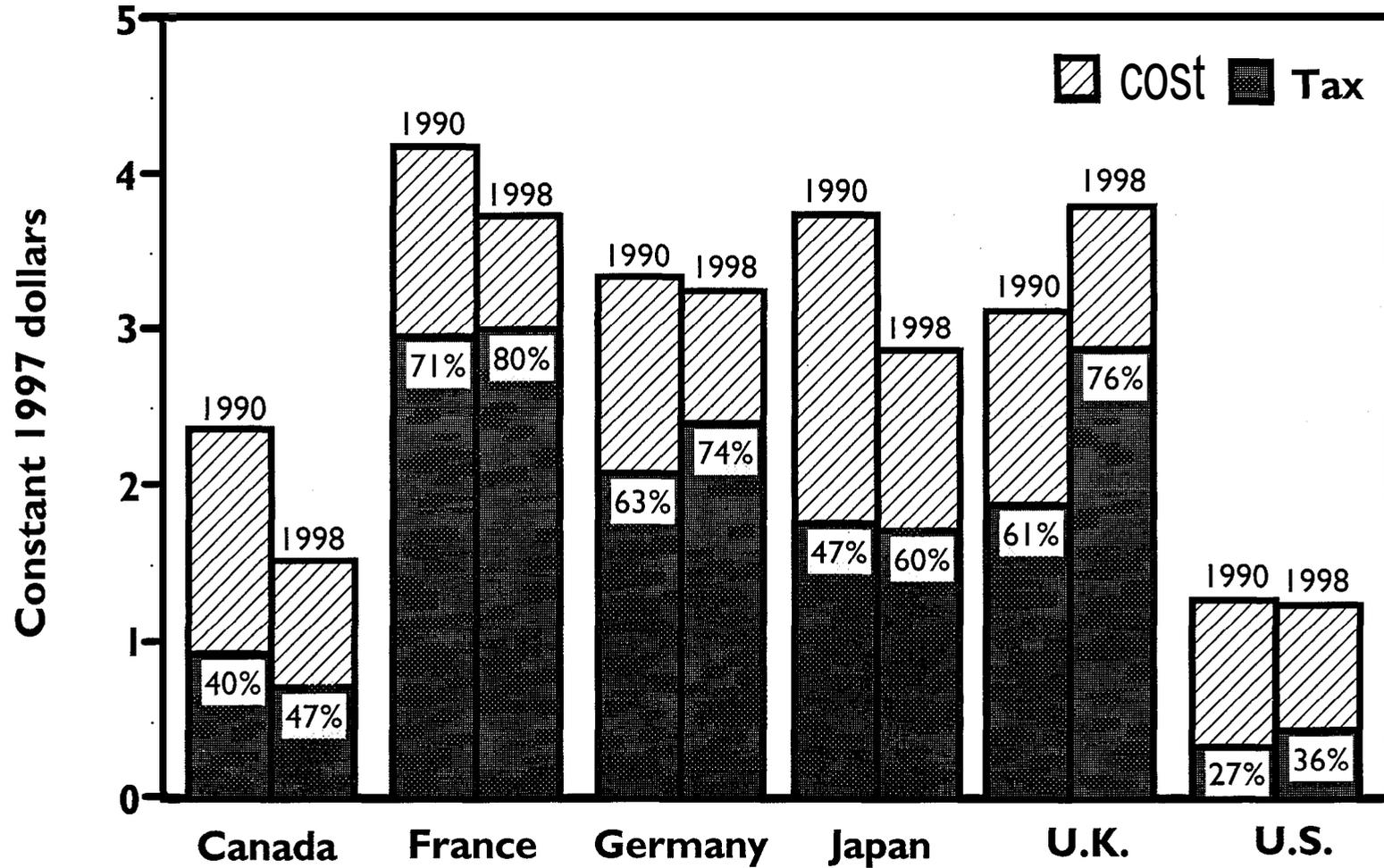
^c Regular gasoline.

^d Data are not available.

^e These estimates are for international comparisons only and do not necessarily correspond to gasoline price estimates in other sections of the book.

^f Adjusted by the U.S. Consumer Price Inflation Index.

Figure 5.1. Gasoline Prices for Selected Countries, 1990 and 1998



Source:

Table 5.1 and International Energy Agency, *Energy Prices and Taxes, Fourth Quarter 1998*, Paris, France, 1999.

(Additional resources: <http://www.iea.org>)





Table 5.2
Diesel Fuel Prices for Selected Countries, 1978-98

	Current dollars per gallon									Average annual percentage change	
	1978 ^a	1982 ^a	1986 ^a	1990 ^b	1992 ^b	1994 ^b	1996 ^b	1997 ^b	1998 ^b	1978-98	1990-98
China	c	c	c	c	c	c	0.88	c	c	c	c
India	c	c	c	0.78	0.73 ^c	0.74	0.92	1.11	c	c	c
Japan	c	1.78	1.90	1.75	c	2.48	2.51	2.34	2.40	c	4.0%
France	1.30	1.88	1.69	1.78	c	2.10	3.10	3.08	2.71	3.7%	5.4%
United Kingdom	1.24	2.05	1.71	2.04	c	2.46	3.26	3.78	3.92	5.9%	8.5%
Germany	1.48	1.81	1.51	2.72	2.81	2.16	3.02	2.91	2.43	2.5%	-1.4%
Canada	c	1.27	1.27	1.55	1.78	1.47	1.43	1.56	1.46	c	-0.7%
United States^d	0.54	1.16	0.94	0.99	1.06	0.96	1.15	1.29	1.12	3.7%	1.6%

	Constant 1997 dollars ^e per gallon									Average annual percentage change	
	1978 ^a	1982 ^a	1986 ^a	1990 ^b	1992 ^b	1994 ^b	1996 ^b	1997 ^b	1998 ^b	1978-98	1990-98
China	c	c	c	c	c	c	0.90	c	c	c	c
India	c	c	c	0.96	0.83 ^c	0.80	0.94	1.11	c	c	c
Japan	c	2.95	2.77	2.15	c	2.68	2.56	2.34	2.35	c	1.1%
France	3.20	3.12	2.47	2.19	c	2.27	3.16	3.08	2.66	-0.9%	2.5%
United Kingdom	3.05	3.40	2.50	2.51	c	2.66	3.33	3.78	3.84	1.2%	5.5%
Germany	3.64	3.00	2.20	3.35	3.20	2.33	3.08	2.91	2.38	-2.1%	-4.2%
Canada	c	2.11	1.85	1.91	2.03	1.59	1.46	1.56	1.43	c	-3.6%
United States^d	1.33	1.93	1.37	1.22	1.21	1.04	1.17	1.29	1.10	-0.9%	-1.3%

Source:

U.S. Department of Energy, Energy Information Administration, *International Energy Annual 1997*, Washington, DC, April 1999, Table 7.2 and annual. (Additional resources: <http://www.eia.doe.gov>)

Note:

Comparisons between prices and price trends in different countries require care. They are of limited validity because of fluctuations in exchange rates; differences in product quality, marketing practices, and market structures; and the extent to which the standard categories of sales are representative of total national sales for a given period.

