Research Report
ARR 301

Company cars and management of travel demand

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ABSTRACT: Company cars account for about 40 - 50 per cent of new car registrations in Australia. The percentage of company cars in the national fleet is also quite high at about 15 -20 per cent. Company car drivers may have no incentive to minimise car travel because most direct costs are usually met by the company. The extent to which travel demand management (TDM) measures can impact upon company cars remains uncertain. This report provides a better understanding of the travel characteristics of company cars from the 1994 Victorian Activity and Travel Survey (VATS) data for Melbourne, and to explore policy implications for TDM. Company cars were found to be newer, with bigger engines and worth more. Trip duration and distance of home-based company cars were slightly longer than home-based private car trips, and they started earlier in the morning and later in the afternoon. The VATS results suggested that company cars were mostly used for commuting and work-related travel. Company car trips were predominantly made by men, and were middle-aged people. They constituted about 18 per cent of total car trips at a particular time of day. Most TDM measures would have little impact on reducing this amount of travel. Lump sum tax may be useful in discouraging employers to provide the second company cars to employees in their salary packages.

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Executive Summary

Road congestion is of concern to road and transport authorities, road users, and the public at large because it leads to inefficiencies in the movements of goods and people and to the detriment of the environment. Travel demand management (TDM) measures such as transit and high-occupancy vehicle lanes, flexible working hours, carpooling schemes, and priority to public transport have been implemented to manage road travel demand and congestion in various Australian cities.

The extent to which these measures can impact upon company cars in Australian cities remains uncertain. In London, it has been reported that the proportion of company-owned cars in traffic entering Central London was more than 50 per cent of the total peak-hour in-bound trips. TDM measures targeted at company cars would have significant impact in a city such as London.

The aims of this report are to:

(a) Gain a better understanding of the travel characteristics of company cars from reviewing previous research work and making use of some survey data for Melbourne; and

(b) Explore the implication of the knowledge from the analysis in (a) on policies for road demand management.

The Transport Research Centre of the RMIT University provided the Victorian Activity and Travel Survey (VATS) data for this analysis. The data were collected in the period from December 1993 to June 1994 for Melbourne.

The review of previous research in the late 1970s in NSW and in the late 1980s in Brisbane found that company cars were newer, worth more and had bigger engines than private cars. The 1994 VATS data confirmed this finding. Other key findings from the present study are as follows:

- Company cars were used mainly for commuting and work-related travel and there was no indication of excessive use of these cars for recreation and social activities.
- Due to the popular use of company cars as fringe benefits in salary packaging, most TDM measures would not significantly affect company car trips. A lump sum tax would be more effective for TDM than a fuel levy. The fast turn-over of company cars, however, have led to significant reduction of fuel consumption of the national car fleet. Pollutant emissions could also have been reduced.
- The start times of company car trips remained fairly constant between 7 a.m. to 7 p.m. Company car trips were about 18 per cent of the total number of car trips. This proportion of company car travel is significant, and TDM measures such as congestion pricing would have to be all-day measures to be effective in managing company car travel. It is, however, difficult to enforce the payment of congestion tolls by individual employees who would most likely pass these costs onto the employers.

- About 95 per cent of all cars in the survey did not pay any parking fees. Parking charges would remain to be a tool with a good potential for demand management. A more detailed analysis of the CBD-bound trips in VATS is required to provide better understanding of how parking control could influence company car trips.
- The non-home-based car trips show quite different travel characteristics from those of company cars and private cars and is an important area for future research.
- About 10 - 15 per cent of each of the popular makes (e.g. Holden's, Ford's, Toyota's) are registered as company cars. Company cars therefore constitute a significant proportion of the national car fleet and certainly the new car market. Tax changes that attempt to increase the fringe benefits tax to cash out all company cars would be quite disruptive to the local car industry. Consideration could be given to a fringe benefit tax on the second car in a salary package.

In summary, the level of company car trips is about 18 per cent of the total car trips at most time periods of the day. About half of these trips (9 %) belong to the 'management' component of company car trips and the other half belong to work-related car trips. This level of road demand is quite significant even though it is uncertain whether TDM measures could have major impact on these trips. There is also no indication that the majority of these trips were CBD-bound (12 per cent of all car trips were destined for central Melbourne in the 1994 VATS data). However, the level of in-bound trips during peak hours and the impact due to parking charges are areas that deserve further research.

The VATS data set was a valuable set of data in this study. It allowed a comprehensive analysis of the company car trips and demonstrated how the survey data could be economically utilised for a wide range of applications.

1. INTRODUCTION

Road congestion is of concern to road and transport authorities, road users, and the public at large because it leads to inefficiencies in the movements of goods and people and to the detriment of the environment. Travel demand management (TDM) measures such as transit and high-occupancy vehicle lanes, flexible working hours, carpooling schemes, and priority to public transport have been implemented to manage road travel demand and congestion in various Australian cities.

The extent to which these measures can impact upon company cars remains uncertain. Company cars have accounted for about 40 - 50 per cent of new car registrations in Australia (Schou 1982; Knight 1990; Dermody 1991). The percentage of company cars in the national car fleet could also be quite high at about 15 per cent (AUSTROADS 1991). In London, Kompfner et al. (1991) reported that the proportion of company-owned cars in traffic entering Central London was more than 50 per cent of the total peak-hour in-bound trips.

Company car drivers do not have the incentive to minimise car travel to reduce the social costs of delay and pollutant emissions because most direct costs are usually met by the company. AUSTROADS (1991) suggested that the vehicle and its operating costs could be transferred to the salary element of an employment package. The car user then decides on the extent the additional salary is to be spent on car travel in future. Other policies could include special taxes or charges on company cars, and controlling the supply of car parks in the central business or activity districts (CBD).

ARRB Transport Research contracted the Transport Research Centre of the RMIT University (TRC) to undertake a joint study in company cars. The study would make use of the Victorian Activity and Travel Survey (VATS) data collected by TRC from December 1993 to June 1994 for Melbourne (Richardson and Ampt 1993; Richardson et al. 1995). The aims of this study are to:

(a) Gain a better understanding of the travel characteristics of company cars from reviewing previous research work and making use of the 1994 VATS data for Melbourne; and

(b) Explore the implication of the knowledge from the analysis in (a) on policies for road demand management.

2. PREVIOUS RESEARCH RESULTS

2.1 Definition of company cars

In this report, and in most other publications, a company car is defined as a passenger car or station wagon that is registered as a business car or a government vehicle. Dermody (1991) provided a breakdown of all new cars registered in 1990 in Australia (Table I).

Schou (1982) further estimated that 41 per cent of the company cars were *management cars* for executives and senior staff, and 59 per cent were *field cars* directly related to business travel.

TABLE I

NEW VEHICLE REGISTRATIONS BY SIZE AND CATEGORY 1990

Engine size	Government		Other Business		Private	
	No.	%	No.	%	No.	%
Small	6 378	15	33 297	20	117 134	46
Medium	14 976	34	41 083	24	61 506	24
Large	21 105	49	71 292	42	50 734	20
Luxury	840	2	24 378	14	24 050	10
Total	43 299	9	170 770	37	253 424	54

2.2 Company cars and energy implications

Schou (1981, 1982) analysed the characteristics of 12 031 company cars in 216 companies in NSW in June-July 1979. Large cars with engines larger than 2.5 L engine and weighing more than 1.2 tonne constituted 70 per cent, and medium cars with engines between 1.8 L and 2.5 L and weighing 1 to 1.2 tonne constituted 22 per cent. The rest 8 per cent of all company cars were small cars with engine sizes less than 1.8 L and weighed less than 1 tonne. It was also found that 70 per cent of company cars travelled more than the national average of 15 000 km per year, and 95 per cent of field company cars travelled more than the national average.

Schou found that the average time between replacement of company cars was just over three years. As already noted, this high turn-over has resulted in 40 - 50 per cent of new car registrations being company cars in New South Wales and other States.

The general picture is that company cars are predominantly larger and less fuel efficient, and that they travel greater distances than other cars. Schou (1982) reported how companies responded to the following four policy scenarios on company cars:

(a) increasing the price of petrol by 25 per cent, 50 per cent or 100 per cent;

(b) imposing petrol rationing of 60, 40 or 20 L per week per car;

(c) imposing an inefficiency tax of $50, $100 or $200 per year (in 1979 prices) on each car which does not meet a fuel economy standard; and

(d) reducing the level of tax deductibility to 75 per cent, 50 per cent or zero per cent for company cars which do not meet the fuel economy standard.

(The fuel economy standard at the time of the study was 10 L/100 km and is no longer a good standard due to advances in engine technologies in the last 15 years. Further, there is now a fringe benefits tax on company cars.)

Companies were to indicate the number of small, medium and large cars which they would be likely to keep in their fleets under each scenario.

The results of analysis suggested that there would be very little impact on the *size* of a company car fleet. The impact on the *composition* of fleets would be substantial - the number of large cars would reduce with a corresponding increase in small cars. Inefficiency tax and petrol rationing would be more effective in inducing changes than the other policy scenarios. Companies would also be more responsive to a direct lump sum tax than an indirect tax via petrol price increases. Schou further found that companies that were concerned with status and perk attributes were less likely to change the fleet composition to more efficient vehicles.

