



SURVEY OF MOTOR VEHICLE USE

AUSTRALIA

EMBARGO: 11.30AM (CANBERRA TIME) FRI 21 JULY 2000

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- For further information about these and related statistics, contact the National Information Service on 1300 135 070 or Tony Webb on Brisbane 07 3222 6185.

NOTES

ABOUT THIS PUBLICATION

This publication presents results from the 1999 Survey of Motor Vehicle Use (SMVU). The data were collected in four quarterly sample surveys conducted by the Australian Bureau of Statistics (ABS) over the period 1 August 1998 to 31 July 1999.

The statistics in this publication are the second in a series produced using a new collection methodology designed to improve the quality of data reported over that for previous ABS surveys of motor vehicle use. Statistics under the old methodology were last published for the 12 months ending September 1995. The current methodology is described in the Explanatory Notes. The change to the methodology means that care should be taken in making direct comparisons between data from the two most recent surveys and that collected up to 1995. Additional information about the reliability of the estimates is given in the Technical Note: Data Quality.

Dennis Trewin
Australian Statistician

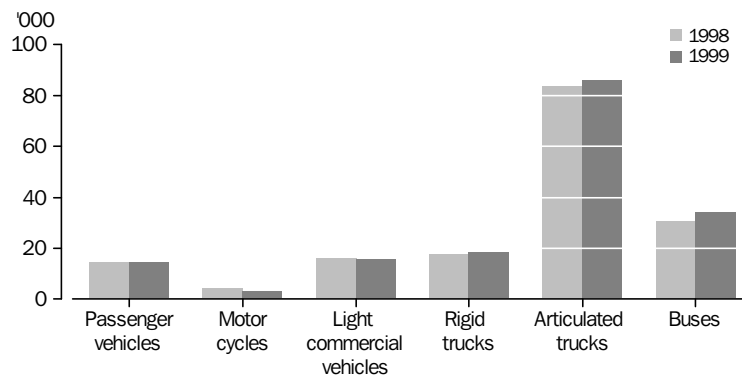
SUMMARY OF FINDINGS

DISTANCE TRAVELLED

During the period 1 August 1998 to 31 July 1999, vehicles registered in Australia for road use travelled 177,635 million kilometres at an average 14,900 kilometres per vehicle. These figures represent little change from the previous survey for the year ended 31 July 1998. During this earlier period registered road use vehicles travelled 173,317 million kilometres also at an average of 14,900 kilometres for each vehicle. The 3% increase in total kilometres travelled reflects an increase in the number of vehicles on the road.

While freight-carrying vehicles and buses on average travelled greater distances, 80% of all vehicles on the road were passenger vehicles and these accounted for 78% (137,885 million kilometres) of total distance travelled in Australia. Freight-carrying vehicles contributed 21% (36,631 million kilometres); buses 1% (1,843 million kilometres); motor cycles 1% (1,003 million kilometres); while non-freight carrying trucks travelled 274 million kilometres.

AVERAGE KILOMETRES TRAVELLED BY TYPE OF VEHICLE



Vehicles registered in the Australian Capital Territory recorded the highest distance travelled per vehicle at 16,100 kilometres, followed by the Northern Territory (16,000 kilometres) and Victoria (15,900 kilometres), while Tasmania (12,400 kilometres) recorded the lowest average distance travelled. For the year ended 31 July 1998 the Australian Capital Territory also recorded the highest average distance travelled (15,900 kilometres) followed by Victoria (15,800 kilometres) and New South Wales (15,700 kilometres). During this period, vehicles registered in the Northern Territory travelled an average of 15,200 kilometres.

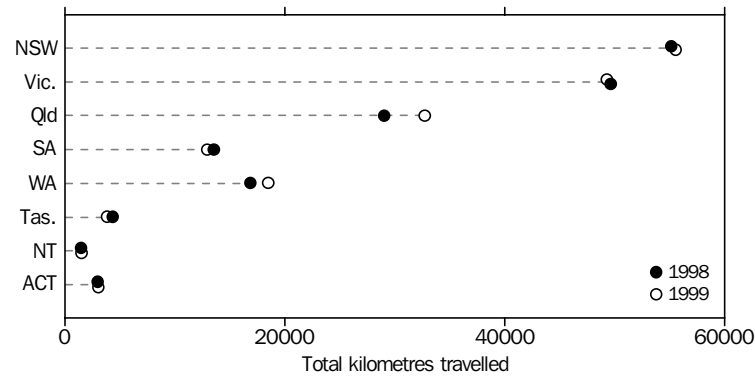
Vehicles registered in New South Wales, Victoria and Queensland accounted for just over three quarters of the total distance travelled. These States also accounted for a similar proportion of all the vehicles registered in Australia.

SUMMARY OF FINDINGS *continued*

DISTANCE TRAVELLED

continued

TOTAL KILOMETRES TRAVELLED BY STATE/TERRITORY OF REGISTRATION



FUEL CONSUMPTION

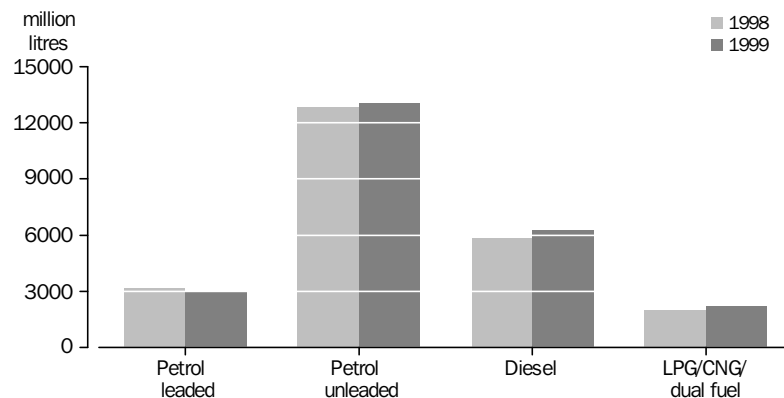
The average rate of fuel consumption by all vehicles for all fuel types in the 12 months ended 31 July 1999 was estimated at 13.8 litres per hundred kilometres. This overall average fuel consumption rate and the fuel consumption rate for each vehicle type represented little change from that recorded in the previous survey period ended 31 July 1998.

For passenger vehicles using petrol, consumption averaged 11.3 litres per hundred kilometres. This comprised an average of 11.2 litres per hundred kilometres for passenger vehicles using unleaded petrol and 11.9 litres per hundred kilometres for passenger vehicles using leaded petrol.

Consumption of diesel fuel in the 12 months ended 31 July 1999 averaged 25.7 litres per hundred kilometres for all vehicles, with articulated trucks averaging 51.5 litres, rigid trucks 28.1 litres, light commercial vehicles 12.0 litres and passenger vehicles 12.5 litres per hundred kilometres. Consumption of LPG/CNG and dual fuels averaged 16.9 litres per hundred kilometres for all vehicles, with passenger vehicles averaging 16.6 litres per hundred kilometres.

Total fuel consumption by all vehicles during the 12 months ended 31 July 1999 was estimated at 24,532 million litres, with passenger vehicles accounting for 66% (16,087 million litres) of total fuel consumed and freight-carrying vehicles for 32% (7,819 million litres).

MOTOR VEHICLE FUEL CONSUMPTION BY TYPE OF FUEL



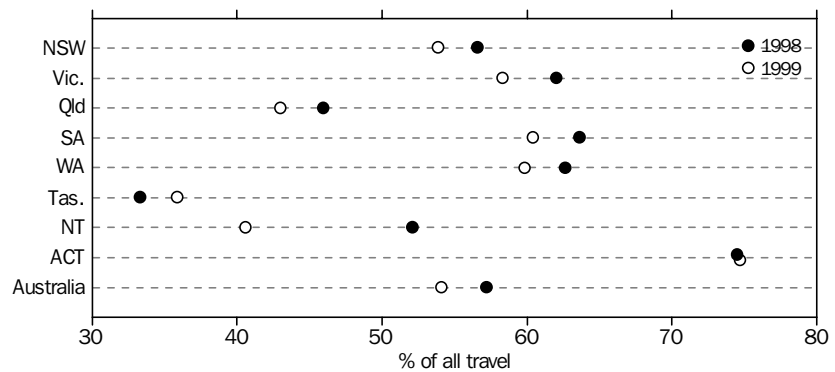
SUMMARY OF FINDINGS *continued*

AREA OF OPERATION

An estimated 95% (169,065 million kilometres) of the total distance travelled by all vehicles in the 12 months ended 31 July 1999 was within the State/Territory of registration of the vehicle. The exception was vehicles registered in the ACT where 25% of all travel was in areas outside the ACT.

Of the total distance travelled, 54% (96,026 million kilometres) was in the capital city area of the State/Territory of registration, although for articulated trucks, 20% (1,050 million kilometres) of the total distance travelled was within the capital city of the State/Territory of registration and 27% (1,431 million kilometres) was interstate.

TRAVEL WITHIN CAPITAL CITY(a), STATE/TERRITORY OF REGISTRATION



(a) Travel within the capital city of the State/Territory of registration.

BUSINESS AND PRIVATE USE OF VEHICLES

Business use accounted for an estimated 37% (65,521 million kilometres) of the total distance travelled in the 12 months ended 31 July 1999.

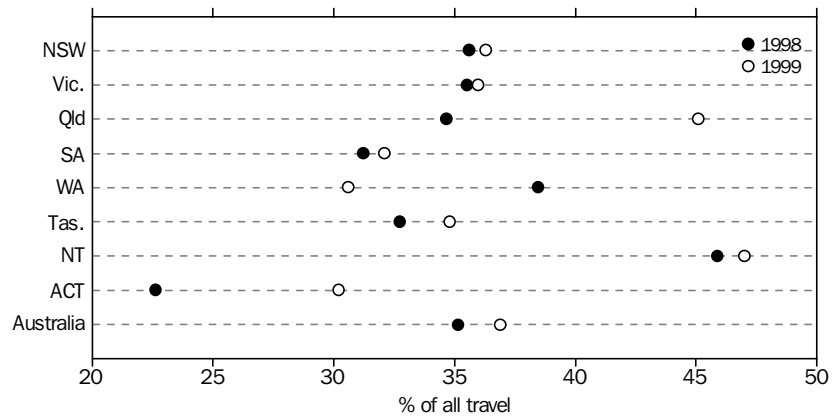
About 51% (70,267 million kilometres) of the total distance travelled by passenger vehicles was for private use, 24% (32,801 million kilometres) was for travel to and from work, and 25% (34,817 million kilometres) was for business use or charged against business expenses.

