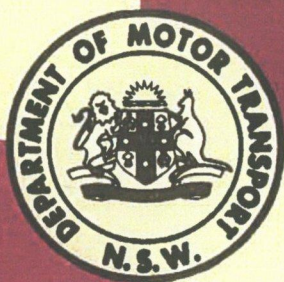


9/77

TRAFFIC ACCIDENT RESEARCH UNIT



A PROFILE OF LONG DISTANCE TRUCK DRIVERS

Dawn R. Linklater,
B.A. (Hons.), Ph.D.

The Traffic Accident Research Unit was established within the Department of Motor Transport, New South Wales, in May 1969 to provide a scientific approach to the traffic accident problem.

This paper is one of a number which report the results of research work undertaken by the Unit's team of medical, statistical, engineering and other scientists and is published for the information of all those interested in the prevention of traffic accidents and the amelioration of their effects.

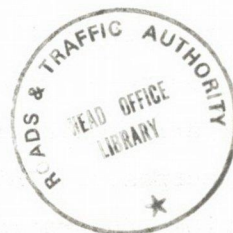
A handwritten signature in dark ink, appearing to read 'W. Butler', is positioned above the title 'Commissioner.'.

Commissioner.

A PROFILE OF LONG DISTANCE TRUCK DRIVERS



L083167



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ABSTRACT

A personal interview survey of 615 heavy vehicle commercial transport drivers and 551 other motorists was conducted at roadside restaurants on major New South Wales roadways during May, 1976. Questions were designed to provide background information on typical, long distance truck driver behaviour, life style, opinions and attitudes for control data purposes. This report includes an extensive literature review and describes the rationale for the survey, the methodology and resulting profile of long distance truck drivers that has emerged. Significant differences between truck drivers and other motorists are discussed in terms of the life style and cohesive fraternity evidenced by the truck drivers interviewed. A second report, to be published later, will describe analyses conducted to investigate whether or not such variables were related to the drivers' reported traffic crash frequency.

ACKNOWLEDGEMENTS

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The author wishes to acknowledge the contribution of the Traffic Accident Research Unit staff to the planning and analysis of the survey described in this report. In particular, the author wishes to thank Mrs. K. Freedman, Mrs. J. Schreiber and Mr. T. Sowerbutts (for their help with the formation of questionnaire schedules), Miss K. Handel, Miss H. Goldsmith and Mrs. B. Lind for their help with data analysis and the many staff who have read and criticised draft copies of this report. The author also wishes to acknowledge the contribution of Dinerofe Enterprises Pty. Ltd., who conducted the fieldwork and helped with coding answers to open-ended questions. The interest and enthusiasm of interviewers and coders was warmly appreciated.

The survey would not have been possible without the co-operation and help of all the drivers (who donated their valuable time to answer questions) and the owners, managers and staff of the restaurants used for interview purposes. The author wishes to thank all these hundreds of people for their friendly interest. It is they who made this report possible and it is hoped that the report will be to their benefit in the future.

"If one were to compare operators of various transport vehicles with respect to the number and variety of the stimuli which they must perceive and the skill, speed, and judgement required in the response, then the truck or bus driver has a more demanding job than most. Considerably less is required of the railroad engineer. Even the air-plane pilot, who may be required to concentrate fully during landings and take-offs, can relax for long periods once he is in the air, and most commercial pilots have an automatic pilot and a co-pilot beside them for relief. The driver on the highway, however, must pay continuous attention to his surroundings and must make continuous readjustments of his controls" (McFarland, Moseley and Fisher 1954, p. 344).

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1. SUMMARY AND CONCLUSIONS

The high cost of heavy vehicle traffic crashes, in terms of fatality, injury and property damage has led to several studies of such crashes, but the lack of control data has made it difficult to determine whether or not crash-involved truck driver behaviour is unique, or even whether truck driver behaviour is significantly different from the behaviour of other motorists.

This report contains a comprehensive literature review and also describes an extensive survey of heavy vehicle drivers and other motorists who were interviewed at roadhouse restaurants on major N.S.W. roadways during May, 1976. That is, this report aims to provide a profile of long-distance truck drivers generally (not just of those involved in traffic crashes).

Many of the ways in which long-distance truck drivers were found to differ from other motorists may indicate simply the greater annual mileage or longer time spent by truck drivers on the road. Thus, truck drivers in the survey had more traffic crashes, fewer holidays, longer working weeks, and longer driving intervals between rest periods. Although truck drivers had lower educational levels than other motorists, they had significantly higher income levels. Vehicles driven by truck drivers were generally newer but caused less satisfaction. Truck drivers smoked more and showed more open anger than other motorists. The relationship between many of the variables investigated and the number of reported traffic crashes is the subject of a subsequent report (Linklater 1978).

The present report has shown that truck drivers differ from other motorists in their life styles and attitudes towards other classes of road users and especially towards the drivers of cars towing caravans. Such

drivers were seen as "unskilled", "inconsiderate" and "reckless" by truck drivers more often than by other motorists.

Owner operators and employee drivers, within the truck driver sample, were not found to differ significantly on most of the variables investigated. However, owner operators did drive significantly older vehicles with smaller carrying capacity than did employee drivers, despite reporting higher income levels. One of the noted differences between these two groups was the higher value placed on the independence owner operators associated with truck driving.

Driver fatigue was considered by both truck drivers and other motorists to be a factor involved in traffic crashes and this survey has pointed to many likely causes of this fatigue, such as longer hours worked by truck drivers, economic and other pressures, driving discomfort and some difficulties of vehicle operation, road conditions and even a suggestion that truck drivers fear their vehicles. One of the ways truck drivers attempt to overcome driver fatigue is to use stimulants. Over 40% of truck drivers admitted having used stimulant drugs at frequencies varying from "seldom" to "on every run, more than once a day". Hallucinations while driving (which may be considered symptoms of extreme fatigue) were experienced by significantly more truck drivers than other motorists.

There seems little doubt, from this survey, that many long-distance truck drivers experience a level of driving fatigue which may jeopardize their own safety and that of other road users. This survey has indicated, however, that there is no simple remedy to such fatigue. The causes are varied and even the motivation to drive for long hours is not based on economic factors alone since most truck drivers reported earning considerably more than the average income. A job-satisfaction factor involving an enjoyment of the constant travel, control of the vehicle, and the mateship experienced among other truck drivers at locations such as those used as interview sites in this survey may contribute to a desire to continue this type of existence even though such long hours are involved.

This report has indicated that the following measures would be likely to improve operational safety by reducing the tendency towards fatigue experienced by long-distance drivers:

- off-road parking facilities at frequent intervals on major inter-city routes
- periodic changes in road alignment
- periodic changes in road surfacing
- raised pavement markers at road edges and centres
- easy reach by the driver to all of his control, both those necessary for vehicular operation and those used for driver comfort (such as heating, ventilation, radio, ashtray, cigarette lighter)¹
- provision of a comfortable work environment, particularly with regard to cabin temperature, ventilation and vibration
- reduced noise levels within the driving cabin
- a review of requirements for towing caravans
- improved training and testing of heavy vehicle drivers
- permission from insurance and transport companies for the carriage of passengers
- a review of hours-of-work restrictions.

Truck drivers frequently expressed a desire for greater involvement in the decision making processes affecting their industry. Such involvement should lead to improved appreciation of their needs, and also to improved acceptance by them of regulations and policies.

¹ Such controls should be easily accessible by 95% of all drivers when lap and/or retractor belts are worn.

2. INTRODUCTION

2.1. A Statement of the Problem

Whenever a heavy vehicle is involved in a road accident the results are likely to be serious in human and financial terms. If a heavy vehicle is involved in a collision with a passenger car there is usually a higher possibility of injury and/or fatality to the car occupants than when two cars are involved in a collision. Even if the heavy vehicle is involved in a single vehicle accident, costs are likely to be high because of the financial investment which the vehicle, and the goods it carries, represent. The spilling of load or damage and obstruction of the roadway which may occur in that type of accident causes inconvenience to other road users. Thus, heavy vehicle accidents, when they occur, are often news items, and news followers could be forgiven for thinking that trucks and semi-trailers are over-involved in road accidents. However, to estimate the rate at which different classes of vehicles are involved in road crashes, it is necessary to have some measure of the exposure of these vehicles. The average heavy vehicle is on the road longer and takes up more space than the average passenger car and, hence, is more exposed to collision. It is argued that the estimates of exposure for heavy vehicles are unreliable, so it is difficult to calculate whether they are really involved in more than their share of collisions.

Once a collision involving a heavy vehicle has occurred, it is more likely to be serious than a collision involving a passenger car. This greater seriousness may arise from a number of ways in which heavy vehicles differ from other vehicles, such as in their greater momentum, instability, large size, power-to-weight ratios, and braking factors. However, the drivers of heavy vehicles, particularly in the long distance commercial transport industry, may differ from drivers of other vehicles.

Could the difference in life styles, attitudes and beliefs affect the accident probability of long-distance, inter-city, commercial transport drivers? Before we can answer this question, it is necessary to know whether, and how, the life styles, attitudes and beliefs of long-distance truck drivers do differ from those of other motorists. This report describes a study of both truck drivers and other motorists interviewed on New South Wales roads. The hypothesis examined by this study is that long-distance, commercial transport drivers do not differ substantially from other road users. The particular variables investigated in the study were chosen as a result of a literature review and talking with drivers and those connected with them.

2.2. Literature Review

The literature, reviewed prior to selecting the variables of interest in this study of truck drivers, was divided roughly into three groups. Some accident investigations centred on truck crashes and formed a special group of studies. Another group of studies involved the truck driver and his occupational demands and stresses. It was also considered necessary to review a large amount of material relevant to any investigation of driver-behaviour. This material gave insight into particular variables which were of special relevance to the truck-driving situation and which were not apparent from the other two groups of studies reviewed. Of this large third group of studies, only that literature found to be relevant to truck drivers is reported here.

2.2.1. Investigations of Crashes Involving Heavy Vehicles.

Truck-driver behaviour is of interest in traffic accident research because of the involvement of trucks in accident statistics. Crashes involving trucks as a whole, but especially semi-trailers or articulated vehicles, are more likely than other traffic units to result in the death of at least one road user. For example, an analysis of crashes during 1968 in New South Wales (Henderson and Sims 1970) showed that one fatality occurred in 66 crashes for all vehicles taken together, one in 62 for rigid

trucks and one in 36 for semi-trailers. In the U.S.A., Wuerdemann et al (1976) found 25% of fatal crashes involved trucks during an 18-month period ending in June, 1974. Other studies of crashes in Australia have also demonstrated that trucks are involved in a significant proportion of serious crashes (Robertson et al. 1966; Adams 1967; Cowland Fairlie 1970; Jamieson et al. 1974).

Assessment of the involvement of trucks in road crashes depends on the availability of reliable exposure indices (such as time spent on the road, or annual mileage¹). However, since taxes are often paid according to mileage, there is strong feeling within the trucking fraternity (discovered during the background research described later) that official estimates (such as the Australian Bureau of Statistics, 1973 and 1977b, estimate of vehicle mileage) under-represent the true picture. While this may be so, attempts to calculate truck crash involvement rates on such exposure estimates are preferable to the crash rates calculated purely on the basis of numbers of vehicles registered. Robertson and Baker (1975) in the U.S.A., Henderson and Sims (1970) in N.S.W., Tonge (1971) in Queensland, and Pak-Poy (1971) in Victoria, all showed that articulated vehicles had a higher incidence of crashes per 10,000 vehicles registered than all vehicles taken together. Pak-Poy also showed rigid trucks, but not articulated vehicles, to be involved in more crashes than other vehicles, on the estimate of truck involvement per 100 million vehicle miles, using an adjusted Commonwealth Bureau of Census and Statistics (1963) estimate of vehicle mileage. Wood and Cowley (1974) used the Commonwealth Bureau of Census and Statistics (1973) vehicle estimates and Queensland crash data to suggest that heavy, articulated trucks have higher crash rates per vehicle mileage than rigid trucks and other vehicles, but lower rates when these are assessed per ton mile and compared with rigid trucks and other goods vehicles.

¹ In this report the term "mileage" is used in a general sense to mean distance travelled regardless of whether the distance units used in each particular study were those of miles or kilometres (km).

Foldvary (1968) randomly sampled drivers for estimates of mileages driven within the metropolitan Brisbane area, and then looked at reported metropolitan crashes. In that study, large commercial vehicles had a crash rate of 1465 per 100 million miles, with 307 fatal and serious-injury crashes per 100 million miles, as against the private vehicle rate of 1600 with 410 fatal or serious-injury crashes. All vehicles taken together had rates of 1593 and 381 respectively. Foldvary (1975; 1977) has reiterated his earlier claims that large commercial vehicles are under-represented in road crashes, according to vehicle mileage.

Several overseas studies have also assessed crash rates according to annual vehicle mileage. Farr and Neilson (1968) in the United Kingdom concluded that articulated vehicles had similar crash rates to other vehicles, while Wolf (1969) in the U.S.A. reported trucks to be under-represented in total and fatal crashes, when compared with cars and buses, using 1966 crash data. Sherard (1971) suggested, on the basis of U.S. National Safety Council figures for 1968, that trucks in general were under-represented, but that inter-city and interstate trucks were grossly under-represented with an involvement rate of 3.6 and 2.5 (respectively), as against an all vehicle rate of 14 crashes per one million vehicle miles. Solomon (1964), using figures from 11 states and the U.S. Bureau of Public Roads, concluded that the crash involvement rate of male truck drivers was exceptionally low for the crashes which occurred at night.