Knight (1990) reported similar findings from a study of the travel patterns of people resident in Brishane in 1988. 412 persons from the 'public' and 103 persons from the 'business' were surveyed. Company vehicles were again found to be newer, worth more, more likely to have automatic transmission and air conditioning, and had larger engines and poorer fuel economy than privately owned vehicle. Knight concluded that the removal of taxation advantages could undermine the perk element and could therefore be an effective policy to encourage companies becoming more conscious of energy conservation.

2.3 Company car and tax consideration

Both Dermody (1990) and Lee (1992) investigated the impact of company cars on greenhouse gas emission and the environment in general. They discussed the fringe benefits tax (FBT) on company cars in some details. The current 'statutory formula' method determines the taxable value of fringe henefits as follows:

$$\text{taxable value} = (ABC/D) - E$$

where A = purchase price of the car when new,

B = statutory fraction of the purchase price,

C = number of days a car benefit applies (i.e. private use),

D = number of days per year (=365 days),

E = contribution by the employee to the cost of the vehicle.

The statutory fraction is a figure defined by the Australian Taxation Office. It is set at 26 per cent of the purchase price for an annual travel distance under 15 000 km. The fraction is 20 per cent for a travel distance between 15 000 and 25 000 km and 11 per cent for a distance between 25 000 and 40 000 km. A 7 per cent fraction is used for an annual distance exceeding 40 000 km.

The FBT is 48.475 per cent on the taxable value. Consider the case of a Holden Commodore that costs, say, $40 000 (= A). Let B be 11 per cent for an annual distance of 30 000 km. Assume that C = 180 days and E = 0. The taxable value is (40 000 x 11 % x 180/365) = $2170. The FBT is therefore $ 2170 x 0.48475 = $ 1052.

Lee (1992) further estimated that both employers and employees could minimise taxation payments when a car was provided in place of the cash equivalent under the current taxation system. There is therefore the financial incentive to provide company cars to employees and to change over to new cars in three years or even in shorter periods. Lawrence (1994) reported that almost 40 per cent of the 700 companies in a large management consultant firm's data base already made *second* company cars available to their chief executives.

New vehicles are generally more fuel efficient and less polluting than older cars. DPIE (1991) found that there was a 23 per cent reduction in the national average fuel consumption of the new passenger car fleet from 12 L/100 km in 1978 to 9 L/100 km in 1989. The reduction would be

partly due to the continual turnover of company cars which have 'cleaner' and more efficient engines.

It is possible to increase the FBT such that a *tax neutral* environment exists where the costs to the employer providing a car benefit is equivalent to an equal benefit increase in salary. Dermody (1990) felt that employees could be indifferent to the choice between the two. Company cars do have a high level of business use and perhaps less than half of new car registration would be affected by taxation policies that encourage the cashing out of company cars. A decrease in vehicle-kilometre-travelled and hence greenhouse gas and pollutant emission could occur if such policies were successful. However, there would be disruptions to the existing structure of car sales and production. The car motor industry is a strong lobby group in Australia and will object to any taxation measures that would adversely affect the sale and production cars.

3. ANALYSIS USING VATS DATA

The Victorian Activity and Travel Survey (VATS) of the Transport Research Centre of the RMIT University (TRC, previously of the University of Melbourne) uses a mail-out/mail-back self-complete questionnaire method. It adopted a methodology established in two earlier studies: the Day-to-Day Travel in Australia 1985-86 (FORS 1988) and South-East Queensland Household Travel Survey (TRC 1993), with refinements throughout the years.

VATS has an emphasis on the recording of the details of activities undertaken by respondents. A better understanding of the demand for travel is possible by concentrating on the understanding of the demand for the activities that give rise to that travel (Richardson et al. 1995).

The household survey form in a VATS survey asked the question: 'Is this a company car or government vehicle ?' for each of the registered vehicles in a household. The VATS data on other survey forms therefore provide a wide range of information linked to company cars.

ARRB TR contracted TRC to undertake a joint study on company cars making use of the December 1993 - June 1994 VATS data for Melbourne. The data sample consisted of 4.3 million car trips from 1.6 million cars of which 170,000 cars were reported as company cars in the survey. The analysis in this report provides only indicative estimates of the role of company cars. The full VATS data set can give more details upon further analysis.

The company car data in the Melbourne data set were analysed according to:

(a) vehicle characteristics,

(b) characteristics of trip times and distances, including trip start times,

(c) trip purposes,

(d) distance travelled by vehicle types and by purposes,

(e) trip destinations,

(f) age and gender,

(g) parking provision.

A *trip* in VATS is defined as a stop in a journey for a particular activity. For example, a mother departing from home in a car and stopping at a railway station to send her child to travel by rail

constitutes the first stop or trip. If her next stop is her work place, that second stop constitutes the second trip.

In the following analysis, vehicle-trip types are categorised into:

(a) *home-based (HB) company cars* - trips departing from home in a company car,

(b) *home-based (HB) private cars* - trips departing from home in a private car,

(c) *non-home-based (NHB) cars* - trips departing from non-home locations such as work sites and friends' homes.

3.1 Vehicle characteristics

The VATS data provided information on the size of engines (expressed in terms of the number of cylinders), the age of the vehicle, and the make of the vehicle. Figure 1 shows that about 50 per cent of company cars had six cylinder engines, whereas only 35 per cent of all cars surveyed were of six cylinder engines (59 % of all cars were of four-cylinder engines).

Figure 2 illustrates the ratio of private cars or company cars to all cars in each year from 1973 to 1994. A large proportion of company cars were in their first year of registration (46 %) but this proportion drops to about 5 per cent by 1987 according to the Melbourne data set. The ratio for private cars is *complementary* to the ratio for company cars, and Fig. 2 shows that 95 per cent of cars at an age of about 7 years were private cars.

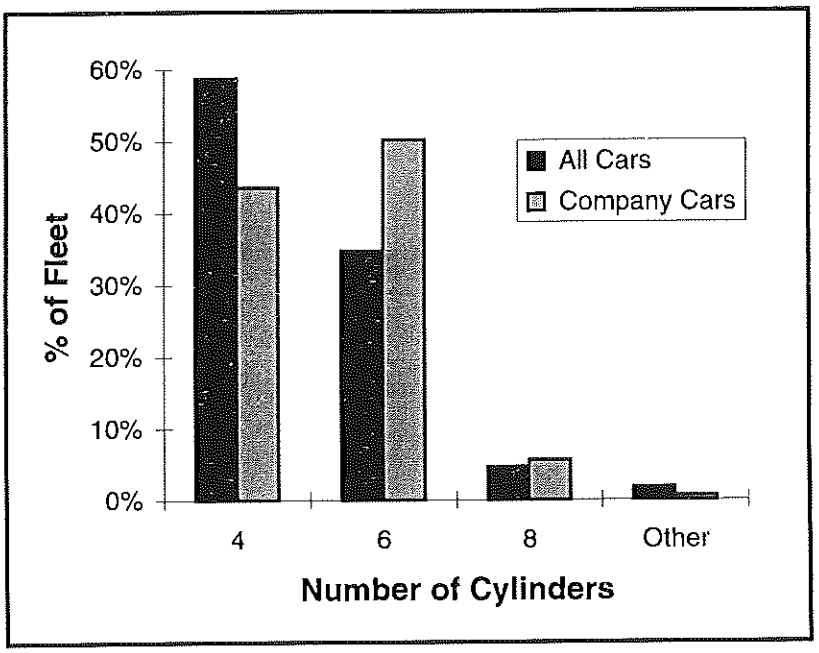

Fig. 1 - Number of cylinders for company cars and total fleet

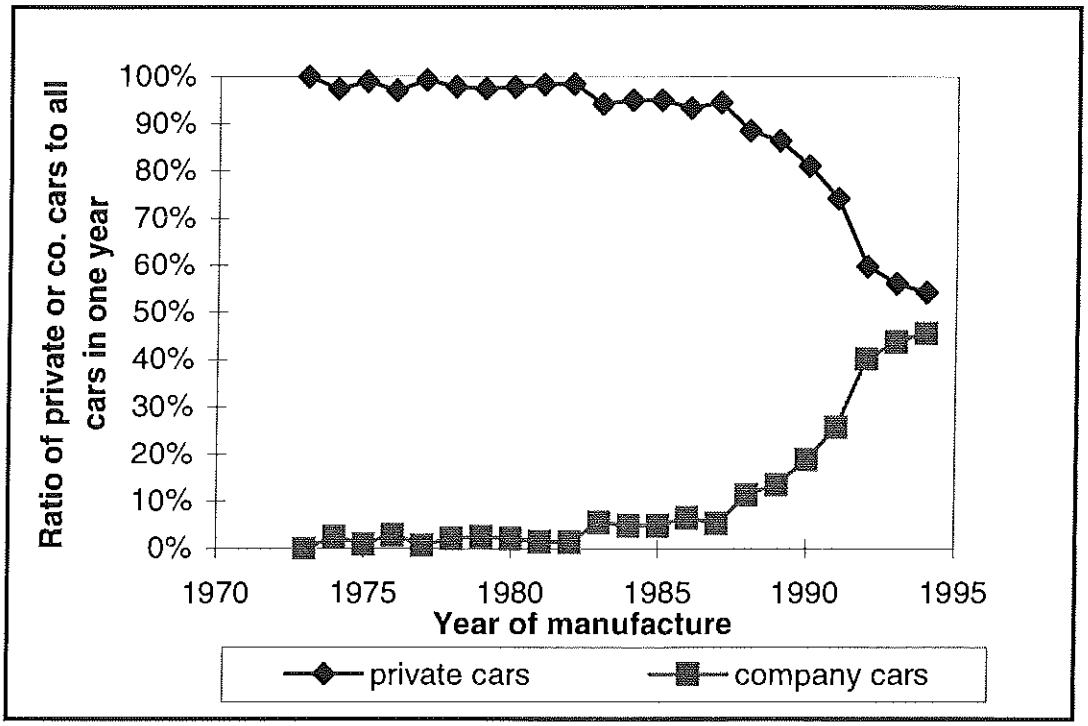

Fig. 2 - Percentage of cars by year of manufacture

The makes of cars were also analysed. The two most popular makes of all cars were Ford and Holden with a market share of about 20 per cent each (Fig. 3). About 2 per cent of all cars were made by Mercedes. However, in Fig. 4 which shows the *percentage of a particular make registered as company cars*, about 27 per cent of Mercedes were registered as company cars. Figure 4 also shows that 15 - 40 per cent of the more expensive makes were registered as company cars. Less than 15 per cent of the common makes (Ford, Holden, Toyota) were company cars.