For those vehicles used partly or wholly for business purposes, the average distance travelled for business purposes was 14,600 kilometres. Articulated trucks averaged 94,500 kilometres, with 74% of their total business distance being travelled while they were either partly or fully laden with freight. Buses averaged 37,500 kilometres; rigid trucks 21,200 kilometres; light commercial vehicles 17,200 kilometres; passenger vehicles 11,400 kilometres; and motorcycles 3,600 kilometres.

SUMMARY OF FINDINGS *continued*

BUSINESS AND PRIVATE USE OF VEHICLES *continued*

TRAVEL FOR BUSINESS PURPOSES IN STATE/TERRITORY OF REGISTRATION



Of those vehicles used partly or wholly for private purposes, the average distance travelled for this purpose was 8,300 kilometres, with passenger vehicles averaging 8,600 kilometres. Vehicles registered in the Australian Capital Territory and the Northern Territory recorded the highest average vehicle usage for private purposes with averages of 9,500 and 8,900 kilometres respectively.

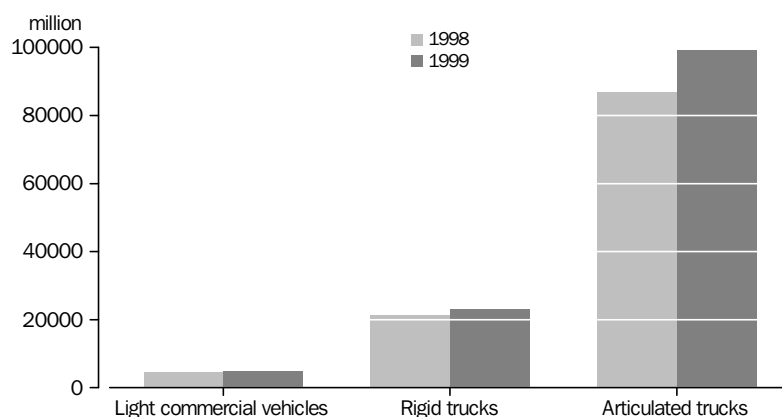
The average distance travelled by vehicles used partly or wholly for travel to and from work was 6,800 kilometres with passenger vehicles recording the highest average with 7,000 kilometres.

FREIGHT VEHICLE USE

In the 12 months ended 31 July 1999, freight vehicles travelled an estimated 19,905 million kilometres for business purposes while laden and carried 1,421 million tonnes of goods. This represents an increase of 5% from the 18,967 million laden kilometres that freight vehicles travelled in the year ended 31 July 1998 and an increase of 11% in the total tonnes carried during this period.

A total of 127,311 million tonne-kilometres was travelled by freight vehicles, an increase of 13% from the period ending 31 July 1998. Articulated trucks recorded the largest proportion of tonne-kilometres at 78% (99,120 million tonne-kilometres), rigid trucks 18% (23,268 million tonne-kilometres) and light commercial vehicles 4% (4,923 million tonne-kilometres).

TOTAL TONNE-KILOMETRES TRAVELLED BY FREIGHT VEHICLE TYPE

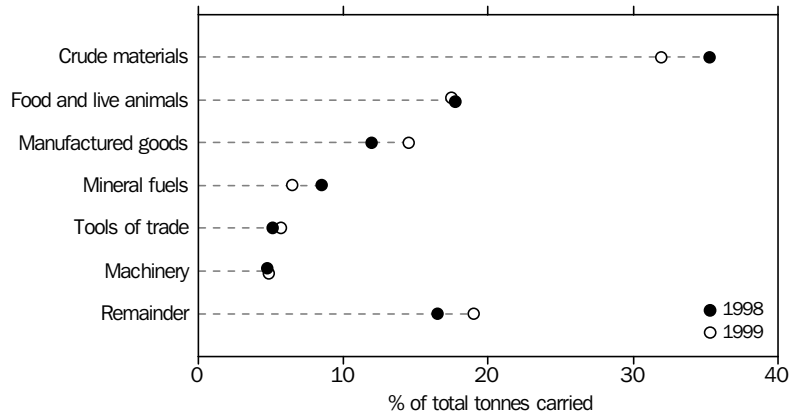


SUMMARY OF FINDINGS *continued*

FREIGHT VEHICLE USE *continued*

Of the total tonnes of goods carried in the 12 months ended 31 July 1999, rigid and articulated trucks accounted for 92% of all goods carried. Rigid trucks carried 660 million tonnes and articulated trucks 653 million tonnes.

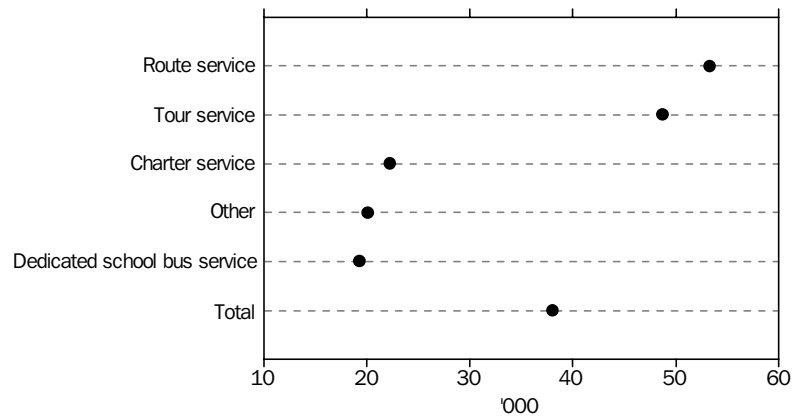
TYPE OF FREIGHT CARRIED BY WEIGHT



BUS USE

Buses used partly or wholly for business travelled 1,769 million kilometres in the 12 months ended 31 July 1999. Route services accounted for 38% (676 million kilometres) of the total distance travelled, dedicated school bus services contributed 19% (342 million kilometres), charter services 16% (279 million kilometres) and tour services accounted for 8% (136 million kilometres).

AVERAGE KILOMETRES TRAVELLED BY TYPE OF BUS SERVICE



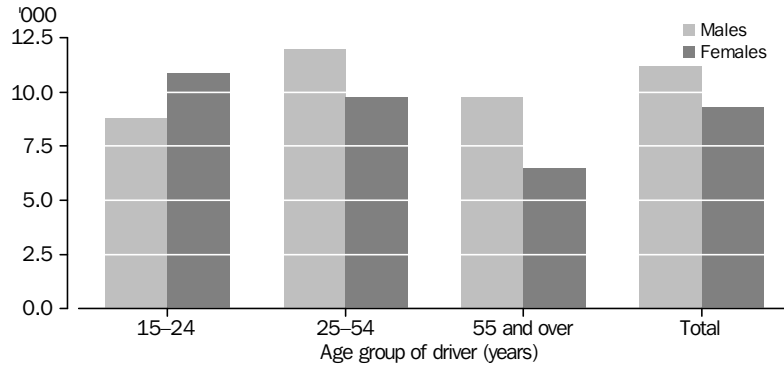
DRIVER CHARACTERISTICS

The average distance driven per vehicle (excluding taxis and buses) in the 12 months ended 31 July 1999 was estimated at 10,400 kilometres, with male drivers averaging 11,200 kilometres and female drivers 9,300. These figures represent the average kilometres driven per vehicle and are not a measure of average distance travelled by individuals. They do not take into account that a person may drive more than one vehicle.

SUMMARY OF FINDINGS *continued*

DRIVER
CHARACTERISTICS
continued

AVERAGE KILOMETRES TRAVELLED PER VEHICLE BY AGE AND SEX OF DRIVER(a)



(a) All vehicles except taxis and buses.

Articulated trucks were driven an average of 63,900 kilometres by each driver, rigid trucks 14,100 kilometres, light commercial vehicles 11,900 kilometres, passenger vehicles (excluding taxis) 9,900 kilometres and motor cycles 4,000 kilometres.

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MOTOR VEHICLE USE—12 months ended 31 July 1998 and 1999

Type of vehicle	1998	1999	Percentage change
TOTAL KILOMETRES TRAVELLED (million)			
Passenger vehicles	134 261	137 885	2.7
Motor cycles	1 350	1 003	-25.7
Light commercial vehicles	24 958	24 986	0.1
Rigid trucks	6 015	6 382	6.1
Articulated trucks	4 921	5 262	6.9
Non-freight carrying trucks	175	274	56.8
Buses	1 639	1 843	12.4
Total	173 317	177 635	2.5
NUMBER OF VEHICLES (a)(b) (no.)			
Passenger vehicles	9 314 969	9 553 289	2.6
Motor cycles	307 332	324 080	5.4
Light commercial vehicles	1 528 692	1 587 922	3.9
Rigid trucks	338 851	345 158	1.9
Articulated trucks	58 794	61 242	4.2
Non-freight carrying trucks	17 598	22 000	25.0
Buses	53 260	54 410	2.2
Total	11 619 496	11 948 103	2.8
AVERAGE KILOMETRES TRAVELLED (c) ('000)			
Passenger vehicles	14.4	14.4	0.1
Motor cycles	4.4	3.1	-29.5
Light commercial vehicles	16.3	15.7	-3.6
Rigid trucks	17.7	18.5	4.2
Articulated trucks	83.7	85.9	2.7
Non-freight carrying trucks	9.9	12.5	25.4
Buses	30.8	33.9	10.1
Total	14.9	14.9	-0.3
TOTAL FUEL CONSUMPTION (million litres)			
Passenger vehicles	15 825	16 087	1.7
Motor cycles	79	62	-21.0
Light commercial vehicles	3 283	3 323	1.2
Rigid trucks	1 693	1 785	5.5
Articulated trucks	2 511	2 710	7.9
Non-freight carrying trucks	51	69	35.1
Buses	467	496	6.2
Total	23 909	24 532	2.6
AVERAGE RATE OF FUEL CONSUMPTION (d) (litres per 100 kilometres)			
Passenger vehicles	11.8	11.7	-1.0
Motor cycles	5.9	6.2	6.3
Light commercial vehicles	13.2	13.3	1.1
Rigid trucks	28.1	28.0	-0.6
Articulated trucks	51.0	51.5	0.9
Non-freight carrying trucks	29.1	25.1	-13.8
Buses	28.5	26.9	-5.5
Total	13.8	13.8	0.1

(a) The average number of vehicles registered for the 12 months ended 31 July.

(b) Includes registered vehicles that did not travel during the reference period.

(c) Calculated using average number of registered vehicles. Includes registered vehicles that did not travel during the reference period.

(d) Calculated using the total fuel consumption divided by the total kilometres travelled for each type of fuel by type of vehicle.