An alternative method of assessing exposure, to that of vehicle mileage, is to assess the flow of vehicle types on specific routes and correlate this to crash rates of vehicle types on these routes. Cowl and Fairlie (1970) estimated that, while 18% of all traffic on rural state highway in N.S.W. was comprised of heavy trucks and semi-trailers, such vehicles were only involved in 5% of total reported crashes and 19% of fatal crashes. Wood (1976) used crash data for the Hume and Newell Highways in N.S.W., and traffic volume data from the Department of Main Roads, to show articulated vehicles to be over-represented in all crashes and in injury and fatal crashes. Wood and Cowley also reported figures from Scriven in South

Australia which show "long vehicles" to be involved in 25% of all crashes while travelling 30% of the total distance. However such long vehicles included the ordinary passenger car when trailing boats or caravans and so cannot be taken to be representative of heavy commercial vehicles.

Two studies from the U.S.A. have assessed crash rates from data collected on turnpike roads. Van der Zwagg (1971) used collision, and "involvement" and "interaction" indices. His figures suggested that, when only one of the vehicles in a crash was considered to be responsible for the crash, trucks tended to be considered responsible less often than other vehicles, but were more often responsible for side-swipes and rear-end crashes. Dunlap and O'Day (1975), while looking primarily at tyre failures in truck crashes, also showed how the percentage of truck crashes to total crashes could vary according to figures used. Figures from the State of Texas showed truck crashes to comprise 27.4% total crashes while, on the Pennsylvania turnpike, the percentage was only 16.7% and on the Indiana turnpike, 24.8%.

The attempts, outlined above, to investigate truck involvement in road crashes have demonstrated the difficulties involved in making such estimates. Figures cannot be compared easily across studies, for data, dates or places of investigation, and even definitions of such things as "road accident" and "fatality" vary according to the state and country from which the data originated. It becomes apparent that some estimate of exposure should be assessed in any survey of truck drivers. Mileage may not be the most appropriate exposure index, since the speed of vehicles can vary considerably. A fully-laden "vintage" vehicle may travel more slowly, and consequently be exposed for a longer period of time over the same mileage, than an empty or lightly-laden modern vehicle.

As well as attempting to assess involvement rates, traffic crash investigations have often described characteristics of drivers without reference to control figures. Thus it is not known whether such descriptions are peculiar to crash-involved truck drivers or to truck drivers in general.

Most crash investigation reports centre on the type of collision and the mechanical and/or environmental features involved, rather than driver characteristics. The sex of drivers, if mentioned at all, is usually male. Tonge (1971) found all articulated-vehicle drivers in his sample to be male. Although he does not cite the actual frequencies involved, Foldvary (1968) found the very small number of females who drove commercial vehicles to have a higher crash rate than male commercial vehicle drivers. O'Day and Scott (1974) found less than 0.5% of crash-involved truck drivers to be female.

The age of drivers involved in crashes is also usually cited in reports, but with little reference to control data. Moffie and Alexander (1953) investigated the relationship between truck-driver age and crash frequency in a sample of drivers from a US transport company. They found no relationship existed when exposure was controlled.

A few reports of truck crashes have given details of relevance particularly to long distance truck driving. The U.S. Bureau of Motor Carrier Safety (1969) found that 30% of single-vehicle truck crashes seem to have involved a sleeping driver and 13% of these drivers had violated the hours-of-driving regulations. Single-vehicle crashes are particularly likely to show specific truck or driver linked variables, since in these crashes there is no other vehicle or driver directly involved. There is some evidence, from New South Wales, that semi-trailers have more single-vehicle crashes as a percentage of all crashes, particularly in rural areas (see Table I).

TABLE I: Single vehicle crashes in New South Wales for the year ending June 1975 (data according to Nix-James 1977).

	All motor vehicles		Trucks		Semi-trailers		NOTE
	frequency	%	frequency	%	frequency	%	
All crashes	250,702	100	11,101	100	3795	100	% of all crashes
Single vehicle crashes	19,153	7.6	735	6.6	761	20.0	
Metropolitan	6,967	36.4	274	37.3	136	17.9	% of all single vehicle crashes
Rural	12,186	63.6	461	62.7	625	82.1	

Pak-Poy (1971) did not describe the involvement of fatigue according to single or multiple-vehicle crashes, but did find that, of the 300 crash-involved truck drivers studied, 3% had log-book (hours-of-driving) or licence offences. Tonge (1971) could obtain no reliable information on fatigue in his investigation of crashes involving articulated vehicles. In the U.S.A., O'Day and Scott (1974) found that 188 out of 11839 truck drivers were said to have been "fatigued" or "asleep" but only 25% of these received a citation, as against 67% of passenger-car drivers said to have been asleep or fatigued. O'Day and Scott concluded that tiredness may be seen by law-enforcement officers as one of the hazards of truck driving. Fatigue may predispose drivers to experience hallucinations while driving (Cameron 1973) and McFarland (1962) has commented on the frequency of hallucinogenic experiences of truck drivers. Control data on the amount of fatigue or log-book violation within the industry is necessary to assess

the importance of fatigue in truck crashes.

In his analysis of crashes on the Hume and Newell Highways in N.S.W., Wood (1976) found that driver-error or unexplained factors contributed to 26% of single-vehicle crashes, and mechanical failure to 27% of single-vehicle crashes but only 9% of all truck crashes. Estimates of the contribution of mechanical failure in truck crashes have varied considerably among other Australian researchers (Cowl and Fairlie 1970, 4.4%; Pak-Poy 1971, 3%; Tonge 1971, 10%; and Wood and Cowley 1974, 15%).

The contribution of alcohol to truck crashes has also been described in crash-investigation reports: Robertson et al. (1966), in their small sample of 59 truck crashes, found only one truck driver had been drinking. Pak-Poy (1971) found there was negligible incidence of alcohol among truck drivers involved in fatal crashes and no significant difference in drink-driving between drivers of trucks and those of other vehicles involved in all crashes. Tonge (1971) found that only 4% of police reports mentioned the alcohol-state of semi-trailer drivers involved in the crashes he investigated. The contribution of alcohol to truck crashes is difficult to assess since drivers are not routinely tested for the presence of alcohol. Waller (1969) in a study of Californian driver blood-alcohol levels, found evidence to suggest that large-truck drivers involved in crashes had not been drinking, unlike the U.S.A. Baker, (1975) retrospectively investigated a series of 150 fatal crashes involving semi-trailers. While not all drivers had been tested for blood alcohol content, it seems that similar proportions of those who had been tested in the groups of semi-trailer drivers and drivers of other vehicles involved had raised blood alcohol levels, although levels of 0.10% and above were found in about half the semi-trailer drivers considered likely to be responsible for crashes and no blood alcohol was found in drivers not considered responsible for crashes. The data suggest that alcohol usage was less common in long distance semi-trailer drivers than those involved in short distance transport. It would seem obvious that control data are needed on the incidence of drink-driving among truck drivers.

Another factor sometimes mentioned in crash investigations is that of speed. Solomon (1964) found trucks to have the lowest mean speed of the vehicle types studied. His data suggested that the greater the variation in speed of the vehicle concerned from the average speed of surrounding traffic, the greater the probability of that vehicle being involved in a traffic crash.

The lack of control data in truck-crash investigations hampers attempts to assess the relative importance of driver/vehicle/environment features to crash probability. Some studies have, however, been described which are of relevance to truck-driver behaviour and which can be used to describe drivers who have not been involved in traffic crashes. These studies are described in the next section.

2.2.2 Other Studies Concerning Truck-Driver Behaviour.

An early study of interstate truck drivers in the U.S.A. (Jones et al. 1941) showed some loss of efficiency to be associated with prolonged driving. It was also found that drivers tended to have poor eye sight, blood shot eyes, high white cell counts and tremor of the hands, suggesting that their general health was below that of similarly aged men in the general population. The authors of that study suggested that limitations on hours of driving should improve road safety.

A recent intensive study of the same type of drivers by Harris et al. (1972) also investigated the relationship between fatigue, hours of driving and road safety. Several data sources were used, including questionnaires of drivers and transportation industry officials, companies' crash reports and physiological records of some arousal indices. Many conclusions were drawn, although it is unfortunate that few tests of statistical significance were performed. However, there seems to be some relationship between hours of driving and crashes, and between physiological states of arousal and hours of driving. Both these relationships support the regulation of hours of driving and hours of service by U.S.A. legislation. Some attempt was made to look at questionnaire

data according to whether the respondent was an owner operator, a common or a private carrier, or a bus driver, although there were no statistical tests of significance of any relationships that emerged from these distinctions.

Harris et al. found about one in ten truck drivers over 52 years, with the median ages of the different groups of drivers investigated ranging from under to late 30s. The drivers in the U.S.A. study tended to be experienced, with an average of 11 to 12 years of driving. McFarland et al. (1954) had earlier pointed out that truck drivers tend to stay in their occupation and to be young, although the median ages of the samples of drivers investigated in this earlier study ranged from 35 to 40 years.

Rabideau and Young (1973) described the exploratory phase of a study of Californian truck drivers in which drivers were asked many open-ended questions in a structured interview setting. Actual driving behaviour was also observed in an attempt to define driving tasks susceptible to fatigue. While enough data had not been collected from which reliable inferences could be drawn, the study has suggested some new methods of investigating truck driver behaviour by constructing pay-off matrices for "safety critical behaviour" versus "non-safety critical behaviour".

The studies of truck driver behaviour described in this section have not been concerned primarily with crash involved drivers, but with the effects of long hours at the wheel upon driving performance and road safety. Driving fatigue may be exacerbated by particular vehicle design features or the economic reasons for working such long hours. Some studies which investigated such variables are outlined below.

The truck driver may have to work in a noisy, vibrating, poorly-heat regulated, or poorly-ventilated, environment. The design of the modern truck cabin is such that these variables have become less important than in years gone by, although there is some evidence that the years spent driving trucks take their toll, particularly on hearing and balance/directional senses (McFarland et al. 1953; Tassev and Bumbarov 1974; Bumbarov and Tassev 1974). Some attention is paid to designing vehicles for the truck-driver's comfort and efficiency and ease of operation (Davey 1965; Whitmer and von Kampen 1968; Kyropoulos 1972; Miller 1976), although reviews of truck design are often geared to mechanical-engineering aspects of road safety rather than driver comfort (Dickson-Simpson 1966; Ellis 1966; Hoffmann 1972; Joubert 1973). Protection of other road users appears to be given precedence over protection of the truck driver from occupational hazards such as prolonged noise (from which factory workers are protected by legislation¹).

Baker et al. (1975) have recently concluded that truck drivers are at risk, not only because of mileages covered and task demands made, but also because neither their vehicles nor the roads they drive upon are designed for truck driver safety.

More protection for truck drivers by improved cabin design would involve greater capital expenditure and there is evidence that drivers would prefer to take safety risks rather than increase operating costs. The high competitiveness of the truck industry in N.S.W. and lack of commonly accepted freight rates has meant that "in practice, the price-cost squeeze is the most important problem facing the industry" (Aislabie and McCalden 1973, p. 31; Kolsen 1956). The

¹ There is some evidence that permanent hearing loss may be induced by long exposure to vehicle noise in those with "noise-sensitive" ears (Lierle and Reger, 1958), and the House of Representatives Standing Committee on Road Safety Report on heavy vehicle safety (1977) has recommended that the Advisory Committee on Safety in Vehicle Design investigate current cabin interior noise levels and specify acceptable interior noise levels.

economic structure of road transport has been ably reviewed by others (Webb and McMaster 1975) and is relevant to this review only in so far as the economic pressures on truck drivers affect road safety. The influence of such pressures may be more apparent in the behaviour of the owner operator, because he is usually struggling to maintain his operation against larger, better-financed and organised transport companies (Industrial Commission of N.S.W. 1970; Joy 1975; Aislabie and McCalden 1973).

The owner operator may, because of economic pressures, be operating less safely than the employee driver, and it would be interesting to see if the profile of the owner operator differs significantly from that of the employee driver. Owner operators in the U.S.A. have been extensively studied (Wyckoff and Maister 1975) and appear to differ from employee drivers mainly in the value they place on the (somewhat illusory) independence with which they equate their mode of operation. It is feasible that owner operators, if operating on a smaller financial margin than employee drivers, may drive longer hours and take drugs more often to counteract fatigue.

The subject of drug taking to ameliorate fatigue was not investigated fully in the studies outlined above, although Harris et al. asked drivers about their knowledge of other drivers' drug usage, since they suspected that no drivers would admit to the interviewer that they themselves used drugs to counteract fatigue. There have been no reports of analyses of body fluids of truck drivers for assessment of the quantity or quality of drugs used to counteract fatigue, although some literature (discussed in the next section) has pointed to the dangers of such drug abuse.

2.2.3. Variables of Interest in Any Study of Driving Behaviour.

The literature review of truck-crash investigations and studies of truck driver behaviour has pointed to some variables that should be included in any profile of truck drivers. The high probability of long-distance truck drivers suffering from fatigue means that some drivers are likely to take drugs to counteract this fatigue. While the effects of alcohol on driving performance has been widely investigated, fewer studies have been made on the effects of other drugs on driving performance. Amphetamines are among the drugs used to counteract fatigue. In a recent survey of the literature, Hurst (1976) concluded that, although a clinical dose of amphetamine undoubtedly enhances performance, especially in sleep-deprived subjects, amphetamine abuse may increase the probability of traffic-crash involvement, since a small sample of amphetamine abusers has been shown to be over-involved in traffic crashes (Smart et al. 1969).

Fatigue may induce hypnagogic hallucinations (Cameron 1973) during which the driver may become disorientated and act inappropriately for the traffic situation, so increasing his likelihood of being involved in a collision. Raised carbon monoxide levels and certain drugs such as alcohol may increase hallucination frequency, since these substances are known to increase the probability of the pre-sleep, hypnagogic state in which hallucinations may occur.

While fatigue may increase accident probability through increasing hallucinatory experiences, it may also increase accident probability through its effect on attention. The stimuli bombarding the driver at any one time are numerous and complex. Studies at Cambridge University have shown that in this sort of complex situation, fatigue can decrease the range of stimuli to which the driver can attend (Bartlett 1943). It is as though the driver's attention is narrowed down to only those stimuli which are central

or most important. Such a situation may mean that on-coming headlights are seen, but not those approaching on a side road. A potential hazard may thus be ignored completely.