^a Prices represent the retail prices (including taxes) for diesel fuel. Prices are representative for each country based on quarterly data averaged for the year.

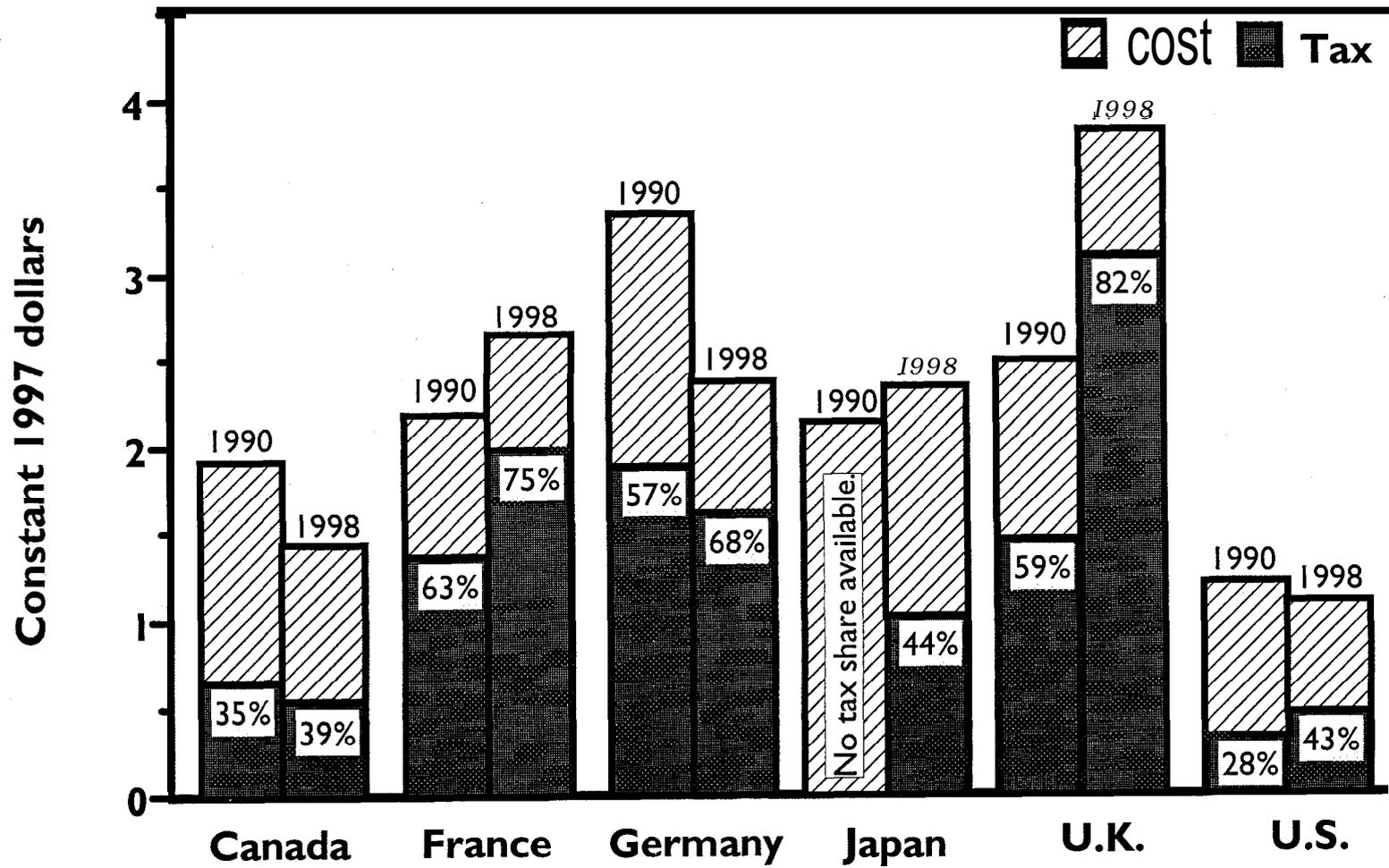
^b Prices represent the retail prices (including taxes) for diesel fuel on January 1 of the year, or the available time period closest to January 1.

^c Data are not available.

^d These estimates are for international comparisons only and do not necessarily correspond to gasoline price estimates in other sections of the book.

^e Adjusted by the U.S. Consumer Price Inflation Index.

Figure 5.2. Diesel Prices for Selected Countries, 1990 and 1998



Source:

Table 5.2 and International Energy Agency, *Energy Prices and Taxes, Fourth Quarter 1998*, Paris, France, 1999.

(Additional resources: <http://www.iea.org>)



Though the cost of crude oil certainly influences the price of gasoline, it is not the only factor which determines the price at the pump. Processing cost, transportation cost, and taxes also play a major part of the cost of a gallon of gasoline. The average price of a barrel of crude oil (in constant 1997 dollars) declined by 55% from 1990 to 1998, while the average price of a gallon of gasoline declined 27% in this same time period.