FREIGHT VEHICLE USE—12 months ended 31 July 1998 and 1999

Type of vehicle	1998	1999	Percentage change
TOTAL LADEN BUSINESS KILOMETRES TRAVELLED (million)			
Light commercial vehicles	11 280	11 688	3.6
Rigid trucks	4 109	4 329	5.4
Articulated trucks	3 579	3 888	8.7
Total	18 967	19 905	4.9
AVERAGE LADEN BUSINESS KILOMETRES TRAVELLED (a) ('000)			
Light commercial vehicles	13.2	12.9	-2.5
Rigid trucks	14.5	15.0	3.6
Articulated trucks	68.2	71.1	4.2
Total	16.0	15.9	-0.2
TOTAL TONNE-KILOMETRES (million)			
Light commercial vehicles	4 449	4 923	10.7
Rigid trucks	21 491	23 268	8.3
Articulated trucks	86 892	99 120	14.1
Total	112 832	127 311	12.8
AVERAGE TONNE-KILOMETRES (b) ('000)			
Light commercial vehicles	5.2	5.4	3.8
Rigid trucks	75.7	80.6	6.5
Articulated trucks	1 656.9	1 811.6	9.3
Total	95.1	101.9	7.1
TOTAL TONNES CARRIED (million)			
Light commercial vehicles	81	107	32.0
Rigid trucks	604	660	9.4
Articulated trucks	593	653	10.3
Total	1 277	1 421	11.2
AVERAGE LOAD CARRIED PER TRIP (c) (kilograms)			
Light commercial vehicles	332	372	11.9
Rigid trucks	5 361	5 606	4.6
Articulated trucks	22 737	22 980	1.1
Total	3 334	3 268	-2.0

(a) Calculated using the total laden business kilometres travelled divided by the number of vehicles that travelled laden business kilometres for each type of vehicle.

(b) Calculated using the total tonne-kilometres travelled divided by the number of vehicles that travelled tonne-kilometres for each type of vehicle.

(c) Calculated using the total load carried divided by the total number of laden trips by vehicles for each type of vehicle.

MOTOR VEHICLE USE—12 months ended 31 July 1998 and 1999

<i>State/Territory of registration</i>	1998	1999	<i>Percentage change</i>
TOTAL KILOMETRES TRAVELLED (million)			
New South Wales	55 169	55 578	0.7
Victoria	49 619	49 279	-0.7
Queensland	29 033	32 772	12.9
South Australia	13 616	12 992	-4.6
Western Australia	16 920	18 496	9.3
Tasmania	4 393	3 881	-11.6
Northern Territory	1 521	1 580	3.8
Australian Capital Territory	3 045	3 058	0.4
Australia	173 317	177 635	2.5
NUMBER OF VEHICLES (a)(b) (no.)			
New South Wales	3 512 508	3 678 552	4.7
Victoria	3 139 565	3 108 920	-1.0
Queensland	2 106 302	2 212 471	5.0
South Australia	999 507	1 017 117	1.8
Western Australia	1 239 681	1 329 037	7.2
Tasmania	329 779	312 943	-5.1
Northern Territory	100 119	98 620	-1.5
Australian Capital Territory	192 036	190 442	-0.8
Australia	11 619 496	11 948 103	2.8
AVERAGE KILOMETRES TRAVELLED (c) ('000)			
New South Wales	15.7	15.1	-3.8
Victoria	15.8	15.9	0.3
Queensland	13.8	14.8	7.5
South Australia	13.6	12.8	-6.2
Western Australia	13.6	13.9	2.0
Tasmania	13.3	12.4	-6.9
Northern Territory	15.2	16.0	5.4
Australian Capital Territory	15.9	16.1	1.2
Australia	14.9	14.9	-0.3

(a) The average number of vehicles registered for the 12 months ended 31 July.

(b) Includes registered vehicles that did not travel during the reference period.

(c) Calculated using average number of registered vehicles. Includes registered vehicles that did not travel during the reference period.

MOTOR VEHICLE USE, By State/Territory of Registration and Type of Vehicle

	Passenger vehicles	Motor cycles	Light commercial vehicles	Rigid trucks	Articulated trucks	Non- freight carrying trucks	Buses	Total
TOTAL KILOMETRES TRAVELLED (million)								
New South Wales	43 909	313	7 169	2 255	1 340	62	530	55 578
Victoria	40 012	169	5 747	1 492	1 473	65	320	49 279
Queensland	23 723	255	5 868	1 249	1 148	*55	474	32 772
South Australia	10 190	92	1 605	414	525	*17	149	12 992
Western Australia	13 790	108	3 041	729	543	**69	216	18 496
Tasmania	2 670	24	907	129	108	*3	42	3 881
Northern Territory	954	16	381	57	93	*2	77	1 580
Australian Capital Territory	2 636	27	269	58	32	*1	34	3 058
Australia	137 885	1 003	24 986	6 382	5 262	274	1 843	177 635

	NUMBER OF VEHICLES (a)(b) (no.)							
New South Wales	2 992 283	86 257	453 829	109 267	16 166	4 994	15 756	3 678 552
Victoria	2 560 912	82 356	347 809	82 796	16 829	6 191	12 026	3 108 920
Queensland	1 678 620	70 137	368 909	66 552	12 545	*3 756	11 953	2 212 471
South Australia	832 431	26 860	119 432	27 396	5 754	1 767	3 479	1 017 117
Western Australia	1 026 790	41 446	199 142	43 858	7 429	3 938	6 433	1 329 037
Tasmania	230 969	7 766	60 511	9 456	1 462	996	1 784	312 943
Northern Territory	65 339	3 509	23 072	3 464	806	242	2 189	98 620
Australian Capital Territory	165 946	5 750	15 218	2 369	252	117	791	190 442
Australia	9 553 289	324 080	1 587 922	345 158	61 242	22 000	54 410	11 948 103

	AVERAGE KILOMETRES TRAVELLED (c) ('000)							
New South Wales	14.7	3.6	15.8	20.6	82.9	12.4	33.7	15.1
Victoria	15.6	2.1	16.5	18.0	87.5	10.5	26.6	15.9
Queensland	14.1	3.6	15.9	18.8	91.5	14.7	39.7	14.8
South Australia	12.2	3.4	13.4	15.1	91.2	*9.8	42.8	12.8
Western Australia	13.4	2.6	15.3	16.6	73.1	*17.5	33.6	13.9
Tasmania	11.6	3.1	15.0	13.6	73.6	*3.0	23.4	12.4
Northern Territory	14.6	4.5	16.5	16.4	115.2	*8.8	35.1	16.0
Australian Capital Territory	15.9	4.7	17.7	24.6	129.1	*8.0	43.3	16.1
Australia	14.4	3.1	15.7	18.5	85.9	12.5	33.9	14.9

* estimate has a relative standard error of between 25% and 50% and should be used with caution

** estimate has a relative standard error greater than 50% and is considered too unreliable for general use

(a) The average number of vehicles registered for the 12 months ended 31 July 1999.

(b) Includes registered vehicles that did not travel during the reference period.

(c) Calculated using the average number of registered vehicles. Includes registered vehicles that did not travel during the reference period.

FUEL CONSUMPTION, By Type of Fuel and Type of Vehicle

	Passenger vehicles	Motor cycles	Light commercial vehicles	Rigid trucks	Articulated trucks	Non- freight carrying trucks	Buses	Total
TOTAL (million litres)								
Petrol								
Leaded	2 254	19	629	47	*1	*4	4	2 957
Unleaded	11 708	44	1 270	8	—	*18	21	13 069
Total	13 962	62	1 898	56	*1	*22	25	16 026
Diesel	547	—	838	1 704	2 709	39	448	6 285
LPG/CNG/dual fuel	1 578	—	587	26	**1	*8	22	2 221
Total	16 087	62	3 323	1 785	2 710	69	496	24 532
AVERAGE(a) (litres per 100 kilometres)								
Petrol								
Leaded	11.9	5.7	13.4	24.7	39.0	31.1	19.4	12.2
Unleaded	11.2	6.5	12.9	21.0	—	20.1	14.7	11.3
Total	11.3	6.2	13.1	24.1	39.0	21.4	15.3	11.4
Diesel	12.5	—	12.0	28.1	51.5	25.8	27.7	25.7
LPG/CNG/dual fuel	16.6	—	16.8	27.3	59.1	37.1	35.3	16.9
Total	11.7	6.2	13.3	28.0	51.5	25.1	26.9	13.8

* estimate has a relative standard error of between 25% and 50% and should be used with caution

— nil or rounded to zero (including null cells)

** estimate has a relative standard error greater than 50% and is considered too unreliable for general use

(a) Calculated using the total fuel consumption divided by the total kilometres travelled for each type of fuel by type of vehicle.

AREA OF OPERATION, By Type of Vehicle

WITHIN STATE/TERRITORY OF
REGISTRATION

	<i>Capital city</i>	<i>Other urban areas</i>	<i>Other areas</i>	<i>Total</i>	<i>Interstate</i>	<i>Australia</i>
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TOTAL KILOMETRES TRAVELLED (million)

Passenger vehicles	79 315	18 573	34 177	132 066	5 819	137 885
Motor cycles	377	162	418	957	*46	1 003
Light commercial vehicles	11 107	3 891	9 013	24 011	975	24 986
Rigid trucks	3 205	911	2 053	6 169	213	6 382
Articulated trucks	1 050	369	2 412	3 831	1 431	5 262
Non-freight carrying trucks	110	*53	*109	271	**3	274
Buses	862	291	605	1 758	84	1 843
Total	96 026	24 251	48 787	169 065	8 570	177 635

AVERAGE KILOMETRES TRAVELLED (a) ('000)

Passenger vehicles	11.8	7.4	9.9	14.6	5.2	15.1
Motor cycles	3.4	3.1	3.5	4.2	*1.9	4.3
Light commercial vehicles	15.2	9.5	12.5	16.2	5.8	16.7
Rigid trucks	21.9	14.3	14.1	20.3	7.5	20.8
Articulated trucks	32.2	20.7	59.9	69.8	76.3	94.1
Non-freight carrying trucks	13.8	*11.7	*11.0	13.6	**1.3	13.7
Buses	30.4	22.8	25.4	33.5	18.5	34.9
Total	12.4	7.9	10.8	15.1	6.3	15.8

* estimate has a relative standard error of between 25% and 50% and should be used with caution

** estimate has a relative standard error greater than 50% and is considered too unreliable for general use

(a) Calculated using the total kilometres travelled divided by the number of vehicles that travelled kilometres for each type of vehicle by area of operation.