Fatigue may result in failure to register all the relevant stimuli in the driver's environment, as may distractions within the cabin or the driver himself. Investigation of the effect of significant "life events", such as marriage and bereavement, upon driving performance has shown that major changes in life style may predispose drivers to become involved in crashes (Selzer and Vinokur 1972, 1974a and 1974b). It is feasible that worry over financial matters may distract drivers from perceiving relevant stimuli and also from making appropriate decisions regarding countermeasures to traffic hazards. Such worry may increase arousal level beyond the level necessary for optimal performance (Hebb 1955; Easterbrook 1959), just as fatigue may lower the arousal level below levels necessary for optimal cue utilization and motor performance.

Various psychophysical states such as emotion or high arousal may result in failure or distortion of the normal decision-making process necessary for safe driving. Frustration has been postulated to be a source of aggression (Dollard et al. 1939; Berkowitz 1965), and aggression has been linked with unsafe driving behaviour (Parry 1968; Whitlock 1971). Worry over economic factors or frustration by large companies may affect the owner operator more than the employee driver within the trucking industry. There is also a relationship between alcohol and aggression (Boyatzis 1975) but, unlike alcohol, aggression has not been shown to have a clear effect upon crash probability.

Many psychophysical states have been postulated to increase crash probability. This section has attempted to limit these states to those in which the truck driver may be expected to differ from other motorists on the road, by virtue of the strains and stresses which are said to form part of his occupation.

2.2.4. Literature Review: Summary and Conclusions.

The literature review disclosed some areas in which truck drivers differed from other motorists. It also revealed the need for control data so that inferences could be drawn if differences are demonstrated between those truck drivers who had been involved in a traffic crash and those who had not. There appeared to be a need for another attempt to assess exposure and to see whether owner operators differed from employee drivers (as well as whether truck drivers differed from other motorists) on demographic variables such as age, sex, income and so on. Truck drivers could be unduly affected by factors known to increase crash probability, such as exposure, fatigue, aggression or drug use. The survey technique was considered to be a method of investigating the incidence of such factors within the trucking fraternity compared with the incidence among other road users.

However, before a survey questionnaire was constructed, a certain amount of "background research" was conducted, by interviewing drivers and those connected with them, to determine if further variables should be investigated in the proposed survey, and also to determine the problems which could arise by using the survey technique, and possible ways of overcoming such problems.

2.3. Background Research

Discussions held with truck drivers, weighbridge operators, inspectors, driving-licence examiners and other Department of Motor Transport (DMT) officials, disclosed probable areas of conflict between long-distance truck drivers, in particular, and regulatory officialdom.

Truck drivers showed anxiety on the subject of DMT officials connected with collection of road tax and Department of Main Roads (DMR) and DMT officials in connection with overloading and vehicle maintenance. In some instances, the police were alleged to discriminate against the truck driver, allegedly stopping him in preference to other motorists since there was more to check on a truck and therefore more likelihood of being able to issue a traffic breach or infringement notice. These feelings of persecution appeared widespread among truck drivers, but it was possible to gain their confidence by expressing understanding of their grievances, and indeed, it seems that in some instances there may be discrimination against truck drivers (Kolsen 1975). Once we were accepted by truck drivers into their circle, for example into a group of truck drivers in a roadside cafe, they were not slow to voice a variety of opinions, nor to disclose some illegal behaviours, provided they knew that their anonymity would be preserved. In many instances, their friendliness and willingness to talk about their occupation belied the fatigue that was evident from their eyes and posture.

This encouraging interaction with truck drivers, led us to believe that a profile of truck drivers could be obtained using a structured interview technique, where the driver could remain anonymous. Hence the methodology described in the following section of this report was adopted to examine variables considered relevant to the study of long-distance truck drivers.

3. METHODOLOGY

3.1. Interview Sites

Various roadside restaurants through N.S.W. were mentioned by truck drivers during background research and during a pilot study that was conducted before the survey schedule or methodology were finalised. These restaurants were visited and managers/owners interviewed or contacted to request permission to use their premises during the survey of truck drivers. In some cases, the restaurant was patronised mainly by truck drivers, such that a further nearby restaurant had to be found in which to interview motorists other than truck drivers¹. Eight locations on major N.S.W. roadways were selected for truck drivers. In half of the sites, interviewers were able to use the one restaurant to interview both types of drivers, but in the remainder of the sites another restaurant in the same location was selected for non-truck drivers. In one case an excellent, well-patronised restaurant for truck drivers existed on a road containing no restaurant patronised by non-truck drivers. In this case a restaurant was selected for other motorists on a similar type of road within the same general region.

3.2. Interview Times

Interviews lasted for 20 minutes to one hour, depending on a respondent's response style. Each interview location was covered for

¹ The control sample contained drivers of any motorised vehicle other than a truck weighing more than 2 t unladen. Thus the control sample included some motorcyclists (see Table AVII, Appendix II).

seven consecutive days. In two locations, interviewers worked in three, eight-hour shifts to conduct interviews over entire 24 hour periods during the seven days. In the remaining locations, interviewers worked for those hours during which restaurant patrons were most likely to be present.

3.3. Subjects

The truck driver sample consisted of 615 male truck drivers aged 17 to 59 years, while the control sample of other motorists consisted of 551 males and females aged 17 to above 60. The response rate of 94% for truck drivers was similar to that of 95% for other motorists.

3.4. Interviews

Ten interviewers (three male and seven female) were extensively briefed to conduct both surveys. Female interviewers conducted 89% of truck-driver interviews and 44.4% of motorist interviews. All interviewers were selected to provide friendly interest and empathy to help drivers overcome their natural reticence to admit to behaviours that might be considered (morally and/or legally) suspect.

3.5. Interview Schedules

The interview schedule was designed to motivate drivers to respond truthfully and to promote good understanding of the terminology used. A combination of multi-choice and open-ended questions was used and a pilot study was conducted over five days prior to finalising the questionnaire format. The final schedule for truck drivers consisted of 129 questions some of these being included merely as "lead-ins" or to camouflage "sensitive" items. Some questions were included primarily because it had been found

that drivers particularly wanted to discuss certain topics. In this way it was hoped that drivers would enjoy the survey experience and encourage others to participate. The schedule for the other motorists was designed primarily as a control instrument for the truck drivers' schedule; however, certain questions were not applicable and so the final schedule was shorter, consisting of 110 questions. Both schedules may be seen in Appendix I.

3.6. Instructions

Truck drivers were approached in a manner which the interviewers considered appropriate to each particular driver. Interviewers were briefed to appeal to truck drivers as professional road users whose opinions were valuable and needed. It was suggested that truck drivers could benefit their industry and their public image by making their views known.

Other motorists were told, "We would be very interested to know your answers to some questions about your attitudes and habits as they affect your own and other people's road usage and traffic safety".

In both instances, interviewers identified themselves as conducting a survey for the Traffic Accident Research Unit of N.S.W. and stressed the anonymity of respondents. This was felt essential in order to ensure a high, truthful response rate, but had the disadvantage of meaning that answers could not be verified later. Both truck drivers and other motorists were told, "Please understand that you do not have to answer any questions Please be as accurate and honest as you can. I would prefer you not to answer a question, than to answer it untruthfully, so please tell me if you wish to skip any questions". Specimen introductions may be seen in the schedules in Appendix I.

3.7, Procedure

Interviews were conducted in the roadhouse restaurants, interviewers being told to approach for interview the last driver to order his meal, and to conduct the interview while the driver was awaiting or eating his meal. In this way, at least 20 to 30 minutes were available to the interviewer and many drivers seemed to welcome having someone to talk to while they took this rest from driving. Interviewers recorded whether or not there was a choice of people to be interviewed when each interview commenced. In 60.4% of other motorists and 53.7% of truck drivers, there was no other subject available. Thus, at least half of the respondents formed a self-selecting sample by virtue of their presence at a time when the interviewer was available, such that it is unlikely that interviewers' personal preference contributed much bias to the eventual quality of each sample.

At the conclusion of each interview, the interviewer thanked the respondent for his co-operation and then sought a new subject for the next interview.

1. RESULTS

4.1. Treatment of Raw Data

Coding frames for the open-ended questions were constructed from a 10% systematic sample of the completed schedules. During the coding, all responses were checked for consistency and creditability. For example, one or two respondents reported working over the entire 168 hours in a week (see questions 12f and 12h in the truck-driver Schedule, Appendix I). Such responses were adjusted to the "Don't know/Not Stated" category. Preliminary print-outs were further checked and edited after data entry onto magnetic tape.

4.2. Data Analyses Used

Frequencies of the categories of response to each question were used to compile means, variances and other descriptive statistics. Relationships between pairs of variables were assessed using Chi-square (χ^2) tests of statistical significance. The hypothesis being tested in each instance was that there was no relationship between the variables of interest. If the probability of the observed level of association between the variables (as measured by the chi-squared statistic) occurring by chance was less than 0.05, the hypothesis was rejected and a significant relationship was said to exist between the variables.

The χ^2 test of statistical significance was also used to assess whether or not truck drivers and other motorists differed significantly in their responses to particular questions. Those variables shown to distinguish truck drivers from other motorists were then used to

identify the factors which accounted for the largest differences between the two samples. A technique called the Automatic Interaction Detector (AID) algorithm was used (O'Day 1970) which permitted study of multivariate factors and provided diagrammatic representation of ways in which the two samples differed.

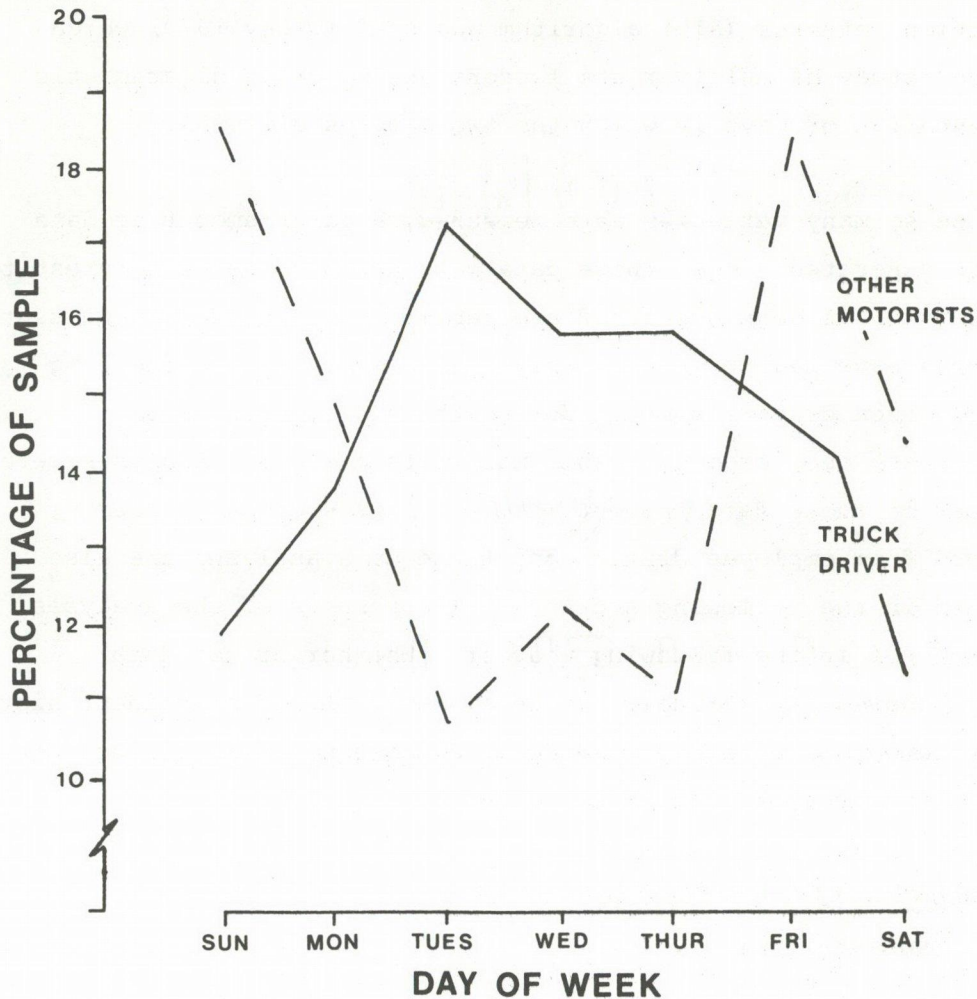
Since so many variables were measured, a large amount of data has been generated. Only those data considered to be of interest to this report have been described and tabulated in the following sections. Thus, data have been presented which are descriptive of the long-distance truck drivers sampled during the survey, and which differentiate them from the other motorists sampled. Analyses were conducted on those data thought likely to differentiate owner operators from employee drivers and these data analyses are also tabulated in the following section. The results of the analyses are discussed in the following chapter. Whether or not data analyses showed any variables to be linked to traffic accident history, will be investigated and presented in a subsequent Traffic Accident Research Unit report (Linklater 1978).

4.3. Results of Data Analyses

4.3.1. Exposure Indices.

Since interviews were conducted over the entire seven days in a week, some idea of the number of drivers on the road each day may be gained from Figure 1 which gives the numbers interviewed each day (although this may not accurately reflect the number of drivers on the road since interviews were not conducted over the entire 24 hour period at all interview sites).

FIGURE 1: Percentages of truck and control samples interviewed according to day of week.



Vehicle and driver "mileages" (in km) were assessed by questions 2a to 2e (see Appendix I). A further estimate of exposure to crashes was made by asking how many hours the respondent spent "at the wheel in an average week" (Question 12f). The means and standard deviations of these estimates may be seen in Table II. Analyses of these data show answers to related questions were consistent (a summary of these analyses is presented in Appendix II, Table AI). Truck drivers differed significantly from other motorists in spending more hours behind the wheel in an average week ($\chi^2 = 777.92$, 6df, $p < 0.0001$).