Table 5.3
Prices for a Barrel of Crude Oil and a Gallon of Gasoline, 1978-98

Year	Crude oil ^a (dollars per barrel)		Gasoline ^b (cents per gallon)		Ratio of gasoline to crude oil
	Current	Constant 1997 ^c	Current	Constant 1997 ^c	
1978	12.46	30.65	65.2	160.39	0.45
1979	17.72	39.16	88.2	194.92	0.48
1980	28.07	54.74	122.1	238.10	0.55
1981	35.24	62.37	135.3	239.48	0.62
1982	31.87	52.90	128.1	212.65	0.59
1983	28.99	46.67	122.5	197.23	0.56
1984	28.63	44.38	119.8	185.69	0.57
1985	26.75	39.86	119.6	178.20	0.53
1986	14.55	21.24	93.1	135.93	0.37
1987	17.90	25.24	95.7	134.94	0.27
1988	14.67	19.95	96.3	130.97	0.36
1989	17.97	23.18	106.0	136.74	0.40
1990	22.22	27.33	121.7	149.69	0.43
1991	19.06	22.49	119.6	141.13	0.38
1992	18.43	21.01	119.0	135.66	0.37
1993	16.41	18.22	117.3	130.20	0.33
1994	15.59	16.84	117.4	126.79	0.32
1995	17.23	18.09	120.5	126.53	0.34
1996	20.71	21.12	128.8	131.38	0.38
1997	19.04	19.04	129.1	129.10	0.35
1998	12.57	12.32	111.5	109.27	0.27
		<i>Average annual percentage change</i>			
1978-98	0.0%	-4.5%	2.7%	-1.9%	
1988-98	-1.5%	-4.7%	1.5%	-1.8%	

Sources:

Crude oil - U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review*, March 1999, Washington, DC, Table 9.1, p. 111.

Gasoline - U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review*, March 1999, Washington, DC, Table 9.4, p. 114.

(Additional resources: <http://www.eia.doe.gov>)

^aRefiner acquisition cost of composite (domestic and imported) crude oil.

^bAverage for all types. These prices were collected from a sample of service stations in 85 urban areas selected to represent all urban consumers. Urban consumers make up about 80% of the total U.S. population.

^cAdjusted by the Consumer Price Inflation Index.



Table 5.4
Retail Prices for Motor Fuel, 1978-98
(cents per gallon, including tax)

Year	Diesel fuel ^a		Unleaded regular gasoline ^b (87 to 88.9 octane)		Unleaded premium gasoline ^b (91 octane and above)		Average for all gasoline types ^b	
	Current	Constant 1997 ^c	Current	Constant 1997 ^c	Current	Constant 1997	Current	Constant 1997 ^c
1978	^d	^d	67.0	164.8	^d	^d	65.2	160.4
1979	^d	^d	90.3	199.6	^d	^d	88.2	194.9
1980	101	197	124.5	242.8	^d	^d	122.1	238.1
1981	118	209	137.8	243.9	147.0	260.2	135.3	239.1
1982	116	193	129.6	215.1	141.5	234.9	128.1	212.7
1983	120	193	124.1	199.8	138.3	222.7	122.5	197.2
1984	122	189	121.2	187.9	136.6	211.7	119.8	185.7
1985	122	182	120.2	179.1	134.0	199.7	119.6	178.2
1986	94	137	92.7	135.3	108.5	158.4	93.1	135.9
1987	96	135	94.8	133.7	109.3	154.1	95.7	134.9
1988	95	129	94.6	128.7	110.7	150.6	96.3	131.0
1989	102	132	102.1	131.7	119.7	154.4	106.0	136.7
1990	107	122	116.4	143.2	134.9	165.9	121.7	149.7
1991	91	107	114.0	134.5	132.1	155.9	119.6	141.1
1992	106	121	112.7	128.5	131.6	150.0	119.0	135.7
1993	98	109	110.8	123.0	130.2	144.5	117.3	130.2
1994	96	104	111.2	120.1	130.5	140.9	117.4	126.8
1995	97	102	114.7	120.4	133.6	104.3	120.5	126.5
1996	115	117	123.1	125.6	141.3	144.1	128.8	131.4
1997	129	129	123.4	123.4	141.6	141.6	129.1	129.1
1998	112	110	111.9	109.7	125.0	122.5	111.5	109.3
<i>Average annual percentage change</i>								
1978-98	0.6% ^e	-3.2% ^e	2.6%	-2.0%	-0.9% ^e	-4.3% ^e	2.7%	-1.9%
1988-98	1.7%	-1.6%	1.7%	-1.6%	1.2%	-2.0%	1.5%	-1.8%

Source:

Gasoline - U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review*, March 1999, Washington, DC, Table 9.4, p. 114.

Diesel - U.S. Department of Energy, Energy Information Administration, *International Energy Annual* 1997, Washington, DC, April 1999, Table 7.2.

(Additional resources: <http://www.eia.doe.gov>)

^aCollected from a survey of prices on January 1 of the current year.

^bThese prices were collected from a sample of service stations in 85 urban areas selected to represent all urban consumers. Urban consumers make up about 80% of the total U.S. population.

^cAdjusted by the Consumer Price Inflation Index.

^dData are not available.

^eAverage annual percentage change is from the earliest year possible to 1998.





The fuel prices shown here are **refiner sales prices of transportation fuels to end users, excluding tax**. Sales to end users **are** those made directly to the ultimate consumer, including bulk consumers. Bulk sales to utility, industrial, and commercial accounts previously included in the wholesale category are now counted as sales to end users.

Table 5.5
Prices for Selected Transportation Fuels, 1978-98
(cents per gallon, excluding tax)

Year	Propane ^a		Finished aviation gasoline		Kerosene-type jet fuel		No. 2 diesel fuel		
	Current	Constant 1997 ^b	Current	Constant 1997 ^b	Current	Constant 1997 ^b	Current	Constant 1997 ^b	
1978	33.5	82.4	51.6	126.9	38.7	95.2	37.7	92.7	
1979	35.7	78.9	68.9	152.2	54.7	120.9	58.5	129.3	
1980	48.2	94.0	108.4	211.4	86.6	168.9	81.8	159.5	
1981	56.5	100.0	130.3	230.6	102.4	181.3	99.5	176.1	
1982	59.2	98.3	131.2	217.8	96.3	159.9	94.2	156.4	
1983	70.9	114.1	125.5	202.1	87.8	141.4	82.6	133.0	
1984	73.7	114.2	123.4	191.3	84.2	130.5	82.3	127.6	
1985	71.7	106.8	120.1	179.0	79.6	118.6	78.9	117.6	
1986	74.5	108.8	101.1	147.6	52.9	77.2	47.8	69.8	
1987	70.1	98.8	90.7	127.9	54.3	76.6	55.1	77.7	
1988	71.4	97.1	89.1	121.2	51.3	69.8	50.0	68.0	
1989	61.5	79.3	99.5	128.4	59.2	76.4	58.5	75.5	
1990	74.5	91.6	112.0	137.8	76.6	94.2	72.5	89.2	
1991	73.0	86.1	104.7	123.6	65.2	76.9	64.8	76.5	
1992	64.3	73.3	102.7	117.1	61.0	96.5	61.9	70.6	
1993	67.3	74.7	99.0	109.9	58.0	34.4	60.2	66.8	
1994	53.0	57.2	95.7	103.4	53.4	57.7	55.4	49.8	
1995	49.2	51.7	100.5	105.5	54.0	56.7	56.0	48.8	
1996	60.5	61.7	111.6	113.8	65.1	66.4	68.1	69.5	
1997	55.2	55.2	112.8	112.8	61.3	61.3	64.2	64.2	
1998	40.5	39.7	97.2	95.3	45.3	44.4	49.5	48.5	
				<i>Average annual percentage change</i>					
1978-98	1.0%	-3.6%	3.2%	-1.4%	0.8%	-3.7%	1.4%	-3.2%	
1988-98	-5.5%	-8.6%	0.9%	-2.4%	-1.2%	-4.4%	-0.1%	-3.3%	

Source:

U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review*, March 1999, Washington, DC, Table 9.7, p. 117.