AREA OF OPERATION, By State/Territory of Registration

WITHIN STATE/TERRITORY OF
REGISTRATION

	<i>Capital city</i>	<i>Other urban areas</i>	<i>Other areas</i>	<i>Total</i>	<i>Interstate</i>	<i>Australia</i>
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TOTAL KILOMETRES TRAVELLED (million)

New South Wales	29 948	9 829	14 060	53 837	1 740	55 578
Victoria	28 752	5 111	12 340	46 202	3 077	49 279
Queensland	14 105	8 048	9 292	31 445	1 327	32 772
South Australia	7 845	..	4 374	12 220	773	12 992
Western Australia	11 054	..	6 827	17 881	**615	18 496
Tasmania	1 395	1 264	1 076	3 734	*147	3 881
Northern Territory	642	..	818	1 460	120	1 580
Australian Capital Territory	2 285	..	..	2 285	772	3 058
Australia	96 026	24 251	48 787	169 065	8 570	177 635

AVERAGE KILOMETRES TRAVELLED (a) ('000)

New South Wales	12.7	8.6	10.5	15.4	3.8	15.9
Victoria	13.0	6.0	10.3	15.9	8.8	16.7
Queensland	12.1	8.5	11.0	15.2	4.9	15.6
South Australia	11.0	..	9.9	13.1	8.4	13.8
Western Australia	11.9	..	13.9	14.9	*10.3	15.2
Tasmania	9.3	8.5	8.0	12.6	*7.8	13.1
Northern Territory	11.3	..	15.9	16.3	11.3	17.4
Australian Capital Territory	12.8	..	..	12.8	7.6	16.8
Australia	12.4	7.9	10.8	15.1	6.3	15.8

.. not applicable

** estimate has a relative standard error greater than 50% and is considered too unreliable for general use

* estimate has a relative standard error of between 25% and 50% and should be used with caution

(a) Calculated using total kilometres travelled divided by the number of vehicles that travelled kilometres for each State/Territory of registration by area of operation.

BUSINESS AND PRIVATE USE OF VEHICLES, By Type of Vehicle

BUSINESS

	Laden	Unladen	All business use(a)	To and from work	Personal and other	Total
TOTAL KILOMETRES TRAVELLED (million)						
Passenger vehicles	na	na	34 817	32 801	70 267	137 885
Motor cycles	na	na	197	253	553	1 003
Light commercial vehicles	11 688	5 364	17 052	3 225	4 710	24 986
Rigid trucks	4 329	1 855	6 184	97	102	6 382
Articulated trucks	3 888	1 366	5 254	6	*2	5 262
Non-freight carrying trucks	na	na	271	*2	**1	274
Buses	na	na	1 746	19	78	1 843
Total	19 905	8 585	65 521	36 402	75 712	177 635

AVERAGE KILOMETRES TRAVELLED (b) ('000)

Passenger vehicles	na	na	11.4	7.0	8.6	15.1
Motor cycles	na	na	3.6	3.4	3.0	4.3
Light commercial vehicles	12.9	8.4	17.2	6.2	6.1	16.7
Rigid trucks	15.0	8.0	21.2	4.3	3.5	20.8
Articulated trucks	71.1	28.7	94.5	2.8	*2.2	94.1
Non-freight carrying trucks	na	na	13.7	2.2	**4.0	13.7
Buses	na	na	37.5	6.4	8.7	34.9
Total	15.9	9.4	14.6	6.8	8.3	15.8

na not available

* estimate has a relative standard error of between 25% and 50% and should be used with caution

** estimate has a relative standard error greater than 50% and is considered too unreliable for general use

(a) Including the business travel of non-freight carrying vehicles.

(b) Calculated using the total kilometres travelled divided by the number of vehicles that travelled kilometres for each type of vehicle by purpose.

BUSINESS AND PRIVATE USE OF VEHICLES, By State/Territory of Registration

BUSINESS

	<i>Laden</i>	<i>Unladen</i>	<i>All business use(a)</i>	<i>To and from work</i>	<i>Personal and other</i>	<i>Total</i>
TOTAL KILOMETRES TRAVELLED (million)						
New South Wales	6 130	2 204	20 168	11 522	23 888	55 578
Victoria	4 597	2 409	17 741	10 214	21 324	49 279
Queensland	4 622	1 744	14 767	5 701	12 304	32 772
South Australia	1 405	579	4 164	3 080	5 748	12 992
Western Australia	2 174	1 154	5 664	4 216	8 615	18 496
Tasmania	490	310	1 349	692	1 840	3 881
Northern Territory	264	125	743	265	572	1 580
Australian Capital Territory	223	61	924	713	1 421	3 058
Australia	19 905	8 585	65 521	36 402	75 712	177 635

AVERAGE KILOMETRES TRAVELLED (b) ('000)

New South Wales	16.0	8.1	14.9	7.5	8.5	15.9
Victoria	16.4	11.4	13.8	6.8	8.6	16.7
Queensland	16.8	8.9	15.6	5.7	7.6	15.6
South Australia	14.9	8.3	13.7	7.1	7.5	13.8
Western Australia	14.5	10.0	14.2	7.2	8.4	15.2
Tasmania	12.5	9.9	13.7	5.6	7.6	13.1
Northern Territory	16.4	10.3	16.4	6.1	8.9	17.4
Australian Capital Territory	17.2	8.3	14.2	7.1	9.5	16.8
Australia	15.9	9.4	14.6	6.8	8.3	15.8

(a) Including the business travel of non-freight carrying vehicles.

(b) Calculated using the total kilometres travelled divided by the number of vehicles that travelled kilometres for each State/Territory of registration by purpose.

BUSINESS KILOMETRES, By State/Territory of Registration and Type of Vehicle

	Passenger vehicles	Motor cycles	Light commercial vehicles	Rigid trucks	Articulated trucks	Non- freight carrying trucks	Buses	Total
TOTAL (million)								
New South Wales	11 181	*80	4 819	2 178	1 338	61	512	20 168
Victoria	10 347	**17	4 094	1 440	1 472	65	305	17 741
Queensland	7 862	**47	3 999	1 221	1 146	*55	438	14 767
South Australia	*2 005	*14	1 055	404	524	*17	144	4 164
Western Australia	*2 032	*32	2 076	710	542	**68	204	5 664
Tasmania	*505	**2	572	120	107	*3	40	1 349
Northern Territory	283	—	241	55	93	*2	70	743
Australian Capital Territory	601	*5	195	56	32	*1	33	924
Australia	34 817	197	17 052	6 184	5 254	271	1 746	65 521
AVERAGE (a) ('000)								
New South Wales	12.3	*3.2	16.5	23.4	90.8	12.6	39.1	14.9
Victoria	10.7	*2.0	18.8	21.2	96.9	12.1	28.2	13.8
Queensland	12.6	**6.7	17.5	20.9	96.8	15.9	43.9	15.6
South Australia	*10.4	*3.6	14.4	17.6	100.8	*10.5	45.7	13.7
Western Australia	9.2	*4.1	17.4	19.9	85.8	*20.4	36.8	14.2
Tasmania	9.7	**2.0	16.5	16.1	82.7	*3.0	26.3	13.7
Northern Territory	11.3	—	16.9	17.6	121.4	*9.8	38.6	16.4
Australian Capital Territory	12.1	*4.4	17.9	26.5	138.9	*10.0	49.0	14.2
Australia	11.4	3.6	17.2	21.2	94.5	13.7	37.5	14.6

* estimate has a relative standard error of between 25% and 50% and should be used with caution

** estimate has a relative standard error greater than 50% and is considered too unreliable for general use

— nil or rounded to zero (including null cells)

(a) Calculated using the total business kilometres travelled divided by the number of vehicles that travelled business kilometres for each State/Territory of registration by type of vehicle.

	<i>Light commercial vehicles</i>	<i>Rigid trucks</i>	<i>Articulated trucks</i>	<i>Total</i>
.....				
TOTAL (million)				
New South Wales	3 645	1 530	955	6 130
Victoria	2 444	987	1 166	4 597
Queensland	2 918	855	849	4 622
South Australia	715	288	401	1 405
Western Australia	1 309	510	355	2 174
Tasmania	336	80	73	490
Northern Territory	165	38	61	264
Australian Capital Territory	155	40	28	223
Australia	11 688	4 329	3 888	19 905
.....				
AVERAGE (a) ('000)				
New South Wales	13.2	16.6	65.1	16.0
Victoria	12.3	14.7	79.0	16.4
Queensland	14.3	14.7	72.8	16.8
South Australia	10.8	12.7	79.1	14.9
Western Australia	12.1	14.4	56.5	14.5
Tasmania	11.0	11.0	56.7	12.5
Northern Territory	13.5	12.3	82.5	16.4
Australian Capital Territory	14.7	18.9	120.5	17.2
Australia	12.9	15.0	71.1	15.9

(a) Calculated using the total laden business kilometres travelled divided by the number of vehicles that travelled laden business kilometres for each State/Territory of registration by type of vehicle.

FREIGHT VEHICLES, Tonne-Kilometres—By State/Territory of Registration

	<i>Light commercial vehicles</i>	<i>Rigid trucks</i>	<i>Articulated trucks</i>	<i>Total</i>
TOTAL (million)				
New South Wales	1 531	8 372	22 519	32 422
Victoria	1 250	5 950	25 944	33 145
Queensland	1 072	4 230	21 350	26 651
South Australia	289	1 160	10 690	12 139
Western Australia	539	2 676	12 646	15 862
Tasmania	119	524	1 624	2 267
Northern Territory	60	180	3 638	3 877
Australian Capital Territory	64	175	*709	948
Australia	4 923	23 268	99 120	127 311
AVERAGE (a) ('000)				
New South Wales	5.5	90.7	1 535.2	84.7
Victoria	6.3	88.5	1 757.1	118.1
Queensland	5.2	72.5	1 830.5	97.1
South Australia	4.4	50.9	2 107.2	129.0
Western Australia	5.0	75.5	2 011.4	106.1
Tasmania	3.9	71.7	1 265.7	58.0
Northern Territory	4.9	58.8	4 907.1	241.3
Australian Capital Territory	6.0	83.3	3 065.8	73.3
Australia	5.4	80.6	1 811.6	101.9

* estimate has a relative standard error of between 25% and 50% and should be used with caution

(a) Calculated using the total tonne-kilometres travelled divided by the number of vehicles that travelled tonne-kilometres for each State/Territory of registration by type of vehicle.

FREIGHT VEHICLES, Tonne-Kilometres—By State/Territory of Operation

	<i>Light commercial vehicles</i>	<i>Rigid trucks</i>	<i>Articulated trucks</i>	<i>Total</i>
.....				
TOTAL (million)				
New South Wales	1 529	8 513	32 934	42 976
Victoria	1 241	5 787	19 837	26 865
Queensland	1 085	4 213	18 673	23 971
South Australia	289	1 220	8 968	10 477
Western Australia	543	2 659	13 615	16 817
Tasmania	114	523	1 514	2 152
Northern Territory	66	222	3 409	3 697
Australian Capital Territory	55	131	169	356
Australia	4 923	23 268	99 120	127 311
.....				
AVERAGE (a) ('000)				
New South Wales	5.0	85.5	1 335.5	99.5
Victoria	5.9	84.6	993.1	89.7
Queensland	5.1	70.3	1 084.8	83.1
South Australia	3.7	48.5	997.1	93.8
Western Australia	4.7	74.7	1 944.6	106.5
Tasmania	3.8	71.2	1 158.6	55.5
Northern Territory	5.1	44.2	2 311.9	189.9
Australian Capital Territory	3.7	31.9	159.3	17.6
Australia	5.4	80.6	1 811.6	101.9

(a) Calculated using the total tonne-kilometres travelled divided by the number of vehicles that travelled tonne-kilometres for each State/Territory of operation by type of vehicle.