The bulk of company cars were of course made up of these common makes in absolute numbers in this Melbourne data set (Table III): 45 000 of Ford's, 33 000 of Holden's, and 24 000 of Toyota's. The total of the first ten and more expensive makes in Fig. 4 is only 10 600.

In summary, the VATS 1994 data for Melbourne confirm previous research results that company cars are newer, worth more and have larger engines than the national fleet.

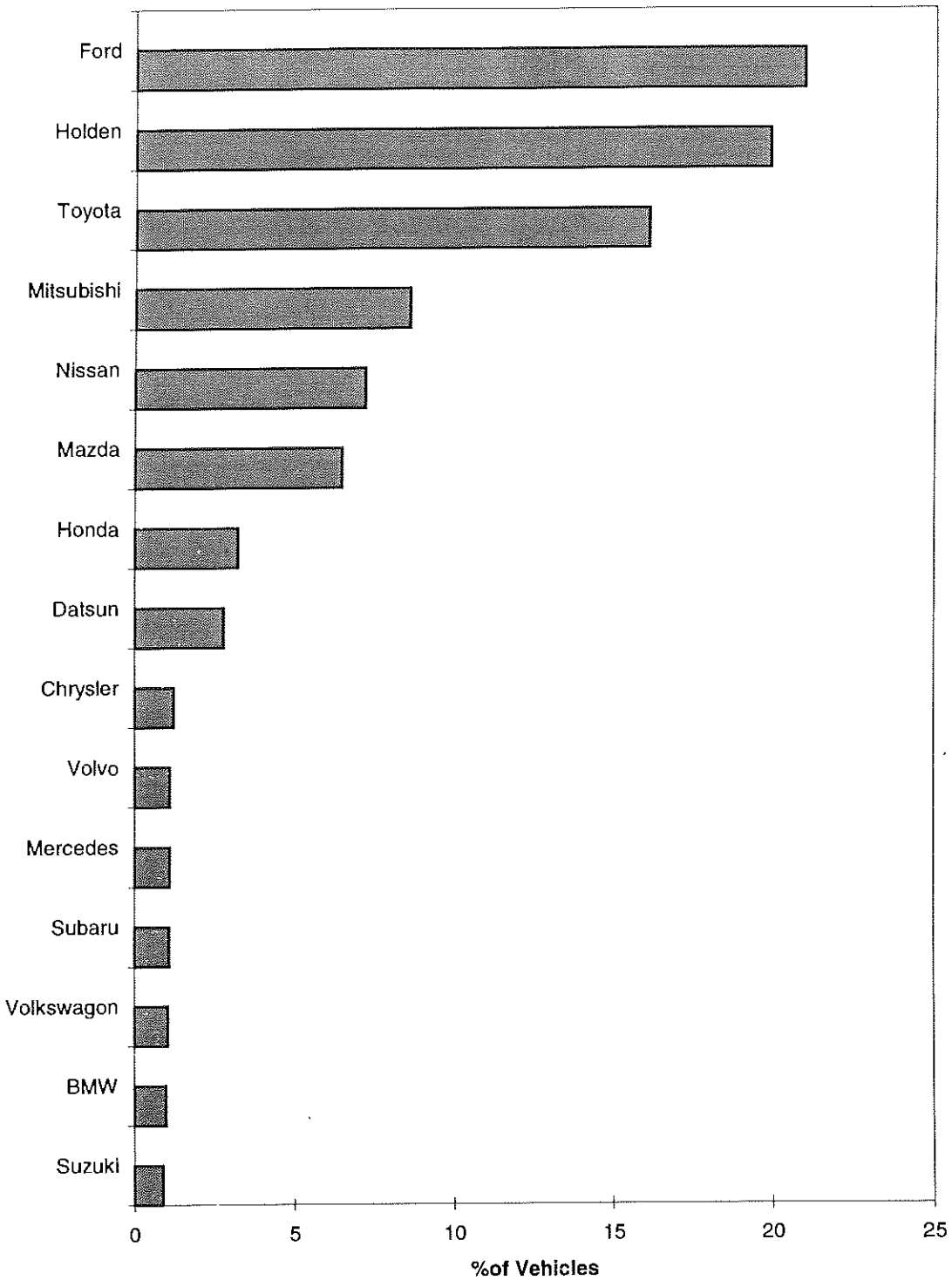

Fig. 3 - Top 15 vehicle makes

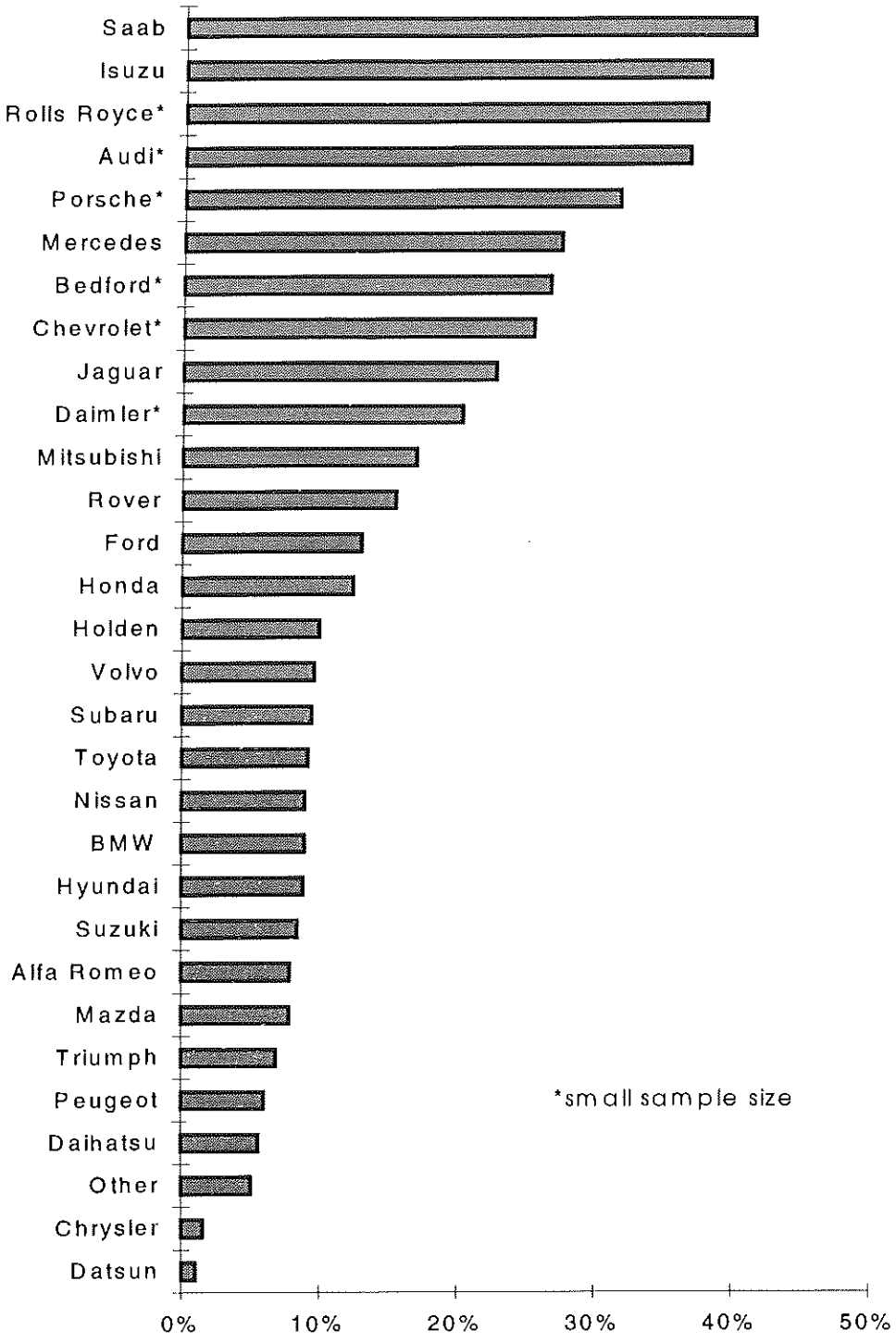

Fig. 4 - Make of company cars

TABLE II

BUSINESS CAR REGISTRATIONS BY TOP 15 VEHICLE MAKES

Make of vehicle	Company car	Private use	Total	% company car
Saab	2,866	4,059	6,924	41%
Isuzu	835	1,352	2,187	38%
Rolls Royce*	128	208	336	38%
Audi*	294	505	799	37%
Porsche*	245	528	772	32%
Mercedes	4,330	11,419	15,749	27%
Bedford*	297	815	1,113	27%
Chevrolet*	270	788	1,058	26%
Jaguar	1,138	3,858	4,996	23%
Daimler*	245	956	1,201	20%
Mitsubishi	24,112	117,634	141,746	17%
Rover	1,395	7,591	8,986	16%
Ford	45,062	300,037	345,099	13%
Honda	6,183	43,425	49,608	12%
Holden	32,823	296,103	328,926	10%
Volvo	1,663	15,577	17,240	10%
Subaru	1,567	14,961	16,528	9%
Toyota	23,915	236,524	260,439	9%
Nissan	10,935	110,504	121,439	9%
BMW	1,254	12,718	13,971	9%
Hyundai	673	6,893	7,566	9%
Suzuki	1,135	12,286	13,422	8%
Alfa Romeo	444	5,166	5,610	8%
Mazda	8,207	96,029	104,236	8%
Triumph	341	4,591	4,932	7%
Peugeot	412	6,430	6,842	6%
Daihatsu	666	11,181	11,848	6%
Other	270	5,037	5,308	5%
Chrysler	307	19,304	19,611	2%
Datsun	465	44,617	45,082	1%

3.2 Trip times and distances