TABLE II: Means and standard deviations of exposure estimates made by truck drivers and other motorists¹.

Variable	Truck driver	Other motorist
km driven in the last seven days ² in the present vehicle: mean standard deviation	3051 1672	1050 958
km driven in the last seven days in any other vehicle: mean standard deviation	131 327	130 389
km <u>driven</u> in the last year in a truck/present vehicle: mean standard deviation	140,695 63,222	27,166 22,333
annual <u>vehicle</u> km (present vehicle): mean standard deviation	251,104 64,596	30,562 23,497
number of hours spent at the wheel in an average week: mean standard deviation	57 20	16 14

¹ All figures are rounded to whole numbers

² The last week was not a "typical week" for 50.1% of truck drivers and 71.0% of other motorists.

4.3.2. Details of the Present Trip

Drivers were asked various questions about the trip on which they were engaged. The answers to these questions may be seen in Appendix II (Tables AII and AIII).

When the schedules were constructed, it was thought likely that reported trip characteristics would differ between truck drivers and other motorists. χ^2 tests were conducted on these variables, all of which were shown to differentiate truck drivers from other motorists as indicated in Table AII¹. Thus, truck drivers were more likely to be travelling interstate, on a regular trip, for longer (since previous rest periods) and with fewer passengers, than other motorists.

4.3.3. Driving Experience

A summary of responses to questions aimed at eliciting driving experience is presented in Table AIV and the responses to those questions aimed exclusively at one or other type of driver are presented in Table AV. The length of time over which the current class of licence had been held was significantly related to the number of years of total driving experience in any class of vehicle in both truck drivers ($\chi^2 = 604$, 16 df, $p < 0.0001$) and other motorists ($\chi^2 = 1048$, 9 df, $p < 0.0001$). In only five cases were χ^2 tests used to show whether truck drivers were significantly different from other motorists. It will be seen, in Table AIV, that all five variables significantly differentiated between the two samples. Thus truck drivers differed significantly from other motorists in the

¹ Whenever the prefix A is used in the numbering of tables, the table will be located in Appendix II, as are the remainder of the tables referred to in this section describing the results of the survey.

length of time they had been driving, had held their current class of licence and in the way they had learned to drive a car. Truck drivers more frequently than other motorists reported experiencing a hallucination while driving during the previous year and being involved in a traffic crash during the two years prior to the survey.

4.3.4. Vehicle Characteristics and Drivers' Attitudes Toward Their Vehicles.

Responses to questions relating to vehicle characteristics are presented in Tables AVI and AVII, depending on whether the respondent was a truck driver or another motorist. Both samples were asked for their opinions about various aspects of their vehicles and answers to these questions are summarised in Table AVIII together with the results of the data analyses conducted on some of these variables. Articulated vehicles (semi-trailers) were being driven by 79% of truck drivers, while 67% of other motorists were driving a sedan car. A truck driver was more likely than another motorist to be driving a relatively new vehicle which he did not own and to be satisfied with the vehicle's steering, stability, amount of vibration and the driving compartment ventilation. He was less likely, however, to be satisfied with some other vehicle characteristics such as driving compartment temperature, vehicle acceleration and braking ability.

4.3.5. Drivers' Attitudes Towards Road Safety and Other Road Users.

Each questionnaire commenced by asking what the respondent thought was "the most important factor contributing to road accidents". Up to three further "other important factors" were then elicited before he was asked what important factors contributed to "large truck or semi-trailer accidents". Up to three factors were coded in response to this question and responses to this early section of the questionnaires are summarised in Table AIX and Table AX.

Later in the questionnaire, questions about seat-belt usage were inserted to obtain a further indication of respondents' safety-related attitudes. Drivers were asked how often they did wear seat belts, and then how often they would wear seat belts if these were fitted and there were no laws about their use. Respondents were then asked why they would wear the seat belt with the frequency they had indicated in response to this suppositional question. Responses to these seat belt questions are summarised in Table AXI. Comparison of truck-driver and other-motorist responses to the questions about seat belt use in a car, showed the two samples to be significantly different in their attitudes toward seat belt use (actual use: $\chi^2 = 65, 5 \text{ df}, p < 0.0001$; suppositional use: $\chi^2 = 86, 4 \text{ df}, p < 0.0001$.)

Truck drivers were asked about stimulant drug use and both samples were asked questions relating to alcohol usage and occurrence of hallucinations. While answers to these questions may indicate drivers' safety attitudes and safety-related behaviours, they are not dealt with in this report since they are to be discussed in some detail in the subsequent report on this survey (Linklater 1978). Preliminary information has been presented elsewhere (Nix-James 1977).

Towards the end of each interview the driver was asked whether he agreed or disagreed with certain statements. These statements, or statements reflecting similar sentiments, had been commonly expressed in the early discussions with truck drivers during background research for the survey. Agreement/disagreement responses of truck drivers may be seen in Table AXII, together with a summary of reasons given for responses to each statement.

Among the other opinions expressed, truck drivers tended to feel that they were treated differently from other road users by both the police and other motorists. They considered that extra driving licence points should be allowed in consideration of their extra driving exposure and that the logbook restrictions failed to control the number of hours worked by truck drivers.

Truck drivers were also asked whether they considered lane width to be adequate for commercial vehicles in New South Wales. Only 11.2% of drivers thought that lane width was adequate on all or most roads whereas 61.9% expressed the opinion that on few or no roads was lane width adequate.

Other motorists were only asked some of these questions the statements being worded slightly differently¹. Question wording and a summary of responses may be seen in Table AXIII. The most strongly voiced opinion in this sample was that long-distance truck drivers "should be under strict control as to the number of hours they can drive at a stretch and within a week".

Both samples were asked what suggestions they would like to make "to the government to improve road safety" and, in the case of truck drivers only, to improve "the road transport industry, in general". A summary of responses (up to three responses being coded for each respondent) is presented in Table AXIV. By far the most popular suggestion from both samples was to improve the road systems, followed by licencing of caravan towers (from truck drivers) and improving driver education or licence testing in general (from other motorists).

Finally, drivers were asked whether different classes of road users were "skilled or unskilled", "considerate or inconsiderate" and "reckless or cautious". Responses to these questions are presented in Table AXV. Analyses of these opinions according to whether

¹ Different wording of the questions was considered necessary since other motorists were not likely to understand terms such as "log book restrictions" used in the truck driver questionnaire.

the respondent was driving a truck or another vehicle, showed that the two samples often differed significantly in their opinion as to the characteristic behaviour of classes of road users. This difference of opinion was most noticeable in the case of the perceived characteristics of car drivers and drivers whose cars were towing caravans (see Table AXV).

4.3.6. Characteristics of Truck Drivers and Other Motorists

All interviewers attended post-survey sessions with the author and, whereas sex was not recorded during the survey, all interviewers reported having interviewed no female truck drivers; a few females were however included in the "other motorist" sample. The responses of both samples to personal, life-style and demographic questions have been summarised in Table AXVI. Analyses of the responses to some of the questions in this section showed truck drivers to differ significantly from other motorists on all the variables tested excepting alcohol consumption and concern over making enough money for "needs and wants"¹. Wording of all the questions on the somewhat sensitive items in this section may be seen from the actual questionnaire schedules presented in Appendix I.

4.3.7. The Owner Operator.

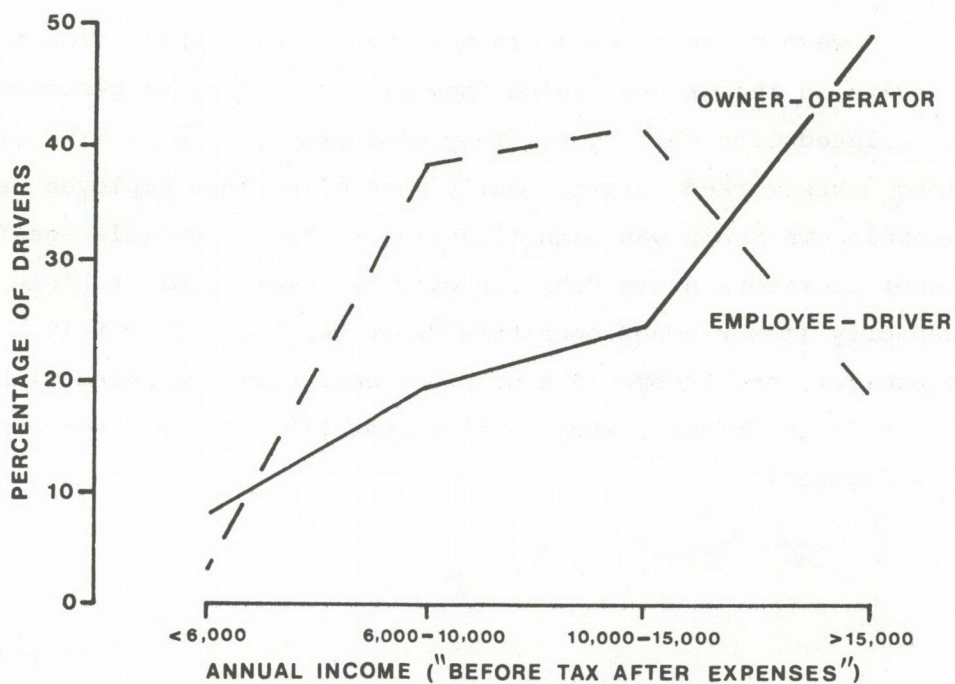
Truck drivers owned the vehicles they drove (or were partners in ownership) in 46% of the respondents. Data analyses according to vehicle ownership in the truck-driver sample are summarised in Table AXVII. Contrary to expectations, since the owner operator might be expected to have greater financial commitments, there was no sig-

¹ It may be argued that some of the differences between the two sample characteristics were a function of sex since the truck driver sample contained no females. Unfortunately it is not possible to analyse these data according to sex of respondents since sex was not recorded.

nificant difference in variables that would be expected to reflect concern over profitability. That is, owner operators were not found to drive or work longer hours than employee drivers, nor were they more likely to use alcohol or alerting drugs (in fact, owner operators tended to take such drugs less often). There was no difference between the two groups in the feelings expressed about their vehicles, or about log book restrictions; neither was there any difference in the number of traffic crashes reported.

However, owner operators differed significantly from employee drivers in the greater value they placed on the independence they associated with their job. They also expressed a dislike of the long hours worked significantly more often than employee drivers. Vehicle ownership was significantly related to vehicle age (more owner operators drove vehicles over two years old), vehicle carrying capacity (fewer owner operators drove vehicles of over 16 t capacity), and income (49% of owner operators, compared with 18% of employee drivers, were earning over \$15,000 gross per annum, see Figure 2).

FIGURE 2: Distribution of annual income for owner operators and employee drivers.



4.3.8. AID Analysis According to Type of Driver (Truck Driver or Other Motorist).

Since truck drivers and other motorists were shown to be significantly different on so many variables, as indicated in the previous sections of this report, two multivariate analyses were performed, using those variables already shown by χ^2 analyses to differentiate between the two samples. Multivariate analysis using the AID algorithm (O'Day 1970) permitted construction of a "tree diagram" to depict the relationship between differentiating variables. This type of analysis finds which of the variables is best at distinguishing truck drivers from other motorists, and this "best predictor" forms the first split in the diagram. Following splits are made on the basis of the preceding variables, so that each split is related to the previous split. At the end of the procedure, the combination of variables which are of most importance in determining differences between truck drivers and other motorists can be read off from the diagram by tracing through all the splits made.

The first AID analysis used physical characteristics only, and, as might be expected, the length of time spent behind the wheel per week was the variable which best distinguished truck drivers from other motorists, only 5% of truck drivers spending less than 25 hours per week behind the wheel (see Figure 3). No other variable could distinguish truck from other-drivers in this low-hours category, although in the high-hours category truck-drivers could be further distinguished from other motorists in terms of passengers carried (trucks carried fewer passengers), vehicle ownership (truck drivers were less likely to be owner-drivers), and income (truck drivers were more likely to earn over \$10,000 per annum, before tax).

The second AID analysis was performed on driver attitudes. Truck drivers were first distinguished from other motorists by their consideration that caravan drivers were reckless rather than cautious, and then on their preference for not wearing seat belts in a car if there were no laws governing seat belt use. Further variables in this tree diagram may be seen in Figure 4.

Figure 3: AID analysis diagram showing the type of driver according to physical characteristics.