RIGID TRUCKS, Tonne–Kilometres—By Number of Axles and GVM/GCM(a)

	GVM/GCM			
	<i>8 tonnes and under</i>	<i>Over 8 tonnes to 20 tonnes</i>	<i>Over 20 tonnes</i>	<i>Total tonnes</i>
.				
TOTAL (million)				
2 Axles	2 084	6 975	**361	9 420
3 Axles	**14	*171	11 858	12 043
4 or more axles	—	—	1 805	1 805
Total rigid trucks	2 098	7 146	14 024	23 268
.				
AVERAGE (b) ('000)				
2 Axles	18.4	54.5	**187.0	38.8
3 Axles	**25.1	*41.0	348.3	310.7
4 or more axles	—	—	263.2	263.2
Total rigid trucks	18.5	54.1	327.4	80.6

** estimate has a relative standard error greater than 50% and is considered too unreliable for general use

* estimate has a relative standard error of between 25% and 50% and should be used with caution

— nil or rounded to zero (including null cells)

(a) Gross Vehicle Mass/Gross Combination Mass.

(b) Calculated using the total tonne–kilometres travelled divided by the number of vehicles that travelled tonne–kilometres for each number of axles by GVM/GCM.

ARTICULATED TRUCKS, Tonne-Kilometres—By Trailer Configuration and GCM

	GROSS COMBINATION MASS (GCM)			
	30 tonnes and under	Over 30 tonnes to 40 tonnes	Over 40 tonnes	Total tonnes
TOTAL (million)				
Single axle trailer	*233	—	—	*233
Tandem axle trailer	*579	3 111	*799	4 489
Triaxle trailer	**169	3 215	49 280	52 664
B-Double	—	—	19 259	19 259
Road train	—	—	19 974	19 974
Other	—	—	*2 501	*2 501
Total articulated trucks	980	6 326	91 814	99 125

	AVERAGE (a) ('000)			
	30 tonnes and under	Over 30 tonnes to 40 tonnes	Over 40 tonnes	Total
Single axle trailer	*124.4	—	—	*124.4
Tandem axle trailer	*214.3	426.7	*674.6	401.6
Triaxle trailer	**688.2	906.3	1 753.4	1 651.0
B-Double	—	—	4 769.3	4 769.3
Road train	—	—	4 724.4	4 724.4
Other	—	—	*1 668.4	*1 668.4
Total articulated trucks	203.4	583.6	2 350.9	1 811.6

* estimate has a relative standard error of between 25% and 50% and should be used with caution
 — nil or rounded to zero (including null cells)
 ** estimate has a relative standard error greater than 50% and is considered too unreliable for general use
 (a) Calculated using the total tonne-kilometres travelled divided by the number of vehicles that travelled tonne-kilometres for each trailer configuration by GCM.

	<i>Light commercial vehicles</i>	<i>Rigid trucks</i>	<i>Articulated trucks</i>	<i>Total</i>
.....				
TOTAL TONNES (million)				
New South Wales	28	216	181	424
Victoria	31	133	155	319
Queensland	21	149	137	308
South Australia	8	43	55	106
Western Australia	14	92	99	205
Tasmania	3	17	16	36
Northern Territory	1	6	8	15
Australian Capital Territory	1	5	3	8
Australia	107	660	653	1 421
.....				
AVERAGE PER TRIP (a) (kilograms)				
New South Wales	343	5 571	22 571	3 327
Victoria	484	5 424	19 368	3 311
Queensland	337	5 758	24 258	3 251
South Australia	374	5 023	23 761	3 271
Western Australia	338	6 102	29 555	3 349
Tasmania	306	6 188	21 857	2 813
Northern Territory	227	4 789	30 892	2 771
Australian Capital Territory	345	4 597	23 115	1 850
Australia	372	5 606	22 980	3 268

(a) Calculated using the total load carried divided by the total number of laden trips by vehicles for each State/Territory of registration by type of vehicle.

17

FREIGHT VEHICLES, Total Tonnes Carried—By Commodity and Type of Vehicle

	<i>Light commercial vehicles</i>	<i>Rigid trucks</i>	<i>Articulated trucks</i>	<i>Total</i>
	mill. t	mill. t	mill. t	mill. t
Food and live animals	12	74	163	249
Beverages and tobacco	**1	*5	*10	15
Crude materials, inedible, except fuels	*4	280	169	453
Mineral fuels, lubricants and related materials	2	*25	66	93
Animal and vegetable oils, fats and waxes	**—	*1	*5	*6
Chemicals and related products, not elsewhere specified	*3	12	16	30
Manufactured goods	13	99	95	206
Machinery, transport equipment	6	25	39	69
Miscellaneous manufactured articles	*3	6	4	14
Tools of trade	51	28	*2	81
Other commodities, not elsewhere specified	10	94	73	176
Unspecified(a)	3	*12	*13	28
Total	107	660	653	1 421

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 * estimate has a relative standard error of between 25% and 50% and should be used with caution
 — nil or rounded to zero (including null cells)
 (a) Represents loads carried where type of commodity could not be obtained.

18

BUS USE(a), By Type of Bus and Type of Service

	<i>Route service</i>	<i>Dedicated school bus service</i>	<i>Charter service</i>	<i>Tour service</i>	<i>Other</i>	<i>Not specified(b)</i>	<i>Total</i>
TOTAL KILOMETRES TRAVELLED (million)							
Buses with fewer than 20 seats	*34	45	*90	*46	262	*16	492
Buses with 20 or more seats	642	297	189	91	58	**1	1 277
Total	676	342	279	136	320	*17	1 769
AVERAGE KILOMETRES TRAVELLED (c) ('000)							
Buses with fewer than 20 seats	*38.5	21.5	*49.9	45.6	22.3	26.4	29.4
Buses with 20 or more seats	54.4	19.0	17.6	50.4	*13.9	14.3	42.7
Total	53.3	19.3	22.2	48.7	20.1	25.0	38.0

- * estimate has a relative standard error of between 25% and 50% and should be used with caution
 ** estimate has a relative standard error greater than 50% and is considered too unreliable for general use
 (a) Excluding distance travelled by buses used exclusively for private purposes.
 (b) Represents travel by buses where type of service could not be obtained.
 (c) Calculated using the total kilometres travelled by buses divided by the number of vehicles that travelled kilometres for each type of bus by type of service.

BUS USE(a), By State/Territory of Registration and Type of Service

	Route service	Dedicated school bus service	Charter service	Other(b)	Not specified(c)	Total
TOTAL KILOMETRES TRAVELLED (million)						
New South Wales	194	138	71	113	—	517
Victoria	85	71	74	74	**4	308
Queensland	190	54	*95	106	**3	448
South Australia	76	22	*14	*31	**2	145
Western Australia	80	*36	*9	*75	**6	206
Tasmania	17	13	3	7	**—	40
Northern Territory	*11	*6	**8	44	**1	72
Australian Capital Territory	22	*1	*5	*6	—	33
Australia	676	342	279	456	*17	1 769
AVERAGE KILOMETRES TRAVELLED (d) ('000)						
New South Wales	35.1	19.4	14.0	28.0	—	39.5
Victoria	54.1	20.1	27.8	15.8	**15.8	28.4
Queensland	75.9	15.8	*33.5	26.0	*29.7	45.0
South Australia	79.7	23.7	27.5	*27.7	69.0	46.0
Western Australia	63.9	23.7	*16.1	*29.8	33.3	37.1
Tasmania	48.5	14.9	6.0	12.6	10.6	26.4
Northern Territory	*79.4	30.8	**25.7	33.0	**18.3	39.8
Australian Capital Territory	60.0	9.9	*48.2	27.9	—	49.0
Australia	53.3	19.3	22.2	24.6	25.0	38.0

— nil or rounded to zero (including null cells)

** estimate has a relative standard error greater than 50% and is considered too unreliable for general use

* estimate has a relative standard error of between 25% and 50% and should be used with caution

(a) Excluding distance travelled by buses used exclusively for private purposes.

(b) Includes tour service operations.

(c) Represents travel by buses where type of service could not be obtained.

(d) Calculated using the total kilometres travelled by buses divided by the number of vehicles that travelled kilometres for each State/Territory of registration by type of service.

	AGE GROUP OF DRIVER . . .			
	15-24	25-54	55 and over	Total(c)
MALES				
Passenger vehicles	8.4	10.8	9.7	10.2
Motor cycles	*3.4	4.4	*3.7	4.1
Light commercial vehicles	10.3	14.5	9.8	13.1
Rigid trucks	9.7	15.2	11.7	14.1
Articulated trucks	49.6	66.1	46.5	64.2
Non-freight carrying vehicles	*7.2	5.1	*12.7	5.7
Total	8.8	12.0	9.8	11.2
FEMALES				
Passenger vehicles	11.3	10.1	6.5	9.5
Motor cycles	**3.3	*2.9	—	*3.0
Light commercial vehicles	*4.9	6.2	6.4	6.1
Rigid trucks	np	5.0	**4.4	5.2
Articulated trucks	np	*28.0	np	*32.9
Non-freight carrying vehicles	*1.1	*2.5	np	**16.1
Total	10.9	9.8	6.5	9.3
PERSONS				
Passenger vehicles	9.7	10.4	8.5	9.9
Motor cycles	*3.4	4.3	*3.7	4.0
Light commercial vehicles	9.5	13.0	9.2	11.9
Rigid trucks	9.7	15.0	11.6	14.1
Articulated trucks	49.1	65.9	46.8	63.9
Non-freight carrying vehicles	*6.7	5.0	*12.1	7.0
Total	9.6	11.1	8.7	10.4

* estimate has a relative standard error of between 25% and 50% and should be used with caution

** estimate has a relative standard error greater than 50% and is considered too unreliable for general use

— nil or rounded to zero (including null cells)

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) These estimates include details reported for up to five drivers who drove the selected vehicle; but they do not take into account the possibility of a driver driving more than one vehicle during the survey period. The survey does not measure the average distance driven by an individual.

(b) Taxis and buses are excluded from the calculation for average kilometres in this table.