(Additional resources: <http://www.eia.doe.gov>)

^aConsumer grade.

^bAdjusted by the Consumer Price Inflation Index.

Table 5.6
State Taxes on Motor Fuels, 1999
(dollars per gallon or gasoline equivalent gallon)
 (Footnotes for this table appear on next page)

State	Gasoline	Diesel fuel	Gasohol	CNG	Propane	Methanol	Ethanol
Alabama	0.16	0.17	0.16	a	a	0.16 ^b	0.16 ^b
Alaska	0.08	0.08	0.08''	0.08	0.00	0.08 ^b	0.08 ^b
Arizona	0.18	0.18	0.00	0.10 ^d	0.18	0.18	0.00
Arkansas	0.185	0.185	0.185	0.05 ^e	0.165	0.185	0.185
California	0.18	0.18	0.18	0.07''	0.06	0.09	0.09
Colorado	0.22	0.205	0.22	0.205	0.205	0.205	0.205
Connecticut	0.39	0.18	0.38	0.18 ^f	0.18 ^f	0.37 ^b	0.37 ^b
Delaware	0.23	0.22	0.23	0.22	0.22	0.22	0.23
District of Columbia	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Florida	0.04	0.04	0.04	a	a	0.04 ^b	0.04 ^b
Georgia	0.075	0.075	0.075	0.075	0.075	0.075	0.075
Hawaii (Honolulu) ^g	0.325	0.325	0.325	0.325	0.22	0.325	0.325
Idaho	0.25	0.25	0.25	0.197 ^h	0.181	0.25 ^b	0.25 ^b
Illinois	0.19	0.215	0.19	0.19	0.19	0.19 ^b	0.19 ^b
Indiana	0.15	0.16	0.15	a	a	0.15	0.15
Iowa	0.20	0.225	0.19	0.16 ^e	0.20	0.19 ^b	0.19 ^b
Kansas	0.18	0.20	0.18	0.17	0.17	0.20	0.20
Kentucky	0.15	0.12	0.15	0.12	0.15	0.15	0.15
Louisiana	0.20	0.20	0.20	0.16'	0.16'	0.20 ^b	0.20 ^b
Maine	0.19	0.20	0.19	0.18	0.18	0.18	0.18
Maryland	0.235	0.2425	0.235	0.235	0.235	0.235	0.235
Massachusetts	0.21	0.21	0.21	0.0	0.097	0.21	0.21
Michigan	0.15	0.15	0.18	0.0	0.15	0.15 ^b	0.025 ^b
Minnesota	0.20	0.20	0.20	0.001739'	0.15	NA	0.20 ^b
Mississippi	0.18	0.18	0.18	0.18 ^e	0.17	0.18 ^b	0.18 ^b
Missouri	0.17	0.17	0.17	a	a	0.17 ^b	0.17 ^b
Montana	0.27	0.2775	0.27	0.07 ^k	a	0.27	0.27
Nebraska	0.253	0.253	0.253	0.253	0.253	0.253	0.253 ^b
Nevada	0.23	0.27	0.23	0.23 ^e	0.23 ^e	0.23	0.23
New Hampshire	0.18	0.18	0.18	0.18	0.18	0.18 ^b	0.18 ^b
New Jersey	0.105	0.135	0.105	0.0525	0.0525	0.105 ^b	0.105 ^b
New Mexico	0.22	0.18	0.22	0.06'	0.06'	0.22 ^b	0.22 ^b
New York	0.08'	0.10'	0.08'	0.08'	0.08'	0.08'	0.08'
North Carolina	0.217	0.217	0.217	0.217	0.217	0.217	0.217
North Dakota	0.20	0.20	0.20	0.20	0.20	0.20 ^b	0.20 ^b
Ohio	0.22	0.22	0.22	0.22	0.22	0.22''	0.22 ^b
Oklahoma	0.16	0.13	0.16	a	0.16	0.16 ^b	0.16 ^b
Oregon	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Pennsylvania	0.12 ^m	0.12 ^m	0.12 ^m	0.12 ^m	0.12 ^m	0.12 ^m	0.12 ^m
Rhode Island	0.28	0.28	0.28	0.0	0.28	0.28	0.28



Table 5.6 (continued)
State Taxes on Motor Fuels, 1999
(dollars per gallon or gasoline equivalent gallon)

State	Gasoline	Diesel fuel	Gasohol	CNG	Propane	Methanol	Ethanol
South Carolina	0.16	0.16	0.16	0.16	0.16	0.16	0.16
South Dakota	0.18	0.18	0.16	0.06	0.16	0.06	0.06
Tennessee	0.20	0.17	0.17	0.13	0.17	0.17	0.17
Texas	0.20	0.20	0.20	0.15	0.15	0.20 ^b	0.20 ^b
Utah	0.19	0.19	0.19	0.19 ^m	0.19 ^m	0.19	0.19
Vermont	0.16	0.17	0.16	0.16	a	0.16	0.16
Virginia	0.175	0.16	0.175	0.10	0.10	0.175 ^b	0.175 ^b
Washington	0.23	0.23	0.23	a	a	0.23	0.23
West Virginia	0.205	0.205	0.205	0.205	0.205	0.205	0.205
Wisconsin	0.254	0.254	0.254	0.203	0.186	0.254	0.254
Wyoming	0.08	0.08	0.00	0.00	0.00	0.08 ^b	0.08 ^b

Source:

Energy Futures, Inc., *The Clean Fuels and Electric Vehicles Report*, Boulder, CO, February 1999, pp. 150-151.