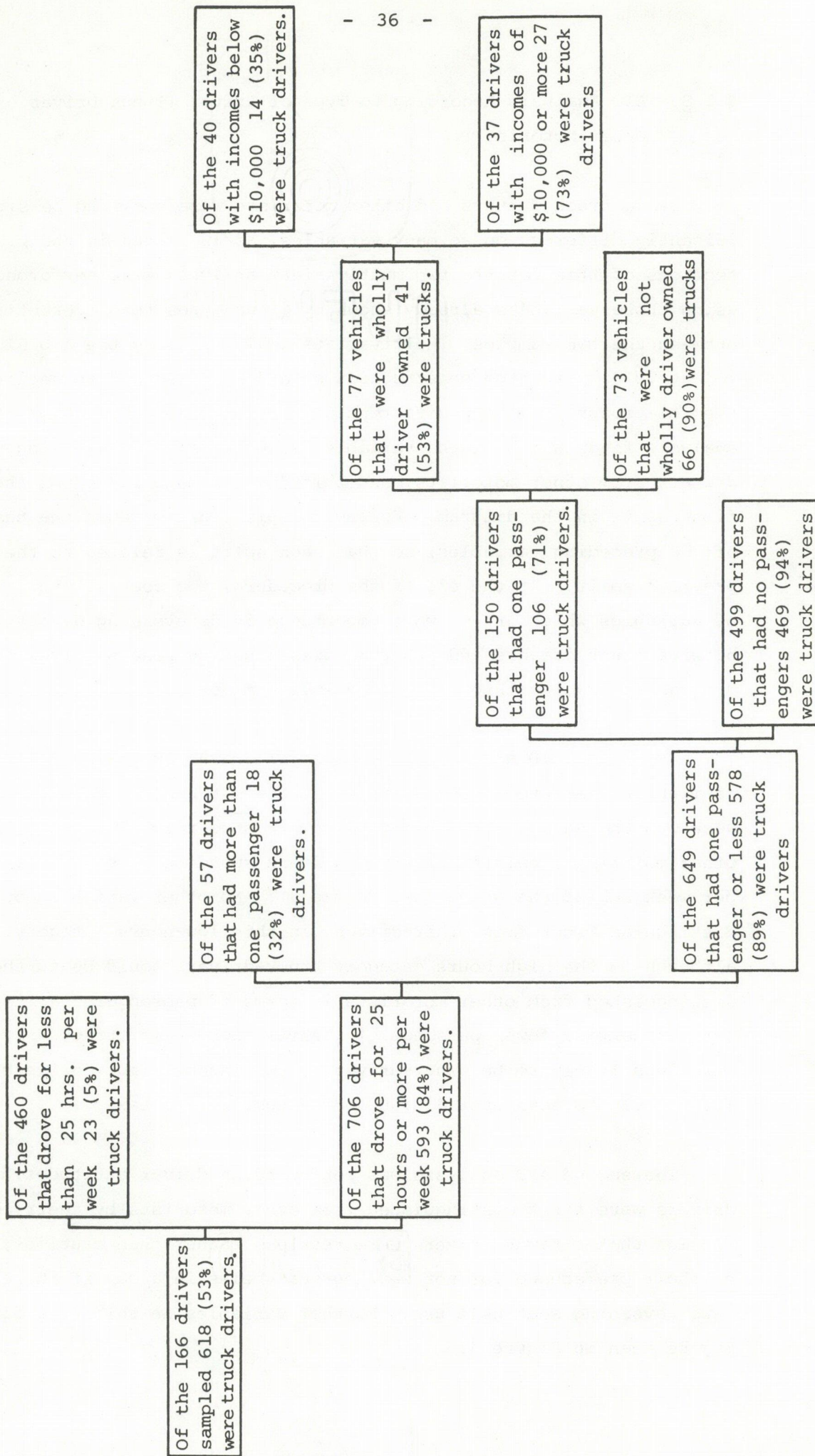
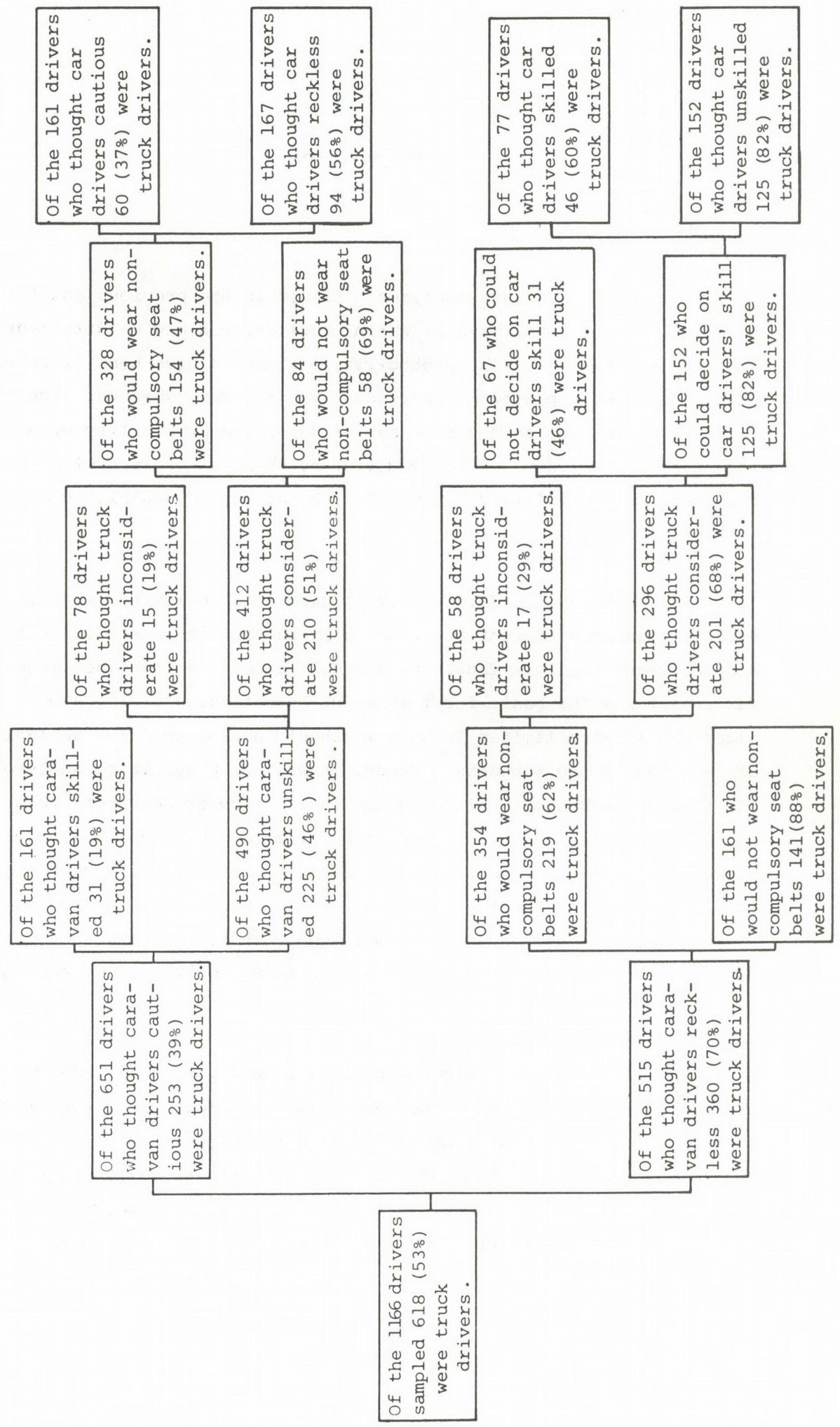


Figure 4: AID analyses diagram showing type of driver according to driver attitudes



5. DISCUSSION

5.1. Some Limitations

The results of data analyses outlined in the previous chapter have indicated several ways in which truck drivers may be differentiated from other motorists. The probability statements have been given for each of the tests performed individually. However, whenever significance tests are made on the same set of data, the probability of at least one significant result occurring by chance increases with the number of tests performed. There is, therefore, a possibility of obtaining some spurious results.

The multivariate (AID) analysis used is also limited in that variables which differentiate truck drivers from other motorists are ordered sequentially. Thus, the variable accounting for the largest variance forms the basis for further differentiations. The AID algorithm is also limited in that it should not be used for analysis of less than 1,000 subjects. Hence, it was not possible to analyse the truck driver sample alone on the basis of owner operators versus employee drivers. However, given these limitations, the AID analysis showed that, of those variables submitted to analysis, the hours spent behind the wheel per week was the variable which best predicted the sample to which each respondent belonged. Thus, if the respondent drove for less than 25 hours per week there was only a 5% chance that he would be a truck driver.

The method of choosing the control sample for this study was to sample non-truck drivers at the same times and places as truck drivers were sampled. It may well be that this method resulted in the control sample containing more "long-distance motorists" than exist in the driving population at large, since the interview sites were on major roadways, usually between towns. While control motorists (94% of whom were driving cars or car derivatives, see Table AVII) were not

asked for their occupation, they were asked for the purpose of the current trip. The most common purpose was that of "holidaying" or "for pleasure", which was given by 54% of the sample; 18% citing "work" or "business trip". It would have been interesting to compare special groups, such as travelling salesmen, and long-distance truck drivers, but unfortunately the difficulties involved in sampling such a class of drivers precluded using them as a control group. It was hoped that the control sample used was representative of the motoring public on major roadways in New South Wales, and that differences between this sample and the truck-driver sample might indicate whether truck driver behaviour, rather than vehicle characteristics, could account for the difference in traffic crashes attributed to different classes of vehicles.

The hypotheses that particular driver characteristics are related to crash frequencies and that truck drivers are more likely to have crashes than other motorists are to be investigated by further analyses of the data described here, and an account of these analyses will be published in a subsequent report. This report describes the first phase, as it were, of such analyses in that truck drivers and other motorists have been shown to differ significantly on several variables of interest.

5.2. Indices of Exposure to Traffic Crashes.

That trucks are more likely to be on the road during week days than at weekends was indicated by greater numbers of drivers being sampled on week days than on Saturdays and Sundays. Thus, the larger number of traffic crashes involving trucks found during week days by investigators such as Tonge (1971) in Australia, or O'Day and Scott (1974) in the United States of America, is likely to be a simple function of the greater exposure of trucks during the week.

A common index of exposure to traffic crashes is that of vehicle mileage. Trucks sampled were claimed to have been driven an average of 151,104 km per year as against the non-truck average of 30,562 km. The drivers of each vehicle drove slightly less per year, since, in many instances, the respondent was not the sole user of the vehicle. However, it can be argued that annual mileage may not be as useful an index of exposure as time actually spent on the road, since trucks are often slower than other vehicles (in New South Wales trucks are subject to an upper speed limit of 80 km/h, which is 20 km/h lower than the usual speed zoning of 100 km/h for most other vehicles, quite apart from considerations such as speed reduction due to the weight of loads on hills and slopes). In this survey, drivers were asked how many hours they spent at the wheel in an average week, as a more useful index of exposure. This index was related significantly to the annual mileage driven in both samples and also differentiated between the two samples at a very high level of significance.

There is always a problem when using a subjective estimate as an index of exposure, for respondents may not be able to make accurate estimates. For this reason, Foldvary (1975), for example, asked respondents for the mileage of only one specific day. However, Burg (1968) found a highly significant relationship between subjective mileage estimates made two to three years apart, which he argued justified using such estimates as a basis for calculating crash and conviction rates. The accuracy of the annual estimates in our survey was checked by asking respondents to estimate the distance driven in the previous week. This was shown to be significantly related to the estimate of annual distance driven, as it was to the hours spent at the wheel per week (see Table AI). Thus, it is considered that the mileage estimates in this survey fairly accurately reflect those of the populations sampled (long-distance truck drivers and users of major N.S.W. inter-city roadways). However, it must be noted that the average annual vehicle mileage for other motorists sampled during 1976 was almost double that estimated by the Commonwealth Bureau of Census and Statistics for the year 1971 (1973). The annual vehicle

mileage for trucks in our survey fell between that estimated for the heaviest class of articulated trucks (which were not specifically used for long distance transport) by the Bureau of 39,800 miles (63,680 km)¹ and the estimate of 250,000 km (over one million km in four years for a typical heavy vehicle) made by a representative of a major truck manufacturing company to a recent Parliamentary Committee (Adams 1976).

5.3. Were Truck Drivers Similar to Other Motorists on Inter-City Roadways?

This survey has shown, as expected, that truck drivers and other motorists differed significantly in their annual mileage and time spent behind the wheel per week. This major difference may account for many of the other significant dissimilarities between the two samples. For example, the type and frequency with which the current route was travelled previously differed significantly according to which sample the respondent belonged. Only 1.3% of truck drivers would not be classified as long-distance drivers according to the characteristics of the current trip (see Table AII) since the route was wholly within 50 miles (80 km) of the usual depot. These drivers would not, therefore, be subject to the regulations restricting working hours which govern long-distance commercial transport drivers (Motor Traffic Act 1909 as amended 1972, Regulations 8C and 132).

These regulations specify the length and spacing of rest periods for long-distance drivers. Mean intervals between rest periods given by truck drivers were well within the limits specified although

¹ While the preliminary annual vehicle mileage figures issued by the Australian Bureau of Statistics for 1976 are similar to those estimated for 1971 in the case of other motorists, these early figures do not differentiate between different vehicle weights when the average annual mileage for articulated trucks is estimated to be 50,000 km (Australian Bureau of Statistics 1977b).

the intervals were longer for truck drivers than other motorists (Table AII). However these average intervals given may not accurately reflect the number of hours worked between rest periods for two reasons:

- (a) since the questions were obviously aimed to elicit truck drivers' compliance with the regulations, drivers may have been hesitant to admit breaking the law, and
- (b) responses may have been biased towards a recent day-off, since most interview sites were within an easy day's journey of Sydney which appeared to be the origin or destination of many trips, and thus likely to be the place where a day off would be taken.

The greater exposure of truck drivers than other motorists may also account for the significantly greater number of their crashes reported to the police within the previous two years by truck drivers than other motorists (Table AIV). This hypothesis will be further investigated in a subsequent report (Linklater 1978).

Truck drivers were significantly different from other motorists on several demographic variables (Table AXVI). The fact that truck drivers were earning their living by driving, unlike most other motorists, may be the reason for their ages being more closely grouped around the mean, whereas the other-motorist sample contained more young and old respondents. This age difference might, in turn, have accounted for the larger number of single, compared with married, respondents among other motorists. That trucks were a tool of trade may account for the significant difference in vehicle age and ownership (trucks generally being newer than other vehicles and fewer truck drivers operating their own vehicles compared with other motorists, see Table AVIII).

Educational requirements are not high for truck drivers and formal educational levels reached were significantly lower than those reported by other motorists. However, truck drivers reported earning significantly more than other motorists, their average annual income of \$12,280 ("before-tax, after-expenses", see Table AXVI) being in excess of the average annual income, for the survey period, of \$9526¹. Despite this, truck drivers were more likely to be worried over debts (although there was no difference between the two samples in concern over making enough money for their needs or wants, see Table AXVI). This concern over debts may arise from the heavy repayments made by many owner operators for the loans negotiated to purchase their vehicles.