(c) Includes drivers whose age was not stated.

EXPLANATORY NOTES

INTRODUCTION

1 This publication presents annual estimates of patterns of motor vehicle use for all major vehicle types (cars, trucks, buses etc.) in Australia based on results from the 1999 Survey of Motor Vehicle Use (SMVU). The data were collected in four quarterly sample surveys conducted over the period 1 August 1998 to 31 July 1999.

2 The statistics in this publication are the second year of results produced from a new collection methodology introduced to overcome concerns about the quality of data in previous surveys. Because significant changes were introduced, users are cautioned against making detailed direct comparisons between results from the new series (1998 and 1999 surveys) and those produced up to 1995. More information about the collection methodology and quality of estimates is provided below and in the Technical Note: Data Quality. A detailed explanation of the changes and the effect of recall bias was included in the previous SMVU publication, *Survey of Motor Vehicle Use, Australia, 12 Months Ended 31 July 1998* (Cat. no. 9208.0).

SCOPE

3 The scope of the survey is all vehicles that were registered with a motor vehicle authority for road use at some stage during the 12 months ended 31 July 1999, except caravans, trailers, tractors, plant and equipment, vehicles belonging to the defence services and vehicles with diplomatic or consular plates. Where they were registered as such, vintage and veteran cars were also excluded from the survey. The population was identified using information obtained from the State and Territory motor vehicle registration authorities.

METHODOLOGY

4 For the 1999 SMVU, a sample of approximately 16,000 vehicles was selected to report on vehicle use over a three month period within the reference year 1 August 1998 to 31 July 1999. This equated to a sample of 4,000 selections in each quarter. Of these, 24% were passenger vehicles and motor cycles, 59% were freight vehicles, 12% were buses and 5% were other non-freight carrying vehicles. The sample size was chosen to give a suitable level of precision for estimates of total distance travelled for each State/Territory of registration by type of vehicle category.

5 Selections were made from a vehicle population of 11.7 million vehicles at 31 October 1997, which was stratified within each State or Territory according to the vehicle description recorded by the registration authority. Each type of vehicle category was further stratified by other characteristics to take account of different usage patterns. These were:

- passenger vehicles according to whether taxis or other passenger vehicles;
- other passenger vehicles for most States, to capital city or rest of State;
- motor cycles according to age;
- buses according to size;
- light commercials and articulated trucks according to age and for most States, to capital city or rest of State;
- rigid trucks according to age and size and for most States, to capital city or rest of State; and
- non-freight carrying trucks according to whether ambulance, hearse, fire engine or tow truck, mobile crane etc.

6 The survey methodology is described as 'pre-advice', where survey selections received early advice about their inclusion to encourage record keeping and minimise reliance on recall. Owners of selected vehicles completed two mail questionnaires tailored to their vehicle types. At the beginning of each quarterly survey period, they were asked to return a questionnaire reporting selected vehicle characteristics and the vehicle's odometer reading. The owners

EXPLANATORY NOTES *continued*

METHODOLOGY *continued*

were also advised that they would receive a follow up questionnaire at the end of the quarter seeking details about the use of the vehicle over the quarter and a second odometer reading. Examples of the main items requested in the second questionnaire were included with the first questionnaire, together with an optional, simple worksheet to help compile the data during the period.

7 When the questionnaires were returned to the ABS they were checked for completeness and accuracy and, where possible, follow-up contact was made with owners to resolve reporting problems. Missing items on incomplete questionnaires were filled by imputing average data from like vehicles for which data were obtained.

8 Where the selected vehicle owner had not owned the vehicle for the whole quarterly survey period, the details provided for the period of ownership were adjusted to give a three-month equivalent, except where the vehicle was deregistered, in which case only the use up to deregistration was included.

9 In addition, adjustments were made in the estimation process to account for the use of new motor vehicles registered after 31 October 1997 (the survey population identification date) and up to July 1999, as well as the re-registration of other vehicles during this time. More information about these adjustments is provided in the Technical Note: Data Quality.

10 Estimates from information reported in each quarterly collection period were produced and these were then aggregated into annual estimates relating to the use of vehicles during the period 1 August 1998 to 31 July 1999. The size of the sample is insufficient to produce reliable quarterly results.

RELIABILITY OF ESTIMATES

11 When interpreting the results of a survey it is important to take into account factors that may affect the reliability of estimates. Such factors can be classified as either sampling error or non-sampling error.

12 Sampling error is the error which arises because the data are collected from a part, rather than the whole, of the population and may differ from results that would have been obtained had all vehicles been included. For more information on sampling error for this survey, see the Technical Note: Data Quality.

13 Other types of error, referred to as non-sampling error, can be present in any type of collection, whether it be a complete enumeration or a sample survey. For example, non-sampling error can occur because of non-response to the survey, errors in reporting by providers, definition or classification difficulties, errors in transcribing and processing data, or frame under-coverage. While the effects of non-sampling error are not quantifiable, every effort is made to minimise the impact through the design and testing of questionnaires and the use of efficient operating procedures. Non-sampling error for this survey is discussed further in the Technical Note: Data Quality.

EXPLANATORY NOTES *continued*

COMPARISON WITH MOTOR VEHICLE CENSUS DATA

14 Survey estimates of the numbers of vehicles, by vehicle type, are not fully comparable with ABS Motor Vehicle Census data (see *Motor Vehicle Census Australia, 31 October 1998* (Cat. no. 9309.0)). The main reasons for differences are:

- survey estimates of the numbers of vehicles relate to the average number of vehicles registered for road use during the period 1 August 1998 to 31 July 1999, not to the number of vehicles registered at a specific date, as is the case for the Motor Vehicle Census;
- the type of vehicle identified from the survey information may differ from the type of vehicle recorded by the motor registries; and
- the exclusion of vehicles which fall outside the survey's scope e.g. consular and diplomatic vehicles and vintage and veteran cars where they could be identified.

CONCEPTS OF AVERAGES

15 Most tables in this publication include statistics presented as averages. Tables 1, 2 and 4 are summary tables and present average kilometres travelled per vehicle for all registered vehicles including those that travelled zero kilometres. The other tables present more detailed information on actual vehicle use where the denominator used in calculating the average is limited to the estimated number of vehicles that contribute to the particular cell. Details of these calculations are provided in the relevant table footnotes.

16 Note that the averages along a table row cannot be used to derive the total column entry for that row because the denominators used to calculate the averages are different.

HISTORICAL COMPARISONS

17 Because significant changes in the collection and estimation methodologies were introduced for the 1998 SMVU, the historical comparisons in this publication are limited to estimates from the 1998 and 1999 surveys.

UNPUBLISHED STATISTICS

18 As well as the statistics included in this publication, the ABS has unpublished data available for a charge. Inquiries should be directed to ABS Client Services. Contact details are shown on the back of this publication.

RELATED PUBLICATIONS AND PRODUCTS

19 Users may also wish to refer to the following publications and products which contain information relating to motor vehicles in Australia:

Motor Vehicle Census, Australia (Cat. no. 9309.0)—issued annually from 1995. Small area motor vehicle census data are available on CD-ROM in *TranStats* (Cat. no. 9312.0.30.001)

New Motor Vehicle Registrations, Australia, Preliminary (Cat. no. 9301.0)—issued monthly

Motor Vehicles in Australia (Cat. no. 9311.0)—released in June 1997

Directory of Transport Statistics, 1998 (Cat. no. 1132.0)—released in January 1999

Transport Theme page on ABS internet site (<http://www.abs.gov.au>)

TECHNICAL NOTE DATA QUALITY

DATA QUALITY

1 When interpreting the results of a survey it is important to take into account factors that may affect the reliability of estimates. Such factors can be classified as either sampling error or non-sampling error.

SAMPLING ERROR

2 Estimates in this publication are based on information collected from a sample of registered motor vehicles, rather than a full enumeration, and are therefore subject to sampling error. They may differ from the figures that would have been produced if the information had been obtained for all registered motor vehicles. Examples of the sampling error for selected estimates from the 1999 Survey of Motor Vehicle Use (SMVU) for the 12 months ended 31 July 1999 are included below. The sampling error associated with any estimate can be calculated from the sample results. One measure of sampling error is given by the standard error, which indicates the extent to which an estimate might have varied by chance because only a sample of vehicles was included. There are about two chances in three that a sample estimate will differ by less than one standard error from the figure that would have been obtained if all vehicles had been included, and about 19 chances in 20 that the difference will be less than two standard errors.

3 Another measure of sampling variability is the relative standard error (RSE) which is obtained by expressing the standard error as a percentage of the estimate to which it refers. The RSE is a useful measure in that it provides an immediate indication of the percentage error likely to have occurred due to sampling. In this publication, only estimates with a RSE of less than 25% are considered sufficiently reliable for most purposes. Estimates with a RSE between 25% and 50% are preceded by a single asterisk (*) and should be used with caution while those with an RSE of greater than 50% are preceded by two asterisks (**) and are considered too unreliable for general use.

4 The sample size was reduced from 20,000 selections for the 1998 SMVU to 16,000 selections for the 1999 SMVU. Through improvements to the allocation of the sample amongst the strata, this reduction of the sample size had minimal impact on the quality of the final estimates. For example, the RSE for the estimate of total kilometres travelled for all passenger vehicles registered in Australia remained virtually unchanged (2.7% for the 1998 SMVU to 2.9% for the 1999 SMVU).

5 The 1999 SMVU sampling was also designed to minimise the RSEs for estimates of total kilometres travelled at the State/Territory level for the main vehicle types.

6 The RSEs achieved in the 1999 survey relating to estimates contained in table 4 of this publication are shown in the following table.

TECHNICAL NOTE DATA QUALITY *continued*

RSE OF MOTOR VEHICLE USE(a), By State/Territory of Registration and Type of Vehicle

State/Territory of registration	Passenger vehicles	Motor cycles	Light commercial vehicles	Rigid trucks	Articulated trucks	Non-freight carrying trucks	Buses	Total
TOTAL KILOMETRES TRAVELLED (%)								
New South Wales	6	22	8	5	5	15	6	5
Victoria	5	21	10	5	5	18	7	5
Queensland	6	20	7	6	7	48	9	5
South Australia	8	19	9	10	7	37	11	6
Western Australia	7	17	7	6	8	58	13	5
Tasmania	8	20	9	7	9	32	8	6
Northern Territory	10	23	7	7	10	29	14	6
Australian Capital Territory	6	17	8	7	17	40	8	5
Australia	3	10	4	3	3	18	4	2
NUMBER OF VEHICLES (b)(c) (%)								
New South Wales	3	5	5	2	3	10	12	2
Victoria	3	4	3	2	3	8	4	2
Queensland	3	7	4	4	4	29	3	2
South Australia	3	6	4	4	3	10	5	2
Western Australia	3	4	5	2	5	21	7	2
Tasmania	4	5	4	3	4	9	4	3
Northern Territory	5	7	5	7	4	18	6	3
Australian Capital Territory	3	5	4	2	10	19	8	2
Australia	1	2	2	1	1	7	4	1
AVERAGE KILOMETRES TRAVELLED (d) (%)								
New South Wales	6	22	7	5	5	12	12	4
Victoria	5	21	9	5	4	17	7	4
Queensland	6	19	6	5	6	20	8	4
South Australia	7	19	8	11	7	36	10	6
Western Australia	7	17	7	6	8	40	12	5
Tasmania	8	19	8	6	8	30	8	6
Northern Territory	10	23	7	6	9	30	13	6
Australian Capital Territory	6	17	7	7	10	41	9	5
Australia	3	9	3	3	2	13	4	2

(a) These relative standard errors relate to the estimates in table 4.