^aAnnual flat fee.

^bBlends with gasoline only.

^cNovember-February tax rate is \$0.02.

^dPer 1.25 therm.

^ePer 100 ft³.

^fCNG, LNG, and LPG are exempt from motor fuel taxes when used as vehicle fuel until July 1, 2001.

^gFor County of Honolulu; for County of Maui LPG tax is \$0.20/gal. and all other fuels are taxed at \$0.18/gal.; other counties have all fuels taxed at \$0.26/gal.

^hPer therm.

ⁱOptional: flat fee may be paid instead.

^jPer cubic foot; LNG is taxed at \$0.12/gal.

^kPer 120 ft³.

^lPlus a petroleum business tax; the amount varies but is usually in the ballpark of \$0.12-\$0.14.

^mPlus 0.1035 oil franchise tax.



As of November 1998, only five states offered tax exemptions to encourage the use of gasohol for transportation purposes. This list is quite short compared to the 30 states which offered gasohol tax exemptions fifteen years ago. Still, the Federal Government encourages gasohol use via a difference in the Federal tax rates of gasoline and gasohol.

Table 5.7
State Tax Exemptions for Gasohol, November 1998

State	Exemption (Cents/gallon of gasohol)
Alaska	8.0
Connecticut	1.0
Idaho	2.5
Iowa	1.0
South Dakota	2.0

Source:

U.S. Department of Transportation, Federal Highway Administration, "Monthly Motor Fuel Reported by the States, August 1998," January 1999, Washington, DC, Table MF-121T. (Additional resources: <http://www.fhwa.dat.gov>)

Table 5.8
Federal Excise Taxes on Motor Fuels

Fuel		Cents per gallon
Gasoline		18.40
Diesel ^a		24.40
Gasohol	10% Ethanol	13.00
	7.7% Ethanol	14.24
	5.7% Ethanol	15.32
Gasohol	10% Methanol	12.40
	7.7% Methanol	13.78
	5.7% Methanol	14.98
Methanol	Qualified ^b	12.85
	Partially exempt ^c	9.20
Ethanol	Qualified ^b	12.85
	Partially exempt ^c	9.25
CNG		48.54/mcf ^d
LNG		11.90
LPG		13.60

Source:

Energy Futures, Inc., *The Clean Fuels and Electric Vehicles Report*, Boulder, CO, February 1999, pp. 150-151.

^a Reduced diesel rates are specified for marine fleets, trains and certain intercity buses. Diesel rates are also reduced for diesel/alcohol blends. Diesel used exclusively in state and local government fleets, non-profit organization vehicles, school buses and qualified local buses is exempt from Federal taxes.

^bQualified - contains at least 85 percent methanol or ethanol or other alcohol produced from a substance other than petroleum or natural gas.

^cPartially exempt - > 85 percent alcohol and produced from natural gas.

^dThousand cubic feet.



Table 5.9
States With Ethanol Tax Incentives

State	Ethanol tax incentives
AK	\$0.08/ethanol gallon (blender)
CA	E85 and M85 excise tax is half of the gasoline tax. Neat alcohol fuels are exempt from fuel taxes.
FL	County governments receive waste reduction credits for using yard trash, wood, or paper waste as feed stocks for fuel.
HI	4% ethanol sales tax exemption
ID	\$0.21 excise tax exemption for ethanol or biodiesel
IN	10% gross income tax deduction for improvements to ethanol producing facilities.
IL	2% sales tax exemption for 10% volume ethanol blends
IA	\$0.01 (blender)
MN	\$0.25 (producer), \$0.005 (blender) until Oct. 1, 1997
MO	\$0.20 (producer)
MT	\$0.30 (producer)
NE	\$0.20 (producer), \$0.50 ETBE (producer)
NC	Individual income and corporate tax credit of 20% for the construction of an ethanol plant using agricultural or forestry products; an additional 10% if the distillery is powered with alternative fuels.
ND	\$0.40 (producer)
OH	\$0.01 (blender), income tax credit
SD	\$0.20 (blender), \$0.20 (producer) Alternative fuels are taxed at \$0.06/gal
WY	\$0.40 (producer)

Source:

U.S. Department of Energy, *Clean Cities Guide to Alternative Fuel Vehicle Incentives and Laws*, 2nd edition, Washington, DC, November 1996.

(Additional resources: <http://www.cities.doe.gov>)



In current dollars, import cars, on average, were less expensive than domestic cars until 1982. Since then, import prices have nearly tripled, while domestic prices have nearly doubled (current dollars).

Table 5.10
Average Price of a New Car, 1970-97

Year	Domestic ^a		Import		Total	
	Current dollars	Constant 1997 dollars ^b	Current dollars	Constant 1997 dollars ^b	Current dollars	Constant 1997 dollars ^b
1970	3,708	15,314	2,648	10,936	3,542	14,328
1971	3,919	15,519	2,769	10,965	3,742	14,818
1972	4,034	15,491	2,994	11,497	3,879	14,895
1973	4,181	15,093	3,344	12,072	4,052	14,628
1974	4,524	14,748	4,206	13,712	4,440	14,474
1975	5,084	15,150	4,384	13,064	4,950	14,751
1976	5,506	15,527	4,923	13,883	5,418	15,279
1977	5,985	15,860	5,072	13,441	5,814	15,407
1978	6,478	15,936	5,934	14,598	6,379	15,692
1979	6,889	15,225	6,704	14,816	6,847	15,132
1980	7,609	14,838	7,482	14,590	7,574	14,769
1981	8,912	15,774	8,896	15,746	8,910	15,771
1982	9,865	16,376	9,957	16,529	9,890	16,417
1983	10,516	16,931	10,868	17,497	10,606	17,076
1984	11,172	17,317	12,354	19,149	11,450	17,748
1985	11,589	17,268	12,853	19,151	11,902	17,734
1986	12,526	18,288	13,815	20,170	12,894	18,825
1987	12,922	18,220	14,470	20,403	13,386	18,874
1988	13,542	18,417	15,378	20,914	14,065	19,128
1989	14,193	18,309	15,829	20,419	14,645	18,892
1990	14,886	18,310	17,164	21,112	15,472	19,031
1991	15,773	18,612	17,019	20,082	16,083	18,978
1992	16,389	18,683	19,601	22,345	18,141	20,681
1993	16,673	18,507	21,477	23,839	17,678	19,623
1994	17,575	18,981	23,211	25,068	18,657	20,150
1995	17,174	18,033	23,995	25,195	18,360	19,278
1996	18,199	18,563	27,695	28,249	19,620	20,012
1997	18,624	18,624	29,708	29,708	20,447	20,447
	<i>Average annual percentage change</i>					
1970-97	6.2%	0.7%	9.4%	3.8%	6.7%	1.3%
1987-97	3.7%	0.2%	7.5%	3.8%	4.3%	0.8%

Source:

American Automobile Manufacturers Association, *Motor Vehicle Facts and Figures 1998*, Detroit, MI, 1998, p.64.