That truck drivers may be under greater stress than other motorists (whether or not such stress is of financial origin) is indicated by truck drivers having significantly less time to spend on recreation and taking significantly fewer weeks holiday per year (see Table AXVI). If the habit of cigarette smoking can be seen as stress linked, the fact that truck drivers were significantly more likely than other motorists to be smokers may also indicate greater stress, although the larger number of cigarettes smoked by smokers in the truck-driver sample may only reflect the longer time spent awake and driving (see Table AXVI). The higher frequency of overt anger (in the form of throwing or breaking things or of fist fighting, see questions 14(d) in truck driver questionnaire or 13(d) in other motorist questionnaires, Appendix I) may also reflect greater stress or a poor tolerance of frustration arising from fatigue or from the use of alerting drugs, as discussed by Nix-James (1977). The difference

¹ The average annual income was calculated from the average weekly earnings per employed male unit for the seasonally adjusted June quarter, 1976 (Australian Bureau of Statistics 1977a).

in fist-fighting frequency between the two samples may have arisen, in part, from the different composition of the two samples in that, while the truck-driver sample contained no females, a few females were interviewed in the other-motorist sample. This is not considered to be a likely explanation of the difference in overt anger expressed by throwing or breaking things. Since the vehicle is important to a truck driver's earning capacity, he may be expected to have higher expectations of his vehicle than another motorist. There was no significant difference between the two samples in attitudes towards vehicle steering and stability. Truck drivers, however, expressed less favourable opinions than did other motorists about their vehicles' acceleration, brakes, gear ratios and overall performance (see Table AVIII). Truck drivers tended to be more worried than other drivers by driving-compartment temperature, though they were less worried about vehicle vibration and ventilation. It would appear that adequate ventilation did not compensate for poor temperature control within truck cabins.

Although there was no difference between the two samples in the concern expressed over vehicle noise, the problem of truck noise within the driving cabin has been mentioned by the House of Representatives Standing Committee on Road Safety (1977). The likelihood that high noise levels (particularly in older models and cab-over-engine design, if shielding has become inadequate over time) may have permanently damaged the hearing of some truck drivers is suggested by several interviewers reporting, in their post-survey interviews with the author, that the truck driver respondents appeared particularly hard of hearing compared with other motorists. Such hearing difficulty may make truck drivers unaware of the high noise levels under which they operate. It has become common knowledge that prolonged loud noise can cause hearing loss (permanent threshold shift), such that regulations governing industrial noise levels and worker protection have been adopted in many countries. The regulations pertaining to trucks in Australia, only refer to noise which is affecting those outside the truck. However, it is the truck driver who is continuously

exposed to vehicle noise and it is, paradoxically, this very exposure that may dull his hearing sense to render him unaware of the noise levels within his truck cabin. Therefore, the failure to indicate a significant difference in worry caused by noise between truck drivers and other motorists, should not be used to detract from the recommendation of the House of Representatives Committee's recommendation that "The Advisory Committee on Safety in vehicle design investigate and keep under review the level of noise to which heavy vehicle drivers are subjected and the need to specify permissible levels of internal noise in a design rule" (1977, p. 72).

Australian Design Rule 32 (Commonwealth Department of Transport 1969 -) specifies that heavy vehicles manufactured after July 1st, 1977, shall have seat belts fitted for the driver and passenger. In this survey, only 20.3% of trucks had seat belts fitted, compared with 92.9% of other vehicles (Table AVIII), and where belts were fitted, more truck drivers than other motorists were unable to see or reach controls easily while wearing belts. Seat belts were disliked by many more truck drivers than other motorists in this survey as can be seen by an inspection of Table AXI. Faced with such opposition to the wearing of seat belts, particularly in heavy vehicles, it is unlikely that the mere fitting of seat belts to heavy vehicles will greatly increase the incidence of seat belt wearing among people driving trucks¹.

In other attitudes towards road safety, truck drivers did not differ too markedly from other motorists. They tended to blame roads more often than did other motorists as an important causative factor in traffic crashes, though both groups saw driver behaviour to be far more important than the other factors mentioned. Driver

¹ The wearing of seat belts is not mandatory for truck drivers in New South Wales.

fatigue was the most popular culprit in both samples as far as truck crashes were concerned.

Both samples saw road improvements as the best thing the government could do to improve road safety, and many wanted the government to licence or further regulate caravan towers.

Only 2% of the other motorist sample was towing caravans (92.3% were towing nothing at all, see Table AVII). However, the other motorists tended to feel less strongly about caravan towers in general. Truck drivers evidenced strong anti-caravan attitudes, this being the best predictor of driver type in the AID analysis of driver attitudes (see Figure 4). Truck drivers differed significantly from other motorists in many of their attitudes towards classes of road users (see Table AXV). There was a certain "us-them" philosophy evident in both samples, truck drivers often voicing a strong sense of mateship, although within the trucking fraternity, owner operators and employee drivers often considered themselves to be different in their abilities and approaches to their occupation.

5.4. Owner Operators and Employee Drivers

It was suggested, in the introduction to this report, that owner operators may be under greater economic strain than employee drivers of trucks, and may therefore be operating less safely. However, analyses of several variables which might be expected to reflect such stresses showed that no significant difference existed between owner operators and employee drivers (Table AXVII). Thus, owner operators had no more traffic crashes, worked no longer hours, and used no more drugs or alcohol than employee drivers. Neither were the general comments made about vehicles or the use of log books significantly different.

Financial considerations were probably behind the significantly older vehicles driven by owner operators, and the smaller vehicle carrying capacity, since large, new vehicles are the more expensive. The Australian owner operator, like his North American counterpart (Wyckoff and Maister 1975) appears to value the independence and freedom he associates with his job. It appears that some owner operators, at least, are able to earn a significantly higher income than employee drivers. However, it may well be the case that long distance owner operators have more regular clients and less of a struggle to maintain their operations against the big companies, than the short distance operators who were included in the study of Aislabie and McCalden (1973). It is also possible that owner operators found it more difficult than employee drivers to assess the "before-tax, after-expenses" income requested and may have omitted to subtract truck loan repayments as expenses. Thus, it is possible that the owner operators in this sample reported somewhat inflated income levels when compared with employee drivers.

5.5. Driving Fatigue in the Long Distance Commercial Transport Industry

While owner operators did not appear to differ significantly from employee drivers in those variables likely to cause driver fatigue, there is little doubt that truck drivers in general experience more driver fatigue than other motorists, by the very nature of their occupation. Thus truck drivers were on the road significantly longer, had fewer holidays, worked an average of 71.6 hours per week (which is considerably in excess of the average 40-hour working week) and more truck drivers than other motorists reported having no time for recreational activities other than sleep (see Table AXVI).

Truck drivers showed evidence of greater fatigue than other motorists in that significantly more of them had experienced an hallucination while driving in the previous year. Such a hypnagogic (pre-sleep) experience is thought to occur during extreme tiredness (Cameron 1973) although there is some indication that drugs, including alcohol, may contribute to the occurrence of hallucinations while driving (Nix-James 1977)¹. That truck drivers strive to counteract driving fatigue while continuing to drive is indicated by the 40.7% of the sample who admitted using alerting drugs (see Table AV).

It is possible that frustration of the sleep drive leads truck drivers to express greater aggression than other motorists (Dollard et al. 1939; Berkowitz 1965; see Table AXVI). It is also possible that falling asleep at the wheel may contribute to the high percentage of single vehicle crashes among semi-trailer crashes in New South Wales shown in Table I. The extent to which fatigue is seen to contribute to traffic crashes may be reflected in the high number of respondents in both samples who said driver fatigue was an important factor in traffic crashes involving trucks (see Table AX). However, there is no simple remedy or countermeasure for the fatigue experienced by long-distance truck drivers.

Many factors in the commercial transport industry may contribute to driver fatigue. The truck driver is under pressure to meet schedules and sometimes, if an owner driver, to find customers or backloads,

¹ It could be argued that the sex of the interviewers might have influenced responses such that truck drivers may have reported more hallucinations than other motorists since they were more often interviewed by females than males. However, an analysis of hallucination occurrence according to sex of the interview showed that this was not the case ($\chi^2 = 0.22$, 1 df, $p > 0.5$).

spare parts, and also to meet the heavy financial commitments of vehicle purchase. Loading can involve heavy work, although employee drivers may not be involved in loading. Conditions within the driving cabin may exacerbate the fatigue arising from spending long hours on the roads, and significantly more truck drivers than other motorists reported being worried by driving cabin temperature although vibration and ventilation were less often a source of worry to truck drivers than the other motorists sampled (see Table AVIII). Dashboard layouts differ and in some cases controls are hard to see and reach by all drivers (4.6% of the truck drivers interviewed could not see and reach all controls easily even when wearing no seat belt, see Table AVIII). Foot and hand controls are many and varied. In some trucks, two hands have to be used to engage some gears since two gear sticks have to be manipulated at the same time (this was the case in 32 trucks in our sample). It may also be difficult to reach "luxury" items, such as air conditioning/ventilation controls, ashtray, lighter, radio or cassette player, while driving.

Road conditions may also contribute to driver fatigue, but sometimes difficult conditions may provide the stimulation necessary to mitigate those very low levels of arousal where hallucinations or the onset of sleep can occur. One driver stated, for example, that he would never use the Newcastle/Sydney tollway when tired, preferring the stimulation of the curves in the old road.

Road design may help to prevent falling asleep at the wheel by avoiding the construction of long monotonous stretches of road. Charlesworth (1956, pp 17-18) noted that "designers of long distance motorways sometimes adopt the technique of deliberately introducing easy curves at intervals to keep drivers alert by breaking the monotony of driving over long lengths of straight road". Ferrandez and Niepold (1976) suggested using means such as colour, lighting and the incorporation and accentuation of natural and man-made road environs to avoid attention lapses.



Cumin (1971) has emphasized that, even if their frequency may be decreased with optimal road design, attention lapses will still tend to occur. However, the frequency of such attention lapses will be reduced by the avoidance of long monotonous stretches of road.

One possibility is that of treating such stretches of road which are already constructed by varying the pavement texture when these road segments are resurfaced in routine maintenance operations. The change in tyre noise and vehicle vibration in such "rumble areas" caused by the alterations in surface texture should serve to alert the drowsy driver¹. The incorporation of rumble strips, chatter bars, cats' eyes or other raised pavement markers at road edges and centre lines has already been suggested as an alerting measure (Kermit and Hein 1962; Jobson 1974; Organisation for Economic Corporation and Development 1975; Smith 1976; U.S. Bureau of Motor Carrier Safety 1977). The vibration caused by running over such devices may recall a slumbering driver to consciousness so that corrective measures may be taken to return the straying vehicle to the correct lane. However, since such measures are expensive to install, evaluation of their effectiveness should be conducted prior to any wide spread introduction in New South Wales (Bali, McGee and Taylor 1976).

The benefits of such alerting devices can be roughly estimated to prevent at least 200 heavy vehicle crashes in New South Wales per year (without including those crashes involving other vehicles), if one assumes that such devices prevent even as few

¹ The Australian Road Research Board project 284 is concerned with the feasibility of rumble areas and strips as safety measures.

as one quarter of heavy vehicle, rural, single vehicle crashes (see Table I).

The long inter-city distances travelled by truck drivers and the relative lack of rest or parking areas for trucks make it difficult to stop for sleep when the driver is fatigued. Sleeping berths were present in 48.9% of the vehicles driven by truck drivers in our sample (if there is no sleeping berth, rest over the two seats affords little comfort).

Boredom arising from long, straight stretches of highway can be mitigated by having a companion on the journey. While nearly 52% of truck drivers stated a preference for being on their own (see Table AIV), others would often prefer to have a travelling companion (although not necessarily a co-driver). However, according to truck drivers, insurance and company policies often preclude passengers accompanying the truck driver. Interviewers found that some truck drivers travelled with their families on certain trips and, in one instance, a wife was travelling in a car behind the truck since the insurance policy did not permit passengers within the truck. It could be to the benefit of insurance and transport companies to relax their existing policies, since the presence of a passenger could prevent some drivers from falling asleep at the wheel.

The drivers exposure to risk may contribute to extra tension and resultant fatigue. Most truck drivers would deny any special apprehension due to their vehicle type unless maintenance had been inadequate or the vehicle obviously faulty, but it seems that one can infer a certain wariness of the protection offered by their vehicles and of their ability to control their vehicles, from the many drivers who stated that they would not wear a seat belt so that they could jump out in a dangerous situation. If drivers were more confident of their vehicles, they might try to control or steer the vehicle to minimise impending damage. The desire to vacate the vehicle or, in some cases, lie beneath the seat, seems an implicit admission that the vehicle cannot be handled in difficult conditions. Many truck drivers expressed dissatisfaction with existing standards and practices of heavy-vehicle-driver training and testing. The relatively short testing period of 20 to 30 minutes was considered inadequate to

demonstrate control of a heavy vehicle under typical operating conditions and the practice of permitting the test to be undertaken on an unladen, small and light articulated vehicle was criticised, since a fully-laden maximum size and weight vehicle was considered to have very different handling characteristics.

Many truck drivers expressed dissatisfaction with the form of current legal regulations governing the number of consecutive hours which long-distance truck drivers are allowed to work and the means of enforcing such regulations. In New South Wales the regulations stipulate that drivers must take a half-hour rest after five hours, five consecutive-hours rest in the previous 24 hours, and 24 consecutive-hours rest in seven days or 48 hours rest in 14 days. Drivers seem to feel that they must drive at these limits rather than below them, or they will be at an economic disadvantage. The present use of log books was considered inadequate by 73.6% of truck drivers, 55% stating that it was too easy to cheat under the present system (see Table AXII and Appendix 3 for a further breakdown of responses). However, over 20% would like to see some sort of restriction on driving hours. It seems that drivers would welcome a reconsideration of the "log book" restrictions, although it is difficult to see how the complaints of cheating and corruption could be overcome without massive expenditure to update policing of the system. The introduction of tachographs as an automatic recording device would obviate the need for log books and would appear less easy to cheat. The compulsory use of tachographs for various classes of vehicles has now been adopted in 23 countries (Kienzle 1973). It is interesting to note that 17.7% of the vehicles used by respondents in the truck-driver sample had an operative tachograph (Table AVI). The use of tachographs would permit collection of useful data in traffic accidents and allow the influence of variables such as speed and hours of driving to be assessed. Perhaps the industry would be more amenable to their introduction if there was also a reconsideration of legislation connected with restrictions on hours worked by long-distance truck drivers.