(b) The average number of vehicles registered for the 12 months ended 31 July 1999.

(c) Includes registered vehicles that did not travel during the reference period.

(d) Calculated using average number of registered vehicles. Includes registered vehicles that did not travel during the reference period.

7 As an example of the use of an RSE, the estimate of 137,885 million kilometres for total kilometres travelled for all passenger vehicles registered in Australia from table 4 of the publication has a RSE of 3% as shown above i.e. the standard error for the 1999 SMVU estimate is 4,137 million kilometres. There are about two chances in three that the figure that would have been obtained if all vehicles had been included, would have been in the range 133,748 million kilometres to 142,022 million kilometres and about 19 chances in 20 that it would have been in the range 129,611 million kilometres to 146,159 million kilometres.

8 It is important to note that estimates at more detailed levels than the above are subject to higher RSEs and are less reliable.

9 RSEs for other key variables are shown following. The RSEs of further detailed variables can be made available on request.

TECHNICAL NOTE DATA QUALITY *continued*

RSE OF FUEL CONSUMPTION, By Type of Fuel and Type of Vehicle(a)

	Passenger vehicles	Motor cycles	Light commercial vehicles	Rigid trucks	Articulated trucks	Non- freight carrying trucks	Buses	Total
TOTAL FUEL CONSUMPTION (%)								
Petrol								
Leaded	7	16	8	10	49	31	24	6
Unleaded	4	20	6	22	—	34	14	3
Total	3	14	4	9	49	29	13	3
Diesel	21	na	9	3	3	15	4	3
LPG/CNG/dual fuel	15	na	16	20	67	31	21	11
Total	3	14	4	3	3	13	3	2
AVERAGE RATE OF FUEL CONSUMPTION (%)								
Petrol								
Leaded	2	4	2	8	7	6	14	2
Unleaded	3	17	4	10	—	14	9	3
Total	2	12	3	6	7	13	8	2
Diesel	13	na	7	3	2	9	3	3
LPG/CNG/dual fuel	9	na	13	8	12	17	20	7
Total	2	12	3	2	2	8	3	2

— nil or rounded to zero (including null cells)

na not available

(a) These relative standard errors relate to the estimates in table 5.

RSE OF FREIGHT VEHICLES, Tonne-Kilometres(a)—By State/Territory of Operation

	Light commercial vehicles	Rigid trucks	Articulated trucks	Total
TOTAL TONNE-KILOMETRES (%)				
New South Wales	17	14	6	6
Victoria	13	22	6	6
Queensland	12	10	9	8
South Australia	17	11	10	9
Western Australia	18	12	12	9
Tasmania	16	15	10	8
Northern Territory	22	18	13	13
Australian Capital Territory	16	13	30	23
Australia	7	8	4	3

(a) These relative standard errors relate to the estimates in table 13.

TECHNICAL NOTE DATA QUALITY *continued*

SAMPLING ERROR *continued*

RSE OF ARTICULATED TRUCKS, Tonne-Kilometres—By trailer configuration and GCM(a)

GROSS COMBINATION MASS (GCM) (TONNES)

	30 and under	Over 30 to 40	Over 40	Total
TOTAL TONNE-KILOMETRES (%)				
Single axle trailer	28	—	—	28
Tandem axle trailer	28	12	36	11
Triaxle trailer	54	18	4	4
B-Double	—	—	11	11
Road train	—	—	11	11
Other	—	—	33	33
Total articulated trucks	20	11	4	4

	30 and under	Over 30 to 40	Over 40	Total
AVERAGE TONNE-KILOMETRES (%)				
Single axle trailer	27	—	—	27
Tandem axle trailer	26	12	34	10
Triaxle trailer	54	16	4	4
B-Double	—	—	10	10
Road train	—	—	10	10
Other	—	—	32	32
Total articulated trucks	19	10	4	3

— nil or rounded to zero (including null cells)

(a) These relative standard errors relate to the estimates in table 15.

10 Tables 1 to 3 of this publication contain comparisons between the major estimates from the 1999 and 1998 SMVUs and include the movements for these items as percentage changes. Note that these movements are also subject to sampling error. The design of the 1998 and 1999 SMVU was not designed to minimise the standard errors of the movements. The standard error for the movement can be calculated using:

$$SE(M_t) = \sqrt{(RSE(Y_{2t}) * Y_{2t}/100)^2 + (RSE(Y_{1t}) * Y_{1t}/100)^2}$$

where

Y_{1t} is an estimate of total of the variable of interest, obtained from the 1st time point.

Y_{2t} is an estimate of total of the same variable of interest, obtained from the 2nd time point.

M_t is an estimate of movement of the total of the variable of interest from the 1st time point to the 2nd time point i.e $M_t = Y_{2t} - Y_{1t}$

11 For total kilometres travelled by type of vehicle from the 1998 and 1999 SMVUs, the standard errors of the movements and the estimates from which they are derived are shown following.

TECHNICAL NOTE DATA QUALITY *continued*

STANDARD ERROR OF THE MOVEMENT OF TOTAL KILOMETRES TRAVELLED

	1998	RSE(1998)	1999	RSE(1999)	Movement	SE(Movement)(a)
	mill. km	%	mill. km	%	mill. km	mill. km
Passenger vehicles	134 261	2.75	137 885	2.85	3 624	5 392
Motor cycles	1 350	12.12	1 003	9.59	- 347	190
Light commercial vehicles	24 958	2.89	24 986	3.72	28	1 176
Rigid trucks	6 015	2.57	6 382	2.68	368	231
Articulated trucks	4 921	2.88	5 262	2.65	341	199
Non-freight carrying trucks	175	9.24	274	18.36	99	53
Buses	1 639	3.13	1 843	3.60	204	84
Total	173 317	2.17	177 635	2.27	4 318	5 518

(a) Calculated on unrounded data.

12 For example, the standard error for the movement from the 1998 SMVU to the 1999 SMVU of the estimates for total kilometres travelled for all passenger vehicles registered in Australia is 5,392 million kilometres. Since the magnitude of the movement between the estimates of 3,624 million kilometres is less than twice the standard error for the movement, we cannot say with 95 percent (19 chances in 20) confidence that the movement is significantly different from zero. Note that almost all of the movements from 1998 to 1999 SMVUs are within two standard errors of the movement and are therefore not significantly different from zero.

NON-SAMPLING ERROR

13 Non-sampling error covers the range of errors that are not caused by sampling and can occur in any statistical collection whether it is based on full enumeration or a sample. For example, non-sampling error can occur because of non-response to the statistical collection, errors in reporting by providers, definition or classification difficulties, errors in transcribing and processing data and under-coverage of the frame from which the sample was selected. If these errors are systematic (not random) then the survey results will be distorted in one direction and therefore unrepresentative of the target population. Systematic errors are called bias.

14 Concerns about non-sampling error in previous surveys, most notably recall bias by providers, led to the introduction of a new collection methodology for the 1998 SMVU (refer previous issue, *Survey of Motor Vehicle Use, Australia, 12 months ended 31 July 1998* (Cat. no. 9208.0)). While the new collection methodology has resulted in an overall improvement in SMVU estimates, some data quality issues remained with the 1998 and 1999 surveys and these are described below.

15 The ABS introduced a 'pre-advice' methodology in the SMVU from August 1997 to improve the quality of its estimates of motor vehicle use. The methodology, in which vehicle owners receive early advice about their inclusion in the survey, encourages a higher degree of record keeping about the use of the vehicle during the survey period, either within owners' systems or by using the worksheet provided. This reduces the reporting errors arising from inaccurate recollection of use identified as a deficiency in the previous collection methodology. In addition, the reporting of odometer readings taken at the start and end of the survey periods (approximately three months apart) provides more reliable estimates of total distance travelled without the recall bias inherent in the previous methodology. For the 1999 SMVU, 70% of providers reported two

SAMPLING ERROR *continued*

odometer readings. This compares with 67% for the 1998 SMVU. Where odometer readings were not provided, the total distance travelled was based on the reported distance travelled.

16 A further indicator of improved data quality has been the reduction in the reporting of 'rounded' data for total distance travelled for the 1998 and 1999 SMVUs. Such rounding could cause significant errors, especially with the prevalence of certain distances which could be seen as arbitrary guesses on the part of the provider. Distances considered to be rounded are every 1,000 km in the range 1,000km up to 10,000km and every 5,000km over 10,000km. The proportion of 'rounded' responses for total distance travelled for both the 1998 and 1999 SMVUs is 6%. This is a significant improvement on the 1991 and 1995 SMVUs where the comparable figures were 50% and 23% respectively.

Response and non-response

17 A potentially important factor relating to non-sampling error is the response rate achieved. When vehicles found to be deregistered or out of scope are removed, the live response rate for the 1999 SMVU is 77%.

18 The ABS makes all reasonable efforts to maximise response rates. Where appropriate, mail reminders and telephone follow-up are used to attempt to contact initially non-responding vehicle owners. SMVU non-response predominately occurs because the ABS is unable to trace the vehicle selected or the owner will not or cannot complete the form.

19 A large non-response increases the potential for non-response bias, which occurs if the usage patterns of the non-responding vehicles differ significantly from those of the responding vehicles. For the SMVU, it is assumed that the characteristics of non-responding vehicles including the proportion of deregistered, out of scope and nil use vehicles are the same as for responding vehicles. Adjustment occurs to the 'weights' (the factors which expand the sample data to obtain estimates for the population) allocated to the respondent vehicles to allow for non-responding vehicles.

RESPONSE AND NON-RESPONSE, By Category

	<i>Percentage of selections</i>
Response received	
Registered vehicle	73
Unregistered vehicle(a)	6
Non-response	
Untraceable—mailing address unknown	10
Other(b)	11
Total selections	100

- (a) Includes deregistrations, out of scope and duplicates.
- (b) Includes responses that were unusable because of unresolved queries or where the vehicle was sold during the reference quarter and the reported data covered less than 14 days; and non-response where no listing could be found to enable contact by telephone, owner contacted by telephone but response still not secured and refusals.