The cumulative distributions of trip duration in Fig. 5 suggest that the average values of the three trip categories: *hone-based* (HB) company car, HB private car, and *non-home-based* (NHB) car were similar within the range of 18 to 20 min. Figure 6 on trip distances also show similar characteristics with the average trip distance in the range 8 to 9.6 km. In both trip duration and distance, the HB company car trips had the highest average values.

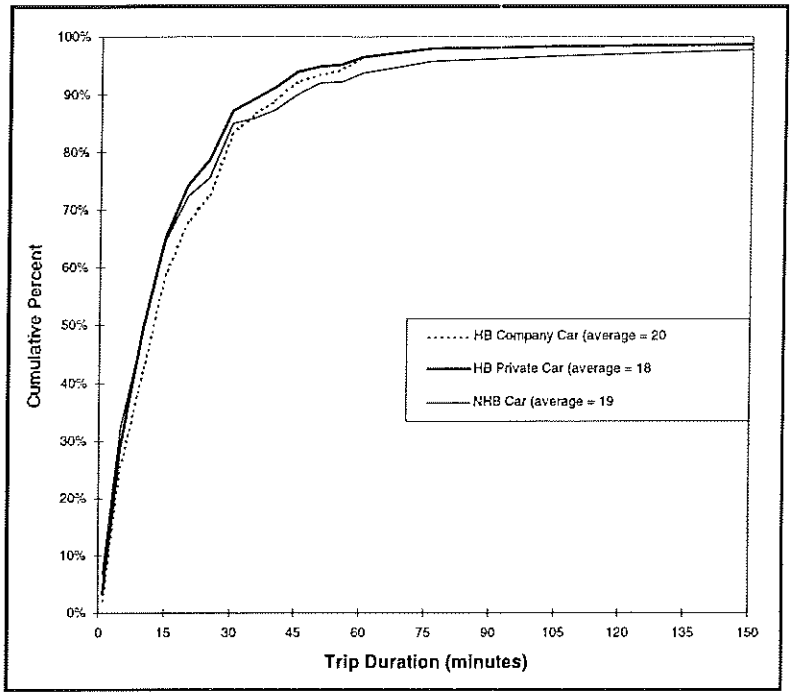

Fig. 5 - Cumulative distributions of trip duration

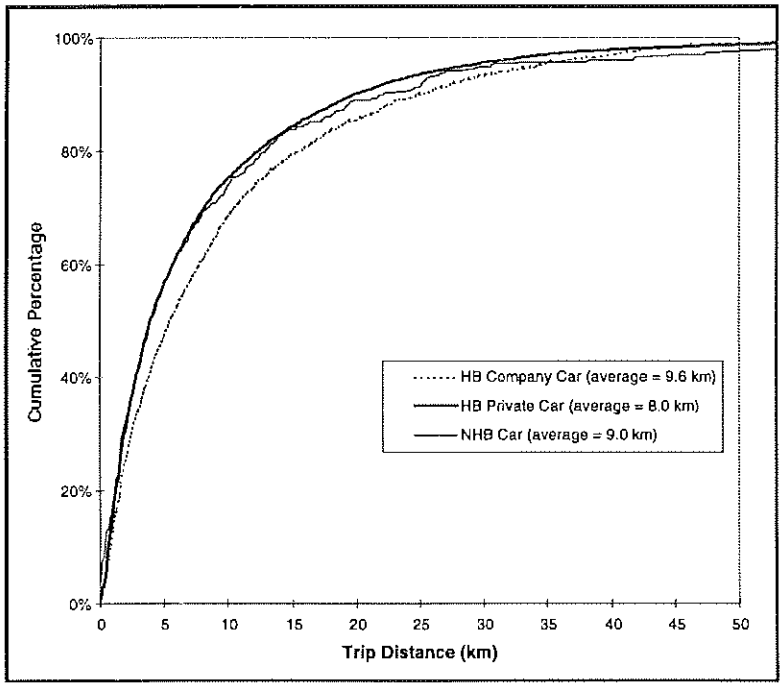

Fig. 6 - Cumulative distributions of trip distance

Figure 7a illustrates the distribution of trip start times over a 24 h period. HB company car trips tended to start earlier than other trip types in the morning, possibly to go to work places. They also started later in the evening than other types, possibly at the end of a working day to go home. This observation could be due to the longer working hour of those with company cars.

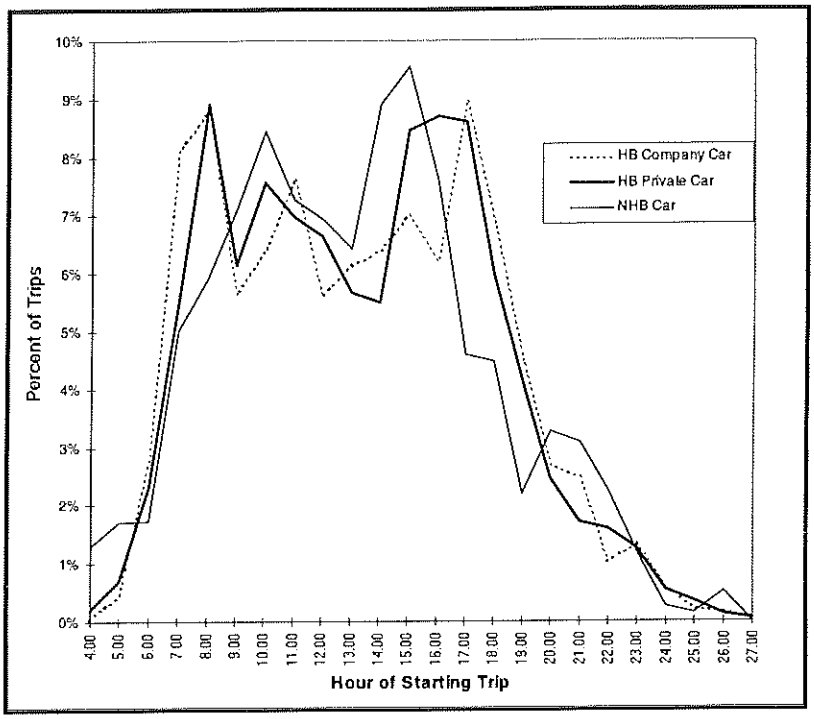

Fig. 7a - Distribution of trip start times

Figure 7b shows the proportions of the three trip types by trip start times over a 24 h period. As expected, the majority (about 80 %) of the total trips were private car trips at a particular start time hour. The proportion of company cars was about 18 per cent and peaked soon after 7 a.m. The proportion of private cars remained fairly constant from 4 a.m. onwards.

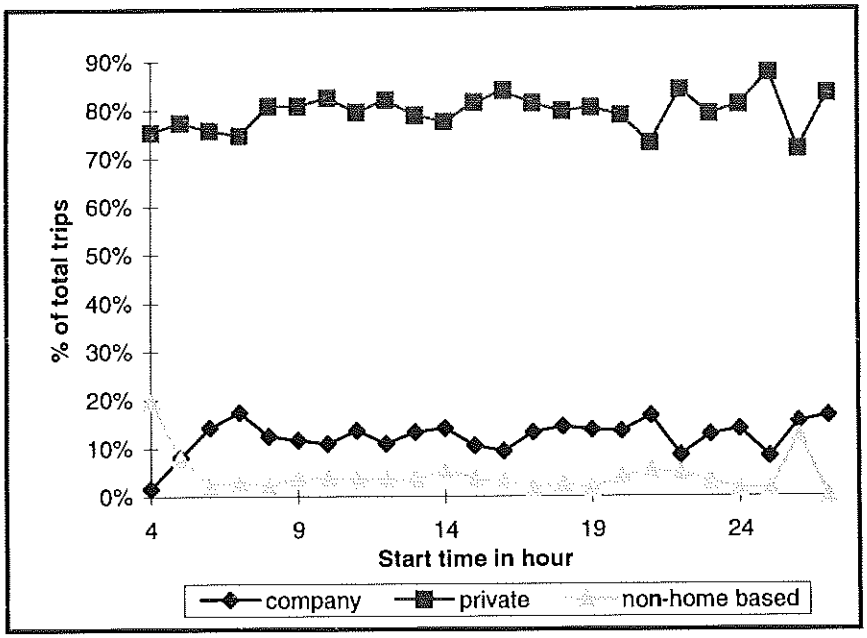

Fig. 7b - Proportion of trips by start times

Figure 8 shows that there were no big differences between HB private and company car trips by day-of-week. NHB cars seemed to have been used more on Saturdays and Sundays; these could possibly be friends' cars or leased cars for recreation purposes.