Despite the fatigue generated by their method of operation, most truck drivers seemed genuinely to like their work. The long absences from home were regretted, but the appeal of the open road and entrepreneurial nature of their occupation appeared to compensate for many of the discomforts and worries that were expressed. The long hours away from home tend to encourage mateship among truck drivers. Drivers seem to form a cohesive fraternity with its own vocabulary, hierarchy and folklore. A "trucking cult" appears to be flourishing in the U.S.A. with films on the "knights of the road" theme special music and terminology, especially evident since the widespread use of "Citizen Band radio".

This subculture should be taken into account when any measures to counteract fatigue in the long-distance transport industry are being considered. It is also necessary to take into account the entrepreneurial existence and value placed on independence which makes it unlikely that higher freight charges or harsher regulations per se will have much effect. Many truck drivers seem to have a strong inner drive to achieve by their own efforts and a restless energy to keep moving. They need to be convinced of the need for restrictions and this may be achieved if they have a say in what form such restrictions should take and how they are to be enforced.

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APPENDIX 1: QUESTIONNAIRE SCHEDULES

APPENDIX 1A:

TRUCK DRIVER QUESTIONNAIRE

PLACE OF INTERVIEW: _____

INTERVIEWER: _____

DAY OF WEEK: _____

DATE: _____

TIME INTERVIEW COMMENCED: _____

TIME INTERVIEW COMPLETED: _____

Any comments on respondent's interest and general level of involvement in the questionnaire.

	(2)	(3)	(4)	(5)
1				

(IDENTIFICATION)

(6)	(7)

(PLACE)

(8)	(9)

(INTERVIEWER)

(10)	(11)	(12)	(13)

(DAY) (DATE)

(14)	(15)

(TIME)

(16)	(17)

(COMMENTS)

When you started to interview this person,
was there a choice of people to be interviewed?

(18)
YES .. 1
NO .. 2

Hello. Do you drive a truck or semi-trailer? (Continue only if "yes" response).

I would be very interested to hear your answers to some questions about your job. You haven't already been asked questions in our survey, have you? (Continue only if "no" response). There has been some criticism of semi-trailer and large truck drivers in the press and among drivers of other vehicles. This criticism often seems unjustified so the NSW Traffic Accident Research Unit is conducting some research to find out just how much truck drivers are implicated in accidents. For example, truck drivers may be on the road more than we think, so that they are more exposed to accidents than the average driver. It is very difficult, however, to get hold of professional drivers like yourself to answer questions because they are afraid of taxation, government inspectors and so on.

Your answers to my questions will be quite anonymous. I do not wish to know your name, company or address. All I want to know is how you think and feel about your job, your vehicle and your life-style. Do you have a few minutes to spare?

Please understand that you do not have to answer any questions, but that it would be very helpful to our research, and perhaps to the whole trucking industry and its public image, if you would answer these few questions. They may also provide you with an opportunity to state what, if anything, is wrong with the present situation. If enough drivers state the same grudges, we shall certainly pass on your ideas to the powers that be.

Please be as accurate and honest as you can. I would prefer you not to answer a question than to answer it untruthfully, so please tell me if you wish to skip any questions.

As you are on the road so much, you must have your own ideas about the things that contribute to traffic accidents.

1(a) What do you think is the most important factor contributing to road accidents in general (not truck accidents)?

(19) (20)

--	--

(b) Are there other important factors you would like to mention?

(21) (22)

--	--

(23) (24)

--	--

(25) (26)

--	--

(c) What do you think are the most important factors contributing to truck accidents?

(27) (28)

--	--

(29) (30)

--	--

(31) (32)

--	--

2(a) Approximately how many miles/kilometres have you driven in the last week in a truck?
(MAKE SURE THAT YOU HAVE IDENTIFIED DISTANCE UNITS CORRECTLY)

(33) (34) (35)

MILES

--	--	--	--

or

(36) (37) (38)

KILOMETRES

--	--	--	--

(b) Approximately how many miles/kilometres have you driven in the last week in any other vehicle?
(MAKE SURE THAT YOU HAVE IDENTIFIED DISTANCE UNITS CORRECTLY)

(39) (40) (41)

MILES

--	--	--	--

or

(42) (43) (44)

KILOMETRES

--	--	--	--

(c) What sort of vehicle was this other vehicle?

(45)

CAR	..	..	..	..	..	..	..	1
MOTORCYCLE	..	..	..	..	..	..	..	2
OTHER (State)	..	..	..	..	..	..	..	3

(d) What would be the average number of miles, kilometres you would drive in a truck or semi-trailer per year? For example ...

(i) Is your mileage for the last week that of a typical or average week. If it is, we can multiply the mileage of last week by the number of weeks that you drive in a year.

(46)

YES	..	..	..	..	..	..	..	1
NO	..	..	..	..	..	..	..	2
DON'T KNOW	..	..	..	..	..	..	..	9

(ii) How many weeks holiday do you have in a year? (PROBE FULLY - IF RESPONDENT SAYS "NONE", CHECK THAT HE ACTUALLY DRIVES THE SAME MILES/KM ON PUBLIC HOLIDAYS - SAY OVER CHRISTMAS)

(47)

--

(iii) If last week's mileage was not typical, we can use a similar procedure but using a typical week's mileage, or anything else that you may care to consider, such as the number of miles you put on the clock of your vehicle every year. So what would you estimate to be the annual mileage that you have driven in the last year?

(48) (49) (50) (51)

MILES

--	--	--	--	--	--

or

(52) (53) (54) (55)

KILOMETRES

--	--	--	--	--	--

(CHECK THAT YOU HAVE IDENTIFIED DISTANCE UNITS CORRECTLY)

- (e) What would you estimate that the truck or semi-trailer that you are now using is driven per year? For example, does anyone else drive it on your rest days, rest hours, or holidays?
- | | | | |
|------------|-------------|------|---|
| Go to (i) | YES | (56) | 1 |
| Go to (ii) | NO | | 2 |

(i) IF THE ANSWER IS YES - then add the miles you estimate that they would drive the truck to your own mileage to give you the mileage that the truck is driven per year.

MILES

or

KILOMETRES

(57)	(58)	(59)	(60)		
(61)	(62)	(63)	(64)		

(ii) IF THE ANSWER IS NO - then can we make the annual mileage the truck is driven per year the same as your annual miles driven in a truck? (CHECK THAT YOU HAVE FILLED IN CORRECT BOXES) So we have an estimation of the number of miles or kilometres the truck is driven per year.

3(a) Is the trip you are now on ...

WHOLLY WITHIN 50 MILES
OF YOUR USUAL DEPOT 1
INTERSTATE 2
ONLY WITHIN NSW 3
(REFUSE TO ANSWER) 8

(b) How many kilometres/miles does this round trip involve?

MILES

or

KILOMETRES

(66)	(67)	(68)	(69)		
(70)	(71)	(72)	(73)		

(c) How often have you done this trip before?

NEVER 1
ONCE 2
TWICE 3
SEVERAL TIMES 4
MANY TIMES 5
IT IS MY REGULAR TRIP 6
REFUSE TO ANSWER 8

(d) How long will this round trip take you (from initial loading to final unloading, including rest times)?

(75)	(76)	(77)	(78)
(DAYS)	(HOURS)		

(e) How many people besides yourself, are travelling in your vehicle (prior to this stop)?

NONE 1
ONE 2
TWO 3
THREE 4
FOUR 5
MORE THAN FOUR 6
REFUSE TO ANSWER 8

N.B. PLEASE NOTE HERE:

No. of adults _____

No. children _____

Relationship to driver (family, mate, friend, hitchhiker etc.)

(80)	(2)	(3)	(4)	(5)
	2			

(f) How long had you been driving prior to this stop, since you had a half-hour or longer rest?

HOURS

(6)	(7)

(g) How long is it since you had at least a five hour break from driving?

HOURS

(8)	(9)

(h) How long is it since you had at least a twenty-four-hour break from driving?

(10)	(11)	(12)	(13)
(DAYS)	(HOURS)		

4(a) What class licence do you hold?

(14)
CLASS 1 OR A 1
CLASS 2 OR B 2
CLASS 3 OR C 3
CLASS 4 OR D 4
CLASS 5 OR E 5
MOTORCYCLE RIDER'S LICENCE 6
METROPOLITAN TAXI 7
MOTORVAN LICENCE 8
REFUSE TO ANSWER 9

FILTER: If 2, 4, 7 or 8 are circled,
please ask "Have you any endorsements,
and if so, what are they?"

(15)
☐

(b) For how many years have you held this
class of licence?

(16) (17)
☐

(c) For how many years have you been driving
altogether (since you first held any
class of licence)?

(18) (19)
☐

5. Would you tell me in which of these ways you learned to drive the following
vehicles (SHOW CARD A)

	A CAR (20)	A TRUCK (21)	A SEMI- TRAILER (22)
DRIVING SCHOOL	1	1	1
FIRM/COMPANY/ARMY	2	2	2
PARENTS	3	3	3
FRIEND	4	4	4
SELF-TAUGHT	5	5	5
HAS NOT LEARNT	6	6	6
NOT ON CARD - REFUSE TO ANSWER	8	8	8
DOES NOT KNOW	9	9	9

6. What sort of vehicle are you driving now?

(a) What is the make?

(23)
☐

(b) What is the model?

(24)
☐

(c) What is the truck type?

(25)
ARTICULATED, SEMI TRAILER .. 1
RIGID VEHICLE WITHOUT TRAILER 2
RIGID VEHICLE WITH TRAILER .. 3
(Truck trailer or "dog"
trailer combination)

(d) What is the carrying capacity of
this vehicle)
(IF THERE IS ANY CONFUSION HERE,
THIS REFERS TO TRAILER ON AT THE
TIME OF THIS INTERVIEW)

(26)
UNDER 2 TON.. .. . 1
2 TON TO UNDER 4 TON 2
4 TON TO UNDER 8 TON 3
8 TON TO UNDER 12 TON 4
12 TON TO UNDER 16 TON 5
16 TON AND OVER 6
NIL (Prime mover or tug only) 7
REFUSE TO ANSWER 8
DON'T KNOW 9

(e) What is the unladen (tare) weight
of this vehicle?

(27)
UNDER 2 TON.. .. . 1
2 TON TO UNDER 4 TON 2
4 TON TO UNDER 8 TON 3
8 TON TO UNDER 12 TON 4
12 TON TO UNDER 16 TON 5
16 TON AND OVER 6
REFUSE TO ANSWER 8
DON'T KNOW 9

(f)	What is the age of this vehicle? (IF VEHICLE IS A SEMI-TRAILER COMBINATION, THIS QUESTION REFERS TO THE PRIME MOVER, TUG OR SECTION WITH THE ENGINE)	(28) (29) (30) (31)					(YEARS) (MONTHS)
7(a)	Who owns this vehicle?	READ	Go to (b)	YOURSELF	1		(32)
				YOURSELF IN PARTNERSHIP ..	2		
			Go to (c)	OTHER	3		
				REFUSE TO ANSWER	8		
(b)	FILTER: OWNER-DRIVER For how long have you been using this particular vehicle?			(33) (34) (35) (36)			(YEARS) (MONTHS)
(c)	Approximately how many other trucks and/or prime movers are owned by this vehicle's owner?			NONE	1		(37)
				ONE	2		
				TWO TO FIVE	3		
				SIX TO TEN	4		
				ELEVEN TO TWENTY	5		
				OVER TWENTY	6		
				REFUSE TO ANSWER	8		
				DON'T KNOW	9		
(d)	How did you learn to operate this particular vehicle or model that you are driving today? (AS ON CARD B)			DRIVING SCHOOL	1		(38)
				FIRM/COMPANY/ARMY.. ..	2		
				PARENTS	3		
				FRIEND	4		
				SELF-TAUGHT	5		
				PREVIOUS OWNER/RETAILER ..	6		
		NOT ON CARD		DOES NOT KNOW	9		
8.	SHOW CARD C: Using this card, how would you rate this vehicle for:						
a)	Steering			VERY POOR	1		(39)
				POOR	2		
				MODERATE	3		
				GOOD	4		
				EXCELLENT	5		
		NOT ON CARD		REFUSE TO ANSWER	8		
				DON'T KNOW	9		
b)	Stability (e.g. cornering ability)			VERY POOR	1		(40)
				POOR	2		
				MODERATE	3		
				GOOD	4		
				EXCELLENT	5		
		NOT ON CARD		REFUSE TO ANSWER	8		
				DON'T KNOW	9		
c)	Acceleration			VERY POOR	1		(41)
				POOR	2		
				MODERATE	3		
				GOOD	4		
				EXCELLENT	5		
		NOT ON CARD		REFUSE TO ANSWER	8		
				DON'T KNOW	9		
d)	Braking ability			VERY POOR	1		(42)
				POOR	2		
				MODERATE	3		
				GOOD	4		
				EXCELLENT	5		
		NOT ON CARD		REFUSE TO ANSWER	8		
				DON'T KNOW	9		
e)	Its gear shift mechanism and number of gears			VERY POOR	1		(43)
				POOR	2		
				MODERATE	3		
				GOOD	4		
				EXCELLENT	5		
		NOT ON CARD		REFUSE TO ANSWER	8		
				DON'T KNOW	9		

f)	How many gears does this vehicle have?	Read:	(44) (45)
	PROBE: Is that the total number of gear ratios available to you?	FORWARD	<input type="text"/>
	(N.B.: If driver has "splitter box", "split-diff", "high-low range", the main number of gears is multiplied by two. If he has both split-diff and splitter box, the main number of gears is multiplied by four.)	REVERSE	(46) <input type="text"/>
g)	Do you ever have to use both hands to change gears?	NO	(47) 1
		YES	2
		REFUSE TO ANSWER	8
		DON'T KNOW	9
h)	In this vehicle, how much does vibration worry you?	READ	(48)
		[A LOT	1
		[A LITTLE	2
		[NOT AT ALL	3
		[DON'T KNOW	9
	How much does noise worry you?	READ	(49)
		[A LOT	1
		[A LITTLE	2
		[NOT AT ALL	3
		[DON'T KNOW	9
	What about heat and cold?	READ	(50)
		[A LOT	1
		[A LITTLE	2
		[NOT AT ALL	3
		[DON'T KNOW	9
	And ventilation?	READ	(51)
		[A LOT	1
		[A LITTLE	2
		[NOT AT ALL	3
		[DON'T KNOW	9
i)	Does this vehicle have a sleeping rig?		(52)
		YES	1
		NO	2
		DON'T KNOW	9
j)	Does this vehicle have a tachograph? (To measure speed and time)	PROBE	(53)
		[NO	1
		[YES - OPERATING	2
		[YES - INOPERATIVE	3
		[DON'T KNOW	9
k)	Is there anything else you would like to say about this vehicle?		(54) <input type="text"/>
9a)	What is the load you are carrying now?		(55) <input type="text"/>
b)	What is the weight of your load?	TONS = TONNES	(56) (57) <input type="text"/>
c)	Do you earn extra money if you complete the trip within a deadline?		(58)
		NO	1
		YES	2
		REFUSE TO ANSWER	8
		DON'T KNOW	9
10a)	Does your truck/semi trailer have seat belts fitted?	Go to b) [YES	(59) 1
		Go to c) [NO	2
		[FOR SLEEPER ONLY	3
		[REFUSE TO ANSWER	8
		[DON'T KNOW	9