Imputation

20 The need for imputation of unfilled items on the returned questionnaires, as for previous surveys, remained quite high. Imputation is the process whereby a value is generated for missing data items by averaging the responses for similar vehicles which were operating for the reference period. Of the questionnaires returned, 14% of those reporting some vehicle use needed imputation of one or more items apart from the average rate of fuel consumption. The imputation for average rate of fuel consumption was 26%.

Adjustments

21 It was necessary to make adjustments to the estimation process for the 1999 survey to account for:

- vehicles not in the population from which the survey samples were selected:
 - new vehicles;
 - re-registrations;
 - articulated trucks in South Australia; and
- sample deficiencies where insufficient selections of some vehicle types were obtained because of exemptions granted to vehicles selected in previous SMVUs:
 - light trucks.

22 As 1999 survey selections were taken from vehicles registered at 31 October 1997, i.e. nine months before the beginning of the 1999 survey reference year, adjustments were made to account for the use of new motor vehicles registered after that date and up to 31 July 1999, as well as the re-registration during this time of other vehicles not registered at 31 October 1997. At the Australian level, the adjustment for vehicles being re-registered after 31 October 1997 accounted for approximately 1% of total distance travelled for all vehicles. For rigid and articulated trucks the adjustment was slightly higher at 3%.

23 However the impact of the adjustment for new motor vehicles was much more significant and is detailed by type of vehicle in the following table which shows the effect of the adjustment for new motor vehicles registered during the period 31 October 1997 to 31 July 1999 as a percentage of the total kilometres travelled for each type of vehicle.

CONTRIBUTION OF ADJUSTMENTS FOR NEW VEHICLES REGISTERED AFTER 31 OCTOBER 1997 (a)

	<i>Percentage of total kilometres travelled</i>
Passenger vehicles	11
Motor cycles	13
Light commercial vehicles	13
Rigid trucks	11
Articulated trucks	15
Non-freight carrying trucks	5
Buses	10
Total	12

(a) Based on data from *New Motor Vehicle Registrations, Australia, Preliminary* (Cat. no. 9301.0).

24 The adjustments made to the estimates to account for the use of new motor vehicles registered after 31 October 1997 were based on average data from the newer vehicles for which data were obtained in the survey. While it is thought that the use for newer vehicles surveyed would be similar, some variance from the actual use of vehicles registered after 31 October 1997 could be expected. The methodology for surveys from 2000 will allow for a sample of

Adjustments continued

newly registered vehicles to be included in the survey, thus reducing the need for this adjustment.

25 Another adjustment was required to account for an understatement of the number of articulated trucks registered in South Australia at 31 October 1997 for the first quarter of the 1999 SMVU collection. These vehicles were not available for selection in the first quarter of the 1999 survey. Information to account for their use during this survey period was estimated based on data supplied by vehicles which were expected to have had similar usage patterns.

26 An adjustment was also made for a shortage of useable data for 'light trucks', a category of rigid truck with gross vehicle mass (GVM) exceeding 3.5 tonnes but not exceeding 4.5 tonnes. Information was estimated based on data supplied by similar vehicles collected in the 1998 SMVU. This adjustment represents 14% of the total distance travelled for rigid trucks for Australia.

27 Users should contact the ABS if they have any queries on the quality and reliability of estimates for particular purposes.

GLOSSARY

Articulated trucks	Motor vehicles constructed primarily for load carrying, consisting of a prime mover which has no significant load carrying area, but with a turntable device which can be linked to a semi-trailer.
Average load carried	Average load carried is calculated by dividing the total weight of loads carried by the number of trips made while carrying a load.
B-Doubles	A B-Double combination consists of a prime mover towing two semi-trailers. The first trailer includes a turntable which links to the second trailer, rather than using a dolly to link the trailers as in road train configurations.
Buses	Motor vehicles constructed for the carriage of passengers. Included are all motor vehicles with 10 or more seats, including the driver's seat.
Business kilometres	Distance travelled for hire and reward, or charged to a business expense, or for which an allowance was received. All distances travelled for business purposes, irrespective of actual use, and irrespective of vehicle type, are included in 'total business kilometres'. The 'laden-unladen' dissection of distance travelled for business purposes relates only to freight vehicles, i.e. light commercial vehicles, rigid trucks and articulated trucks.
Capital city	<p>These areas are based on capital city Statistical Divisions as defined in the <i>Australian Standard Geographical Classification (ASGC) 1996</i>.</p> <p>Sydney — this includes the area bounded by Gosford and Wyong; Hawkesbury and Blue Mountains; Campbelltown, Wollondilly and the Sutherland Local Government Areas.</p> <p>Melbourne — this includes the area bounded by Werribee, Melton, Sunbury, Craigieburn, Whittlesea, Healesville, Warburton, Berwick, Pakenham and the whole of Mornington Peninsula.</p> <p>Brisbane — this includes the area bounded by Caboolture, the eastern part of the Pine Rivers Shire, Redcliffe City, Redland Shire, Beenleigh, Logan City and the City of Ipswich.</p> <p>Adelaide — this includes the area bounded by the Gulf of St. Vincent, the Gawler River and the Mount Lofty Ranges from Gawler to Bridgewater through Kangarilla and Willunga to Sellicks Beach.</p> <p>Perth — this includes the area bounded by Yanchep and Bullsbrook; Warnbro, Keysbrook and Wooroloo.</p> <p>Hobart — this includes the area bounded by New Norfolk; Sorell and Carlton Creek; Brighton and Snug.</p> <p>Darwin — this includes Darwin and suburbs, Palmerston and other areas north of the Howard Springs turn-off.</p> <p>Canberra — this includes all of the Australian Capital Territory.</p>
Commodity carried	The publication of commodities carried is based on the 10 sectional groupings of the <i>Australian Transport Freight Commodity Classification (ATFCC)</i> , with the addition of 'Tools of Trade'.
Dolly	A device intended to link two semi-trailers or a rigid truck and a semi-trailer.
Freight vehicles	Consists of light commercial vehicles, rigid trucks and articulated trucks.
Fuel consumption	Total fuel consumption is calculated by adding the product of total kilometres travelled and reported average fuel consumption for each vehicle. The average rate of fuel consumption is calculated by dividing the total fuel consumption by total kilometres for each vehicle type.

GLOSSARY *continued*

Gross Combination Mass (GCM)	Tare weight (i.e. unladen weight) of the motor vehicle and attached trailers, plus their maximum carrying capacity. In the survey, this was obtained for vehicles operated in combination (e.g. a prime mover/semi-trailer combination, or a rigid truck/trailer combination).
Gross Vehicle Mass (GVM)	Tare weight (i.e. unladen weight) of the motor vehicle, plus its maximum carrying capacity. In the survey, this was obtained for buses and rigid trucks not usually towing trailers.
Light commercial vehicles	Motor vehicles constructed for the carriage of goods and which are less than or equal to 3.5 tonnes GVM. Included are utilities, panel vans, cab-chassis and goods carrying vans (whether four-wheel drive or not).
Non-freight carrying trucks	Specialist motor vehicles or motor vehicles fitted with special purpose equipment, and having little or no goods carrying capacity, e.g. ambulances, cherry pickers, fire trucks and tow trucks.
Other Urban Areas	<p>These are based on the <i>Australian Standard Geographical Classification</i> (ASGC) 1996 as being either Statistical Districts with a population greater than 40,000 or clusters of collection districts and other urban areas with a population greater than 40,000, based on the 1996 Population Census.</p> <p>New South Wales — within the areas of Newcastle, Wollongong, Bathurst-Orange, Maitland, Albury (excluding Wodonga), Wagga Wagga, Tweed Heads (excluding Gold Coast), Queanbeyan (excluding Canberra ACT), Lismore, Coffs Harbour, Greater Taree, Shellharbour, Cessnock, Nelson Bay, Port Macquarie and Nowra.</p> <p>Victoria — within the areas of Geelong, Ballarat, Bendigo, Wodonga (excluding Albury), Shepparton and Mildura.</p> <p>Queensland — within the areas of Gold Coast (excluding Tweed Heads), Sunshine Coast, Bundaberg, Rockhampton, Mackay, Townsville, Cairns and Toowoomba.</p> <p>Tasmania — within the areas of Launceston, Burnie, Devonport, Penguin, Ulverstone, Wynyard and Latrobe.</p> <p>This category is not applicable in South Australia, Western Australia, the Northern Territory and the Australian Capital Territory.</p>
Passenger vehicles	Motor vehicles constructed primarily for the carriage of persons and containing up to nine seats (including the driver's seat). Included are cars, station wagons, four-wheel drive passenger vehicles, passenger vans or mini buses with fewer than 10 seats and campervans.
Prime movers	Motor vehicles constructed primarily for towing semi-trailers. Prime movers have no significant load carrying area but are fitted with a turntable for linking to a semi-trailer.
Recall bias	A bias that occurs if the results are distorted in one direction because providers cannot remember whether or when events of a given type occurred, resulting in omitting events, incorrectly placing events in time or reporting events that never took place.
Rigid trucks	Motor vehicles exceeding 3.5 tonnes GVM, constructed with a load carrying area. Included are normal rigid trucks with a tow bar, draw bar or other non-articulated coupling on the rear of the vehicle.
Road trains	Motor vehicles comprising a prime mover hauling two or more trailers and employing a dolly or a rigid truck hauling two or more trailers.
RSE	Relative standard error. The standard error expressed as a percentage of the estimate to which it refers.

GLOSSARY *continued*

Semi-trailer	Trailers designed to impose a substantial load on the towing vehicle, usually via a turntable on a prime mover.
State/Territory of registration	The State or Territory motor registry at which a vehicle is registered, except for vehicles registered by DAS Fleet which are recorded in the State or Territory of the agency that operates the vehicle.
Stratification	Stratification is the process where a population is divided into homogeneous groups called strata that are non-overlapping, and together comprise the whole population. This technique uses auxiliary information to increase the efficiency of a sample design and units are selected independently within each stratum.
Tonne-kilometres	Total tonne-kilometres is the number of tonnes moved multiplied by the distance travelled in kilometres..
Tonnes carried	Total tonnes carried is the total weight of goods and freight carried during the survey period. The estimate of annual tonnes carried relates to goods and freight uplifted by vehicles and therefore will overstate the actual physical quantity of goods and freight moved during the survey period to the extent that transshipment occurs (i.e. the transfer of goods and freight from one vehicle to another).
Travel to and from work	The travel between place of residence and place of work at the beginning and end of all working days, including travel to and from train and bus stations.

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