The NHB car trips tended to start and finish within the business hours, due possibly to the use of company cars for field business during the day. There was another peak of NHB trips at about 8 p.m. This could be due to the use of friends' cars after work for social, recreational purposes. This finding correlates with an observation in Fig. 5 that NHB trips could be separated into:

(a) short duration trips of less than 30 min possibly using friends' cars after hours, and

(b) long trips possibly using friends' cars or leased cars for recreation on weekends as already noted (Figs. 5 and 8).

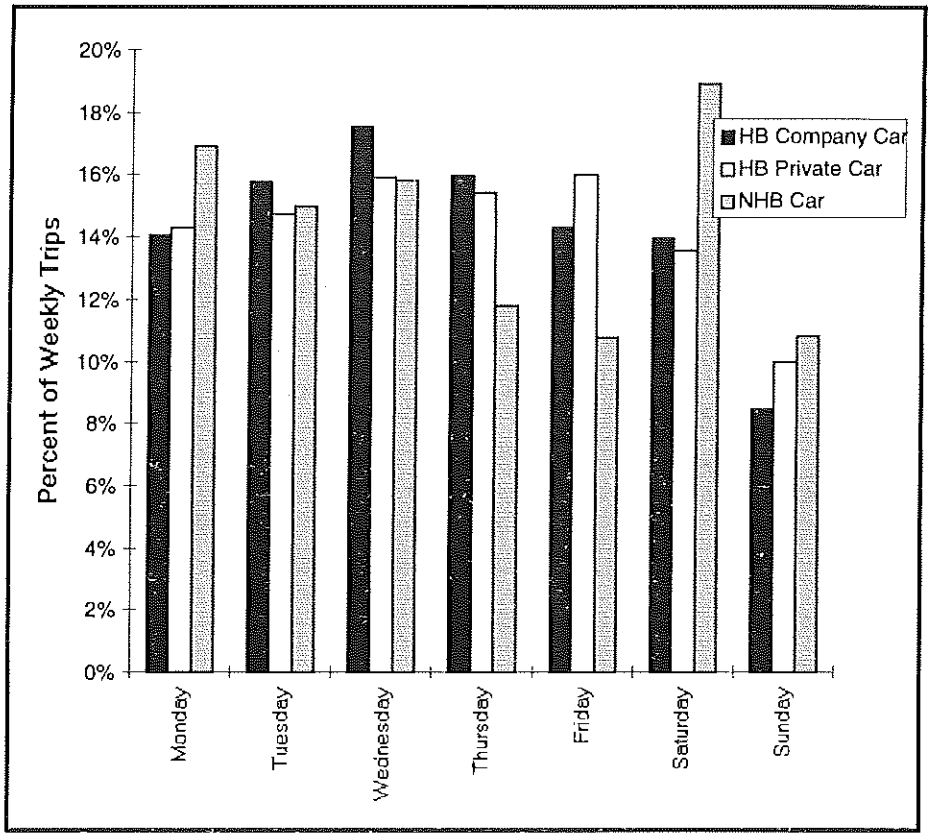

Fig. 8 - Distribution of trips over a week

In summary, HB company car trips tended to start early and finish late in a weekday and were slightly longer on average in trip duration and distance than HB private car trips. There were no great differences between HB company and private car trips in the distribution of trips by day-of-week. The proportion of company car trips is about 18 per cent of all trips from 7 a.m. to 7 p.m. The management component of company cars has been found to be about half of the total company car fleet and the proportion of management or optional company car trips therefore could be about 9 per cent of total trips. This is a relatively small proportion, but its reduction would still have significant impact at peak hours if taxation and other pricing policies could be successfully targeted at this group of car trips.

3.3 Trip purposes

The tabulation of trips by car types and purposes is shown in Tables III and IV. Table IV provides a more detailed breakdown of trip purposes. Major findings are as follows:

(a) NHB cars travelled less frequently to 'my home' (17 %) compared with company cars (29 %) (Table III); they travelled more frequently to 'someone else's home' as would be expected when using a friend's car;

(b) HB company cars and NHB cars were used much more for work purposes (30 %) than HB private cars (14 %) (Table IV);

(c) NHB cars were used much more for picking up or delivering something (17 %) than HB company (5 %) or private (4 %) car trips (Table IV);

(d) About 4 per cent of respondents did not state what type of vehicle was being used in the survey; the quality of the data was therefore very high.

TABLE III

MAIN DESTINATIONS OF CAR TRIPS

Main destination	Missing	Home-based company car	Home-based private car	Non-home-based car	Total
Public transport stop	1%	0%	1%	1%	1%
My workplace	18%	17%	11%	15%	12%
Another workplace	5%	12%	3%	15%	5%
Place of education	5%	3%	6%	1%	5%
Petrol station/ Car Services	3%	2%	3%	4%	3%
Shop	12%	13%	16%	19%	16%
My home	37%	*29%*	*35%*	*17%*	34%
Someone else's home	10%	10%	13%	17%	12%
Place of personal business	4%	4%	5%	4%	5%
Social/Recreational place	3%	6%	5%	5%	5%
Car parks, streets etc	1%	2%	2%	3%	2%
Other place	0%	0%	0%	0%	0%
Total	*4%*	13%	80%	3%	100%

TABLE IV

DESTINATION OF CAR TRIPS

Destination-purpose	Missing	HB company car	HB private car	NHB car	Total
To get on or off public transp.	1%	0%	1%	0%	1%
To accompany someone	3%	1%	1%	2%	1%
To buy something	11%	11%	15%	8%	14%
Something to pick-up or deliver	3%	*5%*	*4%*	*17%*	5%
Someone to pick-up or deliver	8%	9%	12%	10%	11%
To eat or drink	4%	3%	3%	3%	3%
For education	1%	0%	1%	0%	1%
For work purposes	21%	*30%*	*14%*	*30%*	17%
To go home	37%	28%	34%	15%	33%
Other	0%	0%	0%	0%	0%
Change mode	1%	2%	2%	2%	2%
For child care	0%	0%	0%	0%	0%
Volunteer/Community activity	0%	0%	0%	0%	0%
Religious activity	1%	0%	1%	0%	1%
Personal business (eg banking)	2%	3%	3%	2%	3%
Medical/Dental purposes	1%	0%	1%	0%	1%
Stay overnight	0%	0%	0%	1%	0%
Visit someone	4%	2%	4%	2%	4%
Socialising (Pubs, Clubs etc)	1%	1%	1%	0%	1%
Participate in sport	1%	2%	2%	1%	2%
To watch sport	0%	0%	0%	1%	0%
Participate in concert, musical,	0%	0%	0%	0%	0%
To watch concert, musical, band	0%	0%	0%	0%	0%
Other recreational (eg. exercise	1%	1%	1%	1%	1%
Browsing, window-shopping	0%	1%	1%	3%	1%
Returning to other house	0%	0%	0%	1%	0%
To meet/wait for someone	0%	0%	0%	0%	0%
Walking the dog	0%	0%	0%	0%	0%
Total	*4%*	13%	80%	3%	100%

3.4 Distance travelled

Figure 9 gives a further breakdown of distances travelled by vehicle types and by purposes. The eight purposes were home-based: work, education, shopping and other, and the corresponding non-home-based: work, education, shopping and other.

The major findings are as follows:

(a) Company cars were used more for work (HB work 33 % + NHB work 14 % = 47 %) than private cars (27% + 3 % = 30 %). As expected, only a small percentage of private car travel would be for work purposes (3 %); the other 27 per cent were for commuting travel.

(c) The majority of travel in *non-home based other* would be *to home* trips from work, shopping, education, social activities, etc. Both private and company cars had similar percentages (about 16 %). However, as noted earlier, the NHB car was used a lot for *non-home based other* - possibly social and weekend travel using a leased or friend's car.

(d) There were no big differences in shopping travel between private and company cars.

(e) Education trips were not a significant portion of the total travel in the VATS survey. There were more people going to education institutions using private cars than using company cars.