(Additional resources: <http://www.aama.com>)

^aIncludes transplants.

^bAdjusted by the Consumer Price Inflation Index.





The total cost of operating an automobile is the sum of the *fixed* cost (depreciation, *insurance*, *finance charge*, and *license fee*) and the *variable* cost, which is related to the amount of travel. The cost of operating a car in **1998** (constant 1990 cents) was approximately 44 cents per mile. Gas and oil accounted for only 11.5% of total cost per mile in 1998, which was the same as 1996 and is the lowest in the series history.

Table 5.11
Automobile Operating Cost per Mile, 1975-98

Model year ^c	Variable costs (constant 1997 cents Per mile ^b)				Constant 1997 dollars per 10,000 miles ^a			Total cost per mile ^b (constant 1997 cents ^a)
	Gas and oil	Percentage gas and oil of total cost	Maintenance	Tires	Variable cost	Fixed cost	Total cost	
1975	14.36	26.3%	2.89	1.97	1,922	3,534	5,456	54.56
1977	10.89	20.4%	2.73	1.75	1,537	3,813	5,350	53.50
1979	9.08	17.1%	2.43	1.44	1,295	4,002	5,297	52.97
1980	11.43	21.0%	2.18	1.25	1,486	3,964	5,450	54.50
1981	11.10	19.6%	2.09	1.27	1,446	4,204	5,650	56.50
1982	11.19	20.8%	1.66	1.05	1,389	3,981	5,370	53.70
1983	10.69	19.9%	1.67	1.09	1,346	4,035	5,381	53.81
1984	9.59	19.8%	1.61	0.98	1,218	3,636	4,855	48.55
1985 ^d	9.18	22.6%	1.83	0.97	1,198	2,855	4,053	40.53
1986	6.54	15.1%	2.00	0.98	952	3,368	4,320	43.20
1987	6.77	14.7%	2.26	1.13	1,015	3,587	4,602	46.02
1988	7.07	13.6%	2.18	1.09	1,074	4,121	5,195	51.95
1989	6.71	13.6%	2.45	1.03	1,019	3,909	4,928	49.28
1990	6.64	13.2%	2.58	1.11	1,033	4,005	5,038	50.38
1991	7.91	15.4%	2.60	1.06	1,156	3,993	5,150	51.50
1992	6.84	13.1%	2.51	1.03	1,037	4,180	5,218	52.18
1993	6.66	13.3%	2.66	1.00	1,032	3,978	5,011	50.11
1994	6.05	12.0%	2.70	1.19	994	4,045	5,038	50.38
1995	6.30	12.3%	2.73	1.47	1,050	4,086	5,136	51.36
1996	6.02	11.5%	2.86	1.43	1,030	4,216	5,246	52.46
1997	6.60	12.4%	2.80	1.40	1,080	4,228	5,308	53.08
1998	6.17	11.5%	3.04	1.37	1,058	4,315	5,373	53.73
<i>Average annual percentage change</i>								
1975-84	-4.4%		-6.3%	-7.5%	-4.9%	0.3%	-1.3%	-1.3%
1988-98	-1.4%		3.4%	2.3%	-0.1%	0.5%	0.3%	0.3%

Source:

American Automobile Association, *Your Driving Costs*, 1998 Edition, Heathrow, FL, and annual. (Additional resources: <http://www.aaa.com>, <http://www.runzheimer.com>)

^a Adjusted by the Consumer Price Inflation Index.

^b Based on 10,000 miles per year.

^c Data for 1976 and 1978 are not available.

^d Fixed and total operating costs preceding 1985 are not comparable with 1985 and later data. Fixed cost depreciation from 1975-84 was based on four years or 60,000 miles. After 1984, the depreciation was based on six years or 60,000 miles.

Table 5.12
Fixed Automobile Operating Costs per Year, 1975-98
(constant 1997 dollars)^a

Model year	Fire & theft ^b	Collision ^c	Property damage & liability ^d	License, registration & taxes	Depreciation	Finance charge	Total	Average fixed cost per day
1975	158	420	563	89	2,304	e	3,534	9.69
1977	212	498	663	196	2,245	e	3,813	10.44
1978	140	339	563	182	2,199	e	3,424	9.37
1979	164	371	533	199	2,082	654	4,002	10.96
1980	137	335	484	160	2,024	825	3,964	10.86
1981	135	319	450	156	2,278	867	4,204	11.52
1982	88	254	403	90	2,251	895	3,981	10.91
1983	129	324	357	164	2,162	898	4,035	11.06
1984	124	310	349	164	1,871	818	3,636	9.97
1985	137	295	317	171	1,867	849	3,637	9.97
1986	126	279	339	190	1,927	930	3,790	10.38
1987	123	276	355	197	2,123	847	3,923	10.74
1988	117	276	386	189	2,426	768	4,163	11.41
1989	141	316	399	195	2,701	808	4,559	12.49
1990	135	304	391	203	2,899	836	4,769	13.06
1991	136	304	417	199	3,001	919	4,976	13.63
	129	298	425	204	3,169	948	5,173	14.17
1992-1993	119	258	427	203	3,200	773	4,979	13.64
1994	98	222	432	220	3,227	751	4,951	13.56
1995	100	222	431	222	3,254	765	4,993	13.68
1996	111	252	435	234	3,272	794	5,097	13.96
1997	106	302	401	220	3,268	793	5,090	13.95
1998	113	257	469	219	3,228	786	5,072	13.90

Source:

American Automobile Association, "Your Driving Costs," 1998 Edition, Heathrow, FL, and annual. (Additional resources: <http://www.aaa.com>, <http://www.runzheimer.com>)

Note:

The data in this table are costs *per year*, while the data on the previous table are costs *per mile*.

^a Adjusted by the Consumer Price Inflation Index.

^b \$50 deductible 1975 through 1977; \$100 deductible 1978 through 1992; \$250 deductible for 1993 through 1996.