- b) FILTER: WHEN SEAT BELTS FITTED (60)
Are all the controls easy to see and reach with the seat belt on? NO 1
YES 2

What about with it off?

- c) FILTER: WHEN NO SEAT BELTS OR SEAT BELTS ONLY FOR SLEEPER (61)
Are all the controls easy to see and reach? NO 1
YES 2

- d) NOTE DETAILS IF "NO" ANSWERED IN ANY CASE FOR (b) AND (c) ABOVE. (62) (63)

--	--

- e) When you drive, how often do you wear seat belts? (SHOW CARD D)

	IN A SEMI-TRAILER (64)					IN A TRUCK (65)					IN A CAR (66)				
ALWAYS	1	..	..	..	..	1	..	..	..	..	1	..	..	..	..
MOSTLY	2	..	..	..	..	2	..	..	..	..	2	..	..	..	..
OCCASIONALLY	3	..	..	..	..	3	..	..	..	..	3	..	..	..	..
RARELY	4	..	..	..	..	4	..	..	..	..	4	..	..	..	..
NEVER	5	..	..	..	..	5	..	..	..	..	5	..	..	..	..
NOT FITTED	6	..	..	..	..	6	..	..	..	..	6	..	..	..	..
NOT APPLICABLE	8	..	..	..	..	8	..	..	..	..	8	..	..	..	..

- f) Using the numbers on the same card, how often would you wear seat belts if they were fitted and if there were no laws about their use?

	IN A SEMI-TRAILER (67)					IN A TRUCK (68)					IN A CAR (69)				
ALWAYS	1	..	..	..	..	1	..	..	..	..	1	..	..	..	..
MOSTLY	2	..	..	..	..	2	..	..	..	..	2	..	..	..	..
OCCASIONALLY	3	..	..	..	..	3	..	..	..	..	3	..	..	..	..
RARELY	4	..	..	..	..	4	..	..	..	..	4	..	..	..	..
NEVER	5	..	..	..	..	5	..	..	..	..	5	..	..	..	..
NOT FITTED	6	..	..	..	..	6	..	..	..	..	6	..	..	..	..
NOT APPLICABLE	8	..	..	..	..	8	..	..	..	..	8	..	..	..	..

- g) Why do you pick this one

... In a truck or semi-trailer?

(70)	(71)
------	------

... In a car?

(72)	(73)
------	------

- 11 One of the major problems mentioned by a lot of truck drivers has been that of "staying awake" and not falling asleep at the wheel.

- a) What do you think are the best "stay-awake" pills for truck drivers to use?

(74)

- b) What percentage of truck drivers do you think take "stay-awake" pills on regular basis?

(75)	(76)	
------	------	--

- c) How often would you take them, as indicated by this card? (SHOW CARD E)

	ON EVERY RUN - MORE THAN					(77)				
ONCE A DAY	1	..	..	..	..	1	..	..	..	..
ON EVERY RUN - ONCE A DAY ..	2	..	..	..	..	2	..	..	..	..
ON EVERY NIGHT RUN ONLY ..	3	..	..	..	..	3	..	..	..	..
OFTEN	4	..	..	..	..	4	..	..	..	..
SOMETIMES	5	..	..	..	..	5	..	..	..	..
SELDOM	6	..	..	..	..	6	..	..	..	..
NEVER	7	..	..	..	..	7	..	..	..	..
(NOT ON CARD) REFUSE TO ANSWER	8	..	..	..	..	8	..	..	..	..

12. As you are on the road for such long hours, the next few questions are designed to see how you fill in this time (with activities other than driving itself).

a) Can you hear the radio or cassettes while you are driving? (78)
 NO 1
 YES 2
 NO RADIO OR CASSETTE PLAYER FITTED .. 3

b) Do you smoke while driving? (79)
 NO 1
 YES 2

(80)

	(2)	(3)	(4)	(5)
3				

c) How many cigarettes would you smoke on an average working day (during driving and resting)? (6) (7)

--	--	--

d) And when not working (on day off)? (8) (9)

--	--	--

e) What percentage of truck drivers do you think would drink alcohol during or within four hours before driving their trucks? (10) (11) (12)

--	--	--

f) Approximately how many hours would you spend at the wheel in an average week? (13) (14)

--	--	--

g) Do you like to have someone travelling with you on long trips (such as a mate or hitchhiker)? (15)

[	NO	1
	YES, USUALLY	2
	SOMETIMES	3
	REFUSE TO ANSWER	8
	DON'T KNOW	9

READ

h) Approximately how many hours would you spend on loading or maintenance (non-driving work) per week? (16) (17)

--	--

i) Have you ever experienced "seeing something that wasn't there" (had an hallucination) while driving in the last year? (18)

NO	1
ONCE	2
SEVERAL TIMES	3
FREQUENTLY	4
REFUSE TO ANSWER	8

Was it (or were they) ... (19)

AT NIGHT (DARK)	1
DURING THE DAY (LIGHT)	2
DON'T KNOW	9

Could you describe the circumstances? (20)

PROBE FULLY: Were you tired? _____

Had you been driving long? _____ (21)

Had you taken drugs or alcohol? _____ (22)

What did you see? _____ (23)

13. Long distance drivers usually have a different sort of life from other people because they are away from home so much. The next few questions are concerned with your life style.

(24)

- a) First of all, would you tell me which of these age groups you are in?
(SHOW CARD F)
- | | | |
|-------------|------------------------------|---|
| 17 - 20 | .. .. . | 1 |
| 21 - 24 | .. .. . | 2 |
| 25 - 29 | .. .. . | 3 |
| 30 - 39 | .. .. . | 4 |
| 40 - 49 | .. .. . | 5 |
| 50 - 59 | .. .. . | 6 |
| 60 OR ABOVE | .. .. . | 7 |
| NOT ON CARD | - [REFUSE TO ANSWER | 8 |

(25)

- b) Would you tell which one of these numbers describes your marital state?
(SHOW CARD G)
- | | | |
|-----------------------|------------------------------|---|
| SINGLE | .. .. . | 1 |
| MARRIED OR DEFACTO | .. .. . | 2 |
| RELATIONSHIP | .. .. . | 3 |
| DIVORCED OR SEPARATED | .. .. . | 4 |
| WIDOWED | .. .. . | 5 |
| NOT ON CARD | - [REFUSE TO ANSWER | 6 |

- c) (SHOW CARD H) Which of these numbers indicates your income. These refer to gross or "before-tax, after-expenses" income and are listed as annual or weekly rates (remember to double the weekly amount if you get paid each fortnight).

Annual		Weekly		(26)
UNDER \$2,000	-	LESS THEN \$39	.. .. .	1
\$2,000 TO \$6,000	-	\$40 TO \$115	.. .. .	2
\$6,001 TO \$10,000	-	\$116 TO \$192	.. .. .	3
\$10,001 TO \$15,000	-	\$193 TO \$288	.. .. .	4
OVER \$15,000	-	OVER \$288	.. .. .	5
NOT ON CARD	- [REFUSED TO ANSWER	.. .. .	.. .. .	6
	- [DON'T KNOW	.. .. .	.. .. .	7

(27)

- d) Would you tell me how far you have gone with your formal education? Which of these have you completed?
(SHOW CARD I)
- | | | |
|---------------------------|---------|----|
| PRIMARY SCHOOL | .. .. . | 1 |
| HIGH SCHOOL (NO INT. SC.) | .. .. . | 2 |
| HIGH SCHOOL (INT. SC.) | .. .. . | 3 |
| LC/HIGHER SC | .. .. . | 4 |
| TECHNICAL COLLEGE | .. .. . | 5 |
| OR UNIVERSITY | .. .. . | 6 |
| (No diploma or degree) | .. .. . | 7 |
| TECHNICAL COLLEGE/ | .. .. . | 8 |
| APPRENTICESHIP | .. .. . | 9 |
| (With trade certificate) | .. .. . | 10 |
| TECHNICAL COLLEGE/ | .. .. . | 11 |
| UNIVERSITY | .. .. . | 12 |
| (Diploma or degree) | .. .. . | 13 |
| REFUSE TO ANSWER | .. .. . | 14 |

- e) What do you do in your spare time (hobbies, activities - social, sport etc.)

(28)

(29)

- f) How often do you watch T.V.? Is it ...
- | | | |
|-----------|---------|---|
| OFTEN | .. .. . | 1 |
| SOMETIMES | .. .. . | 2 |
| NEVER | .. .. . | 3 |

(30)

- What about betting on the races? Is it ...
- | | | |
|-----------|---------|---|
| OFTEN | .. .. . | 1 |
| SOMETIMES | .. .. . | 2 |
| NEVER | .. .. . | 3 |

(31)

- What about playing the pokies (poker machines)? Is it ...
- | | | |
|-----------|---------|---|
| OFTEN | .. .. . | 1 |
| SOMETIMES | .. .. . | 2 |
| NEVER | .. .. . | 3 |

(32, 33)

- g) Would you tell me which of these numbers indicate your usual drinking pattern (SHOW CARD J)?
- | | |
|--|----|
| THREE TIMES (SITTINGS) | |
| OR MORE A DAY | 01 |
| TWO TIMES (SITTINGS) | |
| OR MORE A DAY | 02 |
| ONCE A DAY | 03 |
| NEARLY EVERY DAY | 04 |
| THREE OR FOUR TIMES A WEEK | 05 |
| ONE OR TWO TIMES A WEEK | 06 |
| TWO OR THREE TIMES A MONTH | 07 |
| ABOUT ONCE A MONTH | 08 |
| LESS THAN ONCE A MONTH | 09 |
| NEVER | 10 |
| [DON'T KNOW/DEPENDS ON OCCASION | 99 |
| NOT ON CARD [REFUSE TO ANSWER | 98 |

- h) How many drinks would you have at an average sitting?
(1 drink = 1 can - little or NSW can - of beer,
1 glass of wine, 1 nip of spirits).
- (34) (35)
- | | |
|--|--|
| | |
|--|--|

- 14a) The present economic climate is not good and much business has suffered.
How has this affected you? (PROBE: Have you had fewer loads to carry?
Been making laden trips only one way? Been earning less?)

(36)

--

- b) How often are you worried that you will never be able to catch up with your debts? (SHOW CARD K)
- | | |
|----------------------|---|
| ALL THE TIME | 1 |
| OFTEN | 2 |
| SOMETIMES | 3 |
| NEVER | 4 |
- (37)

- c) Using the same card, how often are you concerned about not making as much money as you need or want to make?
- | | |
|----------------------|---|
| ALL THE TIME | 1 |
| OFTEN | 2 |
| SOMETIMES | 3 |
| NEVER | 4 |
- (38)

- d) During the last year, how many times have you (as indicated by the numbers on this card - SHOW CARD L) ...

	BEEN SO ANGRY THAT YOU THREW OR BROKE THINGS	BEEN INVOLVED IN A FIST FIGHT
	(39)	(40)
AT LEAST ONCE A DAY	1	1
AT LEAST ONCE A WEEK	2	2
AT LEAST ONCE A MONTH	3	3
SEVERAL TIMES	4	4
ONCE OR TWICE	5	5
NEVER	6	6

- 15a) What are the things you like most about your job?
- (41) (42)

(43) (44)

--	--

- b) What are the things you like least about your job?

(45) (46)

--	--

(47) (48)

--	--

- c) Do you agree or disagree with this statement: "Police treat truck drivers differently from other road users?"
- | | | |
|--------------------------|------|---|
| AGREE | (49) | 1 |
| DISAGREE | | 2 |
| NEITHER/DON'T KNOW . . . | | 9 |

Why do you say this? _____ (50)

- d) Do you agree or disagree with this statement: "Other drivers treat truck drivers differently from car drivers on the road"?
- | | | |
|--------------------------|------|---|
| AGREE | (51) | 1 |
| DISAGREE | | 2 |
| NEITHER/DON'T KNOW . . . | | 9 |

Why do you say this? _____ (52)

- e) Do you agree or