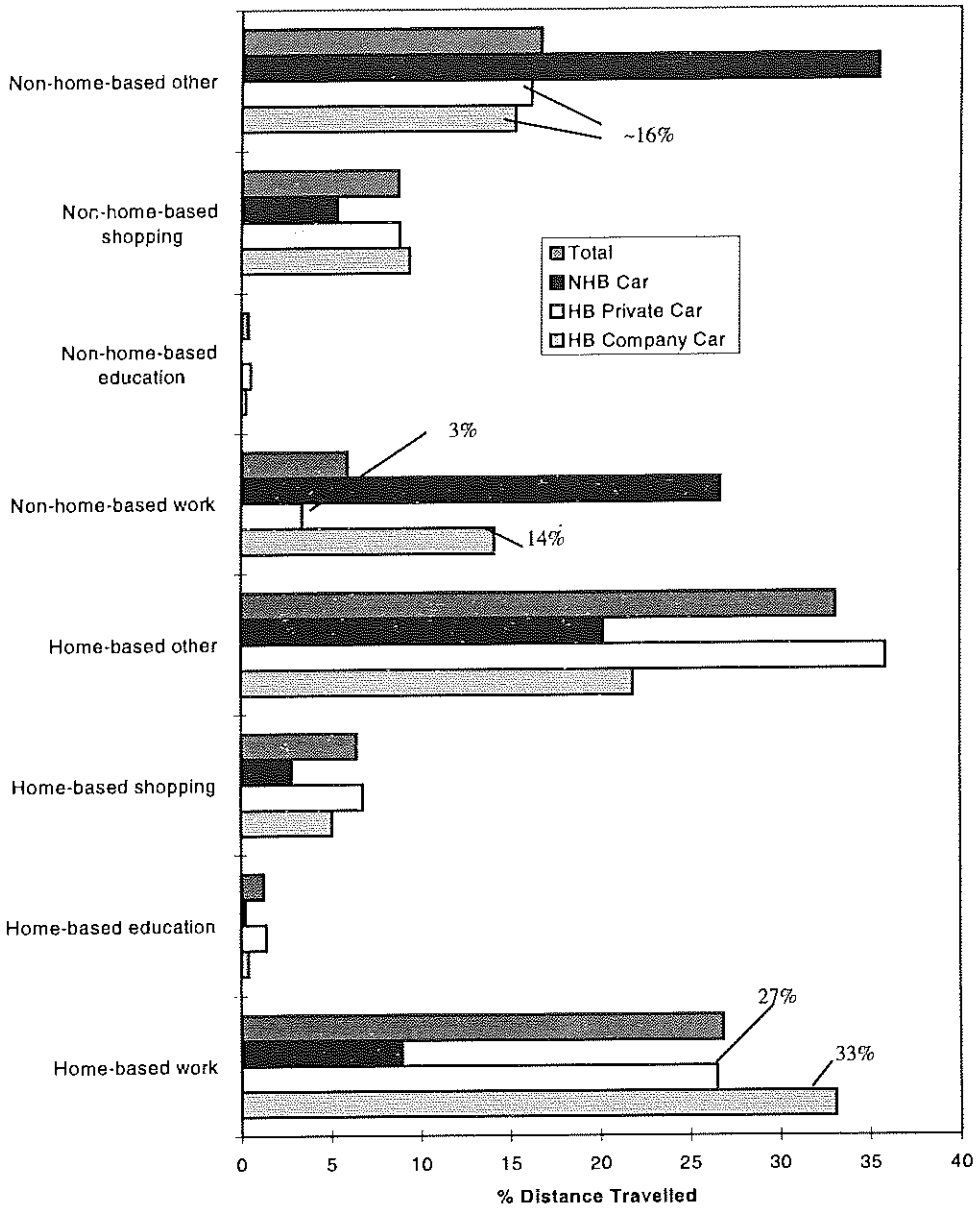

Fig. 9 - Distance travelled by various vehicle types for various purposes

3.5 Trip destinations

The Statistical Sub-Division (SSD) of the destinations in Table V reflects the origins and destinations of trips, because the destination of one trip is usually the origin for the next. The Central Melbourne Area and the eastern suburbs were the most frequent destinations, showing both where the users of cars lived and where they travelled to. (The Central Melbourne Area was very similar to the old Inner Metropolitan Regional Association boundary.) In general, the eastern suburbs were over-represented as destinations for HB company cars while the western suburbs were under-represented.

TABLE V

DESTINATION OF CAR TRIPS

SSD of destination	Missing	HB company car	HB private car	NHB car	Total
Central Melbourne	11%	17%	11%	14%	12%
Eastern Outer Melbourne	11%	11%	12%	15%	12%
Eastern Middle Melbourne	7%	11%	9%	8%	9%
Western Outer Melbourne	6%	3%	7%	6%	7%
Southern Outer Melbourne	7%	5%	7%	6%	6%
Southern Inner Melbourne	6%	8%	6%	5%	6%
Northern Middle Melbourne	5%	8%	5%	4%	5%
Northern Outer Melbourne	4%	5%	5%	4%	5%
Eastern Inner Melbourne	5%	7%	5%	3%	5%
Eastern Fringe Melbourne	4%	3%	5%	9%	5%
Northern Fringe Melbourne	6%	2%	5%	5%	5%
South-Eastern Inner Melbourne	6%	4%	4%	3%	4%
South-Eastern Outer Melbourne	5%	3%	4%	4%	4%
Western Inner Melbourne	5%	3%	4%	2%	4%
Mornington Peninsula Inner	2%	3%	4%	2%	4%
Mornington Peninsula Outer	4%	3%	3%	2%	3%
Western Fringe Melbourne	3%	2%	3%	2%	3%
Northern Inner Melbourne	4%	2%	2%	1%	3%
Others	0%	0%	0%	2%	2%
Total	100%	100%	100%	100%	100%

3.6 Age and gender

Figure 10 illustrates that the majority of company cars belonged to the middle-aged, about 30 to 50 years old, with few young and old drivers. The NHB drivers tended to be of two groups: the relatively young possibly driving friends' cars, and the older driving work cars. On average, the drivers of HB company cars were of similar age (41 years) to the drivers of HB private cars (40 years), and older than the NHB car drivers by about 5 years (35 years).

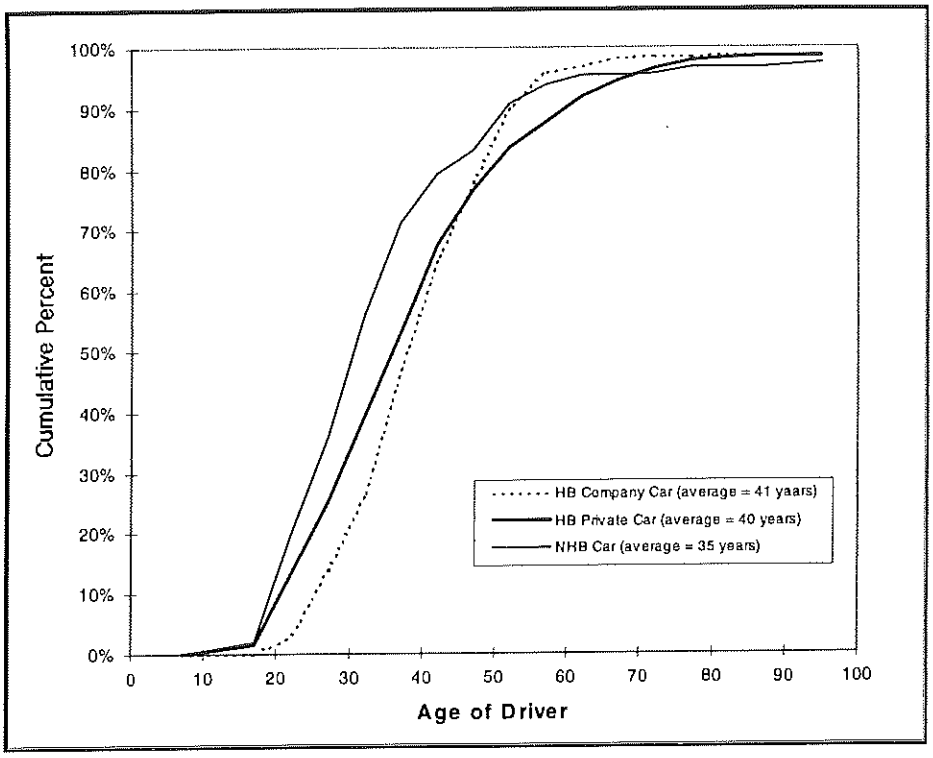

Fig. 10 - Cumulative distributions of car trips by age of driver

Figure 11 shows clearly that the HB company cars was in the domain of men. 73 per cent of HB company car trips were made by men, and only 27 per cent made by women. For HB private cars trips, the difference was small, with 52 per cent by men and 48 per cent by women. NHB car trips were more likely to be made by men.