^c \$100 deductible through 1977; \$250 deductible 1978 through 1992; \$500 deductible for 1993 through 1996.

^d Coverage: \$100,000/\$300,000.

^e Data are not available.



Table 5.13
Economic Indicators, 1970-98
(billion dollars)

Year	Gross National Product		Total transportation outlays		Transportation as a percent of GNP
	Current	Constant 1997 ^a	Current	Constant 1997 ^a	
1970	1,015.5	4,194.0	195.2	806.2	19.2%
1980	2,732.0	5,327.4	542.9	1,058.7	19.9%
1990	5,567.8	6,848.4	963.8	1,185.5	17.3%
1997	8,102.9	8,102.9	1,319.7	1,391.7	17.2%
Year	Personal Consumption Expenditures		Transportation Personal Consumption Expenditures ^b		Transportation PCE as a percent of total PCE
1970	640.0	2,643.2	81.5	336.6	12.7%
1980	1,732.6	3,378.6	238.5	465.1	13.8%
1990	3,761.2	4,626.3	453.9	558.3	12.1%
1998	5,806.0	5,689.9	653.8	640.7	11.3%

Sources:

GNP - U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, April 1999, Table 1.9, p. D-4, and annual. (Additional resources: <http://www.bea.doc.gov>)

Transportation outlays - Eno Transportation Foundation, *Transportation in America 1998*, Sixteenth Edition, Lansdowne, VA, 1998, p. 38.

PCE - U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, March 1999, Table 2.2 and annual. (Additional resources: <http://www.bea.doc.gov/bea/scbinf.html>)

Table 5.14
Consumer Price Indices, 1970-98
(1970 = 1.000)

Year	Consumer Price Index	Transportation Consumer Price Index ^c	New car Consumer Price Index	Used car Consumer Price Index	Gross National Product
1970	1.000	1.000	1.000	1.000	1.000
1980	2.122	2.216	1.667	1.995	2.690
1990	3.365	3.213	2.283	3.769	5.483
1998	4.199	3.776	2.706	4.827	8.361

Source:

Bureau of Labor Statistics, Consumer Price Index Table 1A for 1998, and annual. [GNP-see above.]
 (Additional resources: <http://stats.bls.gov/cpihome.htm>)

^a Adjusted by the implicit GNP price deflator.

^b Transportation Personal Consumption Expenditures include user operating expenses (new and used auto purchases, gas and oil, repair, greasing, washing, parking, storage, rental, other motor vehicles, insurance premiums, tires, tubes and other parts); purchased intercity transportation; and purchased local transportation.

^c Transportation Consumer Price Index includes new and used cars, gasoline, auto insurance rates, intracity mass transit, intracity bus fare, and airline fares.



Table 5.15
Motor Vehicle Manufacturing Employment Statistics, 1972-97

Year	Motor vehicle manufacturing employees (thousands)	Sales of domestic automobiles ^a (thousands)	Sales of domestic light trucks ^b (thousands)	Employees per hundred vehicles sold	Expenditure per new domestic vehicle ^c	Total domestic vehicle expenditures ^d (millions)	Employees per million dollar expenditure (current)	Employees per million dollar expenditure (constant 19973)
1972	415	9,327	2,096	3.6	\$4,034	\$46,080	9.0	34.6
1973	462	9,676	2,512	3.8	\$4,181	\$50,958	9.1	32.9
1974	416	7,454	2,163	4.3	\$4,524	\$43,507	9.6	31.3
1975	375	7,053	2,053	4.1	\$5,084	\$46,295	8.1	24.1
1976	416	8,611	2,720	3.7	\$5,506	\$62,388	6.7	18.9
1977	442	9,109	3,108	3.6	\$5,985	\$73,119	6.0	15.9
1978	470	9,312	3,473	3.7	\$6,478	\$82,821	5.7	14.0
1979	463	8,341	2,844	4.1	\$6,889	\$77,053	6.0	13.3
1980	368	6,581	1,959	4.3	\$7,609	\$64,981	5.7	11.1
1981	359	6,209	1,745	4.5	\$8,912	\$70,886	5.1	9.0
1982	318	5,759	2,062	4.1	\$9,865	\$77,154	4.1	6.8
1983	349	6,795	2,518	3.7	\$10,516	\$97,936	3.6	5.8
1984	392	7,952	3,257	3.5	\$11,172	\$125,227	3.1	4.8
1985	409	8,205	3,691	3.4	\$11,589	\$137,863	3.0	4.5
1986	400	8,215	3,671	3.4	\$12,526	\$148,884	2.7	3.9
1987	381	7,081	3,785	3.5	\$12,922	\$140,410	2.7	3.8
1988	357	7,526	4,195	3.0	\$13,542	\$158,725	2.2	3.0
1989-1990	350-329	7,093	3,908	3.1-3.0	\$14,886	\$168,499	2.2-2.0	2.8-2.5
1991	316	6,137	3,595	3.2	\$15,773	\$153,503	2.1	2.5
1992	314	6,277	4,233	3.0	\$16,389	\$172,248	1.8	2.1
1993	319	6,742	4,987	2.7	\$16,673	\$195,558	1.6	1.8
1994	340	7,255	5,638	2.6	\$17,575	\$226,594	1.5	1.6
1995	355	7,129	5,663	2.8	\$17,767	\$227,275	1.6	1.7
1996-1997	342-341	6,917-7,254	6,088-6,226	2.6-2.6	\$18,199-\$18,624	\$242,847,000	1.4-1.4	1.4-1.4
<i>Average annual percentage change</i>								
1972-97	-0.8%	-1.2%	4.5%	-1.3%	6.3%	6.9%	-7.2%	-12.0%
1987-97	-1.1%	-0.2%	5.1%	-2.9%	3.7%	5.7%	-6.4%	-9.5%

Source:

Employees - American Automobile Manufacturers Association, *Economic Indicators*, Third Quarter, 1998, Detroit, MI, 1998, p. 18.

Sales and expenditures - American Automobile Manufacturers Association, *Motor Vehicle Facts and Figures* 1998, Detroit, MI, 1998, pp. 21, 24, 64, and annual.

^a Vehicles produced in North America.

^b Less than 10,000 pounds gross vehicle weight.

^c Autos and light trucks.

^d Estimated as vehicle sales multiplied by average expenditure.

^e Adjusted by the implicit Gross National Product price deflator.



Employees of motor vehicle and related industries comprise 7.5% of the laborforce. For employment in the entire transportation industry, see the next table.

Table 5.16
Employees of Motor Vehicle and Related Industries, 1990 and 1995

Industry	1990			1995			Percent change 1990-95
	Employees	Percent of total motor vehicle	Percent of total U.S. employment ^a	Employees	Percent of total motor vehicle	Percent of total U.S. employment ^a	
Motor vehicle and equipment manufacturing	1,055,595	15.0%	1.1%	1,180,923	15.6%	1.2%	11.9%
<i>Motor vehicles and equipment</i>	707,160	10.0%	0.8%	815,214	10.8%	0.8%	15.3%
<i>Travel trailers and campers</i>	14,301	0.2%	0.0%	^b	^b	^b	^b
<i>Transportation equipment not elsewhere classified</i>	17,263	0.2%	0.0%	51,891	0.7%	0.1%	200.6%
<i>Automotive stampings</i>	111,548	1.6%	0.1%	118,213	1.6%	0.1%	6.0%
<i>Carburetors, pistons, piston rings, and valves</i>	19,674	0.3%	0.0%	18,677	0.2%	0.0%	-5.1%
<i>Vehicular lighting equipment</i>	15,586	0.2%	0.0%	17,056	0.2%	0.0%	9.4%
<i>Storage batteries</i>	23,518	0.3%	0.0%	22,426	0.3%	0.0%	-4.6%
<i>Electrical equipment for internal combustion engines</i>	61,675	0.9%	0.1%	55,857	0.7%	0.1%	-9.4%
<i>Tires and inner tubes</i>	68,505	1.0%	0.1%	65,481	0.9%	0.1%	-4.4%
<i>Cold-rolled steel sheet, strip, and bars</i>	16,365	0.2%	0.0%	16,108	0.2%	0.0%	-1.6%
Road construction and maintenance	261,461	3.7%	0.3%	^b	^b	^b	^b
Motor freight transportation and related services	1,662,836	23.6%	1.8%	1,900,899	25.2%	1.9%	14.3%
<i>Trucking and courier services, except by air or by the U.S.</i>	1,458,847	20.7%	1.6%	1,691,277	22.4%	1.7%	15.9%
<i>Postal Service</i>							
Petroleum refining and wholesale distribution	264,820	3.8%	0.3%	250,087	3.3%	0.2%	-5.6%
Passenger transportation	672,271	9.5%	0.7%	796,595	10.6%	0.8%	18.5%
Automotive sales and servicing	3,135,783	44.5%	3.4%	3,418,206	45.3%	3.4%	9.0%
Total of motor vehicle and related industries	7,052,766	100.0%	7.5%	7,546,710	100.0%	7.5%	7.0%
U.S. Total ^a	93,476,087		100.0%	100,334,745		100.0%	7.3%

Source:

American Automobile Manufacturers Association, *Motor Vehicle Facts and Figures 1998*, Detroit, MI, 1998, p. 74, and annual. (Additional resources: <http://www.aama.com>)

^aData for employees of establishments totally exempt from FICA are excluded, as are self-employed persons, domestic service workers, railroad employees, agricultural production workers and most government employees.

^bData are not available.



Table 5.17
Employment in Transportation and Related Industries, 1960-97
(persons in thousands)

	1960	1965	1970	1975	1980	1985	1990	1996	1997
<u>Transportation Service</u>									
Air transport	191	229	351	362	453	537	789	818	860
Bus, intercity	41	42	43	39	38	36	20	24	25
Local transport	101	83	77	69	79	90	136	257	264
Railroads	885	735	627	538	532	346	285	281	300
Oil pipeline	23	20	18	17	21	19	20	16	16
Taxi	121	110	107	83	53	38	33	36	34
Trucking & truck materials	770	882	998	996	1,189	1,285	1,534	2,293	2,414
Water	232	230	215	190	213	214	173	182	185
Total	2,364	2,331	2,436	2,294	2,578	2,565	2,990	3,907	4,098
<u>Transportation Equipment Manufacturing</u>									
Aircraft & parts	646	624	669	514	652	647	709	404	444
Motor vehicles, equipment, tires	829	945	914	892	904	964	886	1,305	1,295
Railroad equipment	43	56	51	52	71	34	34	37	36
Ship & boat building & repair	141	160	170	194	221	193	189	182	179
Other transportation equipment	33	57	111	115	149	130	46	76	75
Total	1,692	1,842	1,915	1,767	1,997	1,968	1,864	2,004	2,029
<u>Transportation Related Industries</u>									
Automotive/accessory retail dealers	807	902	996	1,076	1,048	1,185	1,292	1,330	1,345
Automotive wholesalers	215	255	320	367	418	433	451	498	494
Automotive service & garages	251	324	384	400	571	730	926	1,256	1,249
Gasoline service stations	461	522	614	616	561	611	641	646	649
Highway & street construction	294	324	331	297	268	264	245	240	246
Petroleum ^c	311	292	333	390	533	568	521	487	484
Other industries									
Truck drivers & deliverymen	1,477	1,521	1,565	1,796	1,931	2,050	2,148	2,542	2,490
Freight handlers	365	411	456	613	622	574	504	551	539
Total	4,181	4,551	4,999	5,545	5,952	6,415	6,728	7,550	7,496
<u>Government Transportation Employees</u>									
U.S. Department of Transportation	38	45	66	75	72	61	65	63	63
Highways, state & local	499	550	568	569	532	549	569	543	525
U.S. Postal Service ^b	83	83	103	98	92	104	115	119	125
Other ^c	18	16	12	13	13	11	11	11	11
Total	638	694	749	755	709	725	760	736	724
Total transportation employment	8,875	9,418	10,099	10,361	11,236	11,673	12,342	14,197	14,347
Total employed civilians	65,778	71,088	78,627	85,783	99,303	107,150	117,914	126,708	129,558
Transportation percent of total	13.5%	13.2%	12.8%	12.1%	11.3%	10.9%	10.5%	11.2%	11.1%

Source:

Eno Transportation Foundation, *Transportation in America 1998*, Lansdowne, VA, 1998, p. 61.

^a Estimated by assuming transport share of total petroleum industry employment is same as transport share of petroleum domestic demand.

^b Estimated share (approximately 14%) of total employees engaged in transportation work.

^c Agencies include Civil Aeronautics Board (sunset in 1985), Federal Maritime Commission, Federal Energy Regulatory Commission, Interstate Commerce Commission, Railroad Retirement Board, and Panama Canal Commission.