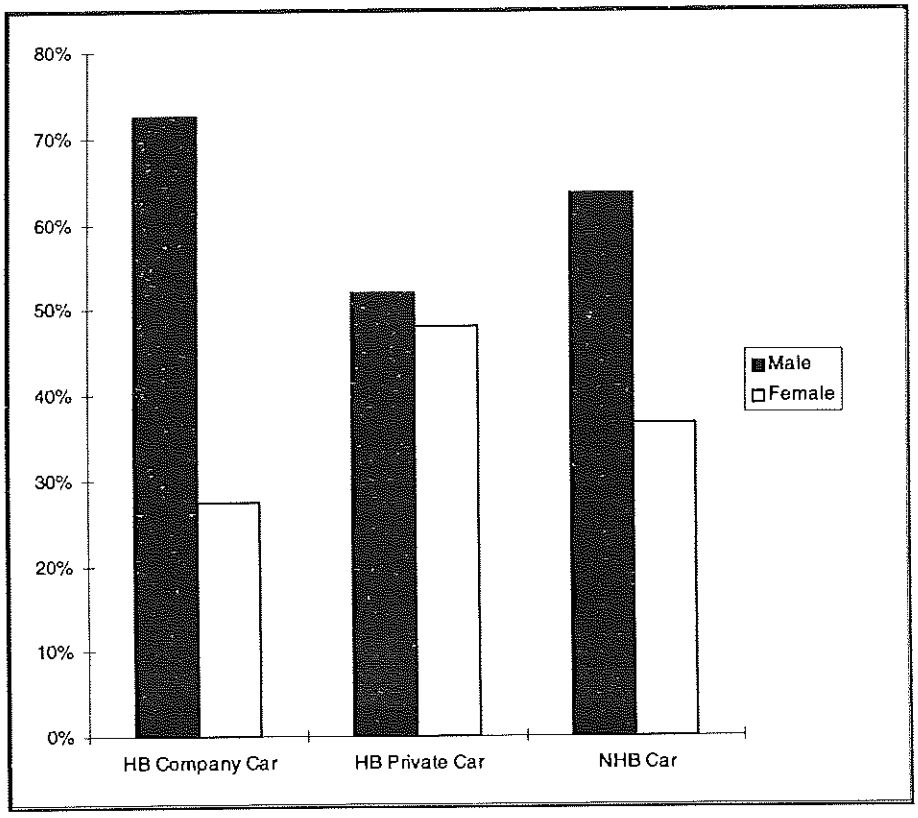

Fig. 11 - Classification of car trips by sex

3.7 Parking provision

According to Fig. 12, most drivers did not pay parking fees: 95 per cent of company cars, 97 per cent of private cars, and 98 per cent of NHB cars. Amongst those drivers who had to pay for their own parking fees, more company car drivers (2.5 %) than non-home based drivers (less than 1 %) had to pay. This difference was probably due to the destinations of these trips, with more HB company car trips destined for the CBD where parking fees are more common.

HB company cars were more likely to have their parking fees paid by their employers.

Figure 13 shows that HB private cars were more likely to park on residential properties and less on streets while HB company cars were more likely to park off-street in parking garages.

Figure 14 illustrates the walk times from parking places. The drivers of HB private cars walked slightly further from their parking places than drivers of other cars but the differences were not great.

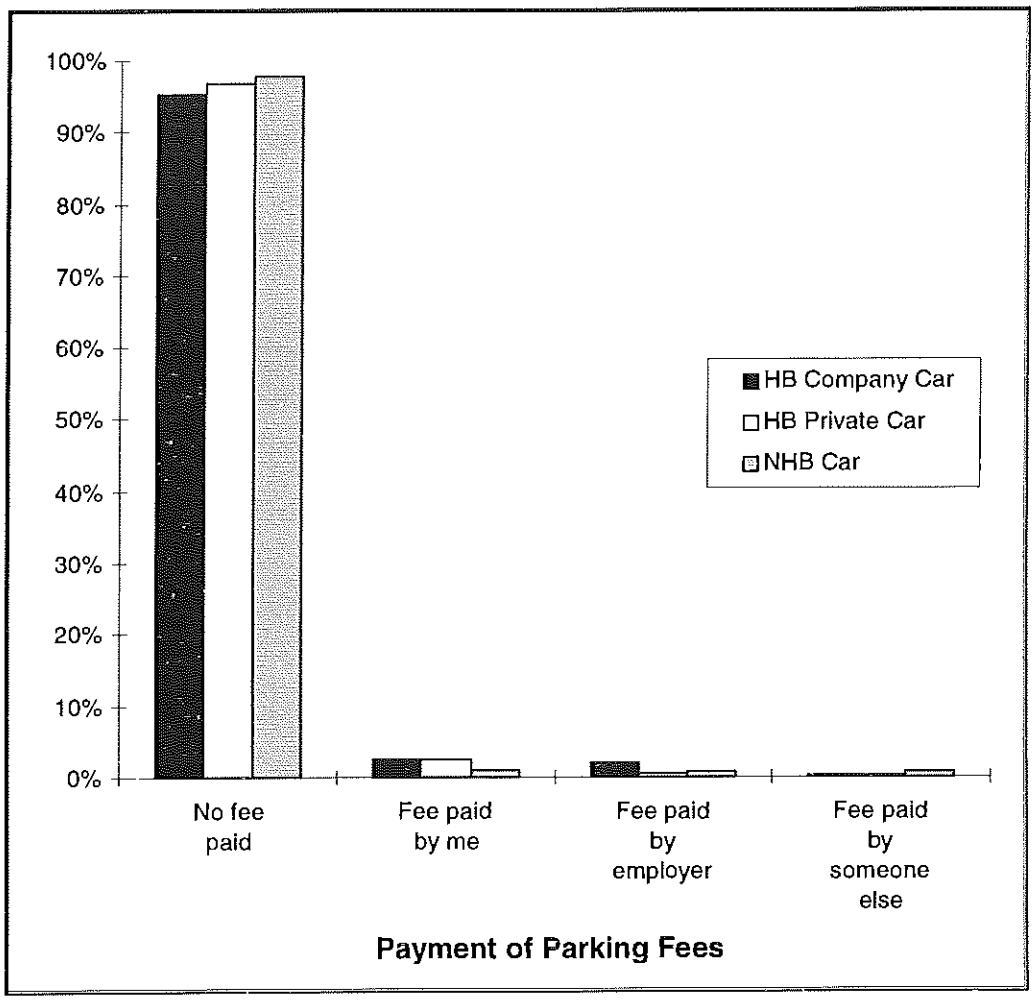

Fig. 12 - Payment of parking fees

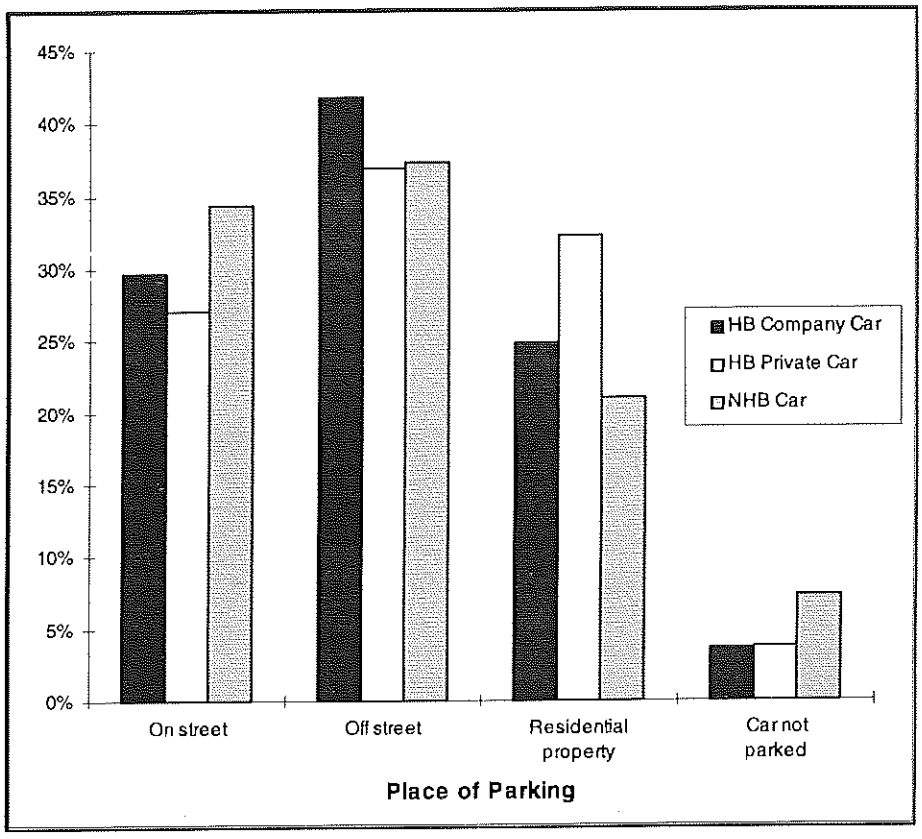

Fig. 13 - Distributions of places of parking

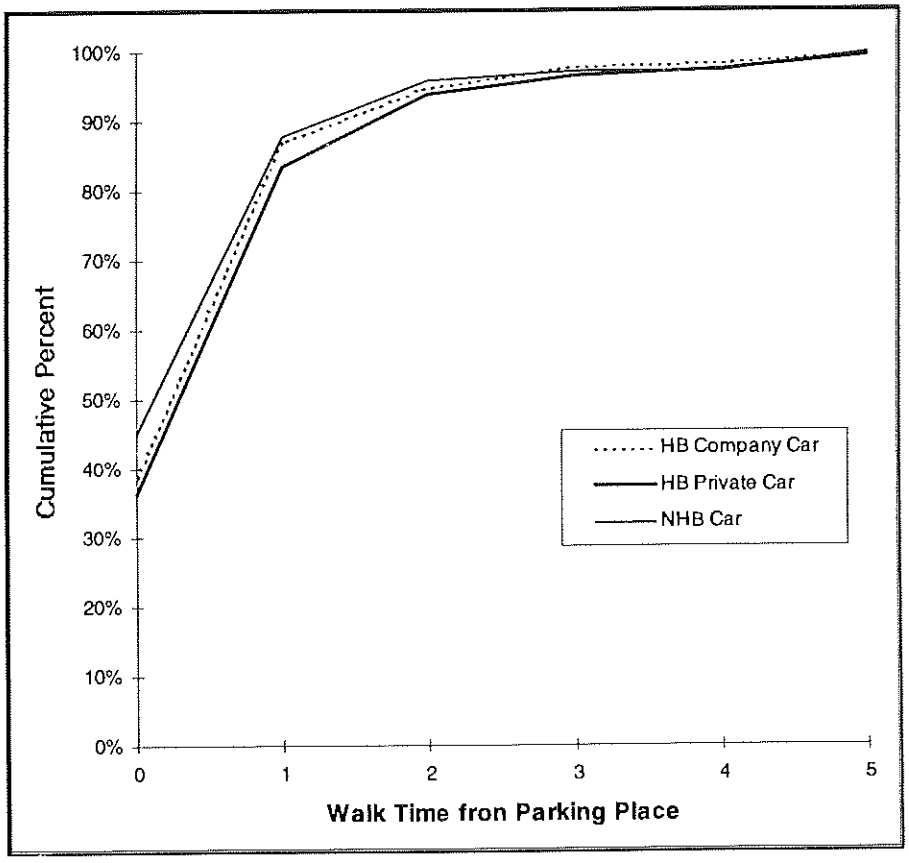

Fig. 14 - The cumulative distributions of walk times from parking places

4. SUMMARY OF FINDINGS AND POLICY IMPLICATIONS

The major findings and policy implications are summarised as follows:

(a) Company cars were newer, with bigger engines and worth more (Figs. 1 - 4). New engine technologies that reduce fuel consumption and pollutant emission would eventually pass onto new company cars and subsequently the national car fleet. About half of company cars are management cars and the others are field company cars. Status to some company car owners seems more important than energy and environment. It would appear that lump sum taxes such as the FBT would not significantly reduce this sector of company car ownership.

(b) Trip duration and distance of HB company cars were slightly longer than HB private car trips, and they started earlier in the morning and later in the afternoon (Figs. 5 - 8). A congestion pricing scheme such as the Singapore central area licensing scheme that restricts car travel into a restricted zone would have to be an all-day scheme to have some effect on company car drivers (Luk and Hepburn 1995). It is still uncertain whether an individual employee would bear the cost of congestion tolls, i.e. the congestion toll is part of an employment package like vehicle operating costs of a company car. Congestion pricing would naturally have much more impact on private car travel.

(c) The proportion of company cars that began their trips remained fairly constant around 18 per cent of all cars from 7 a.m. to 7 p.m. (Fig. 7b). As mentioned in (b), TDM measures would have to be all-day measures to be effective in managing company car travel.

(d) The VATS results suggested that company cars were mostly used for commuting (to and from work places) and work-related travel (Tables III and IV, Fig. 9). The usage level of company cars was similar to that of private cars for shopping, education, and non-home-based other purposes (i.e. purposes other than shopping, education and work). The company car was used much less than the private car for home-based other purposes such as social and recreation activities. A taxation policy such as fuel excise on company cars therefore would not significantly reduce 'optional' road travel demand.

(e) The CBD of Melbourne is still a prime destination for company car travel (Table IV). However, jobs are no longer concentrated in central areas in Australian capital cities. In Melbourne, the percentage of jobs in the Central Melbourne Area (CBD plus some surrounding inner suburbs) would be about 28 per cent of all jobs in the metropolitan area (VicRoads 1991). Company car trips to the central area amounted to only 17 per cent of all central area trips in the VATS data, and these are much less than the estimate of 50 per cent for central London in Kompfner et al. (1991). Central area charges such as high parking fees and area licenses would again be of some impact to trips into the central area but would be only of small impact to citywide travel.

(f) Company car trips are predominantly made by men, and are middle-aged people (Figs. 10 - 11). As a group, company car users are therefore less likely to be affected by various pricing schemes than perhaps the young, the old, and women whose jobs could be relatively less secure.

(g) Most car users do not pay parking fees (Figs. 12 - 13). Of those company car trips that involved paying parking fees, about 2.5 per cent were fees paid by individuals and 2.1 per cent paid by employers. One can therefore conjecture that if policies were introduced to make all parking fees paid by individuals, say, for commuting trips using company cars, the percentage of fee paying trips could increase to 4.6 per cent (about 23 000 in the VATS data). Most of these trips would be to the central area and a policy of higher parking

charges there would have some impact on these trips. However, it is unlikely that a person commuting in a company car would be deterred from using that car because of parking charges. It is also unlikely to expect all employers to refuse to include the relatively small parking charges in a salary package. As further research, it would be useful to analyse the VATS data to understand how parking control can influence company car travel to the CBD.

(h) The walk times from parking places by HB cars and NHB cars are similar (Fig. 14). Priority parking at work places therefore may not be a sufficient inducement to encourage carpooling. A more effective but certainly less acceptable measure could be work place parking only for high-occupancy vehicles.

5. CONCLUSIONS

The VATS data for Melbourne confirm that company cars are newer, worth more and have bigger engines than private cars. They show, for example, that about 2 per cent of all cars were of the Mercedes make, but 27 per cent of this make were registered as company cars. Company cars were used mainly for commuting and work-related travel and there was no indication of excessive use of these cars for recreation and social activities. Company car trips with Central Melbourne as the destination accounted for only 12 per cent of the total car trips in the survey, and was far less than the level of 50 per cent reported for London.

The start times of company car trips remain fairly constant between 7 a.m. to 7 p.m. at about 18 per cent of the total number of car trips. This proportion of company car travel is significant, and TDM measures such as congestion pricing would have to be all-day measures to be effective in managing company car travel. It is, however, difficult to enforce the payment of congestion tolls by individual employees who would most likely pass these costs onto the employers.

About 95 per cent of all cars in the survey did not pay any parking fees. Parking would remain to be a tool with a good potential for demand management. A more detailed analysis of the CBD-bound trips in VATS is required to provide better understanding of how parking control could influence company car trips. The non-home-based car trips show quite different travel characteristics from those of company cars and private cars and is an important area for future research.

Due to the popular use of company cars as fringe benefits in salary packaging, most TDM measures would not significantly affect company car trips. A lump sum tax would be more effective for TDM than a fuel levy, and would be useful in discouraging the provision of the second company car. The fast turn-over of company cars, however, has led to significant reduction in the fuel consumption of the national car fleet. Pollutant emissions could also have been reduced.

About 10 - 15 per cent of each of the popular car makes (e.g. Holden's, Ford's, Toyota's) are registered as company cars. Company cars therefore constitute a significant proportion of the national car fleet and certainly the new car market. Tax changes that attempt to increase the fringe benefits tax to cash out company cars would therefore be quite disruptive to the local car industry.

In summary, the level of company car trips was about 18 per cent of the total car trips at most time periods of the day. About half of these trips (9 %) belonged to the 'management' component of company car trips and the other half belonged to work-related car trips. This level of road demand is quite significant even though it is uncertain whether TDM measures could have major impact on these trips. There is also no indication that the majority of these trips were CBD-bound. However, the level of in-bound trips during peak hours and the impact due to parking charges are areas that deserve further research.

6. REFERENCES

AUSTROADS (1991). Road demand management. AUSTROADS Report no. AP 9/91. (AUSTROADS: Sydney.)

DERMODY, T. (1991). Company cars - a policy issue in the greenhouse gas debate. *13th Conference of Australian Institutes of Transport Research, Dec 12-13, 1991, University of Queensland.*

DPIE (1991). Fuel consumption guide for new car buyers. Department of Primary Industries and Energy. (AGPS: Canberra.)

FORS (1988). Day-to-day travel in Australia 1985-86. Report No. CR 69. (Federal Office of Road Safety: Canberra.)

KNIGHT, L. (1990). An Australian study of impact of company cars on energy consumption. *Aust. Rd. Res.* 20(2), pp. 13-22.

KOMPFNER, P., HUDSON, R.H.C., SHOARIAN-SATTARI, K. and TODD, D.M. (1991). Company travel assistance in the London Area. TRRL Research Report 326. (Transport and Road Research Laboratory: Crowthorne, Berkshire.)

LAWRENCE, M. (1994). The new shape of salary packages. *Business Review Weekly* 16(44) pp. 55-57.

LEE, M. L. (1992). The company car and its environment impact. *14th Conference of Australian Institutes of Transport Research, Dec 10-11, 1992, Institute of Transport Studies, University of Sydney.*

LUK, J.Y.K. and HEPBURN, S. (1995). Congestion pricing: fundamental principles and revenue distribution. Research Report ARR No. 270. (ARRB Transport Research Ltd: Vermont South, Vic.)

RICHARDSON, A.J. and AMPT, E.S. (1993). The Victorian Integrated Travel, Activities and Land-Use toolkit (VITAL). Transport Research Centre, University of Melbourne, Working Paper VWP93/1. (TRC: Parkville, Vic.)

RICHARDSON, A.J., AMPT, E.S. and MEYBURG, A.H. (1995). Survey Methods For Transport Planning. (Eucalyptus: Melbourne.)

SCHOU, K. (1981). Energy policies and company cars. Bureau of Transport Economics. Occasional Paper 47. (AGPS: Canberra.)

SCHOU, K. (1982). The company car sector from an energy conservation perspective. *7th Australian Transport Research Forum, March 17-19, 1982, Hobart. Forum Papers,* Vol. 1, pp. 773-786.

TRC (1993). South-East Queensland Household Travel Survey (SEQHTS). Final Report to Queensland Department of Transport. Transport Research Centre, University of Melbourne, Working Paper TWP93/6. (TRC: Parkville, Vic.)

VICROADS (1991). Central area transport strategy. VicRoads Special Report No. 90-9. (VicRoads: Kew, Vic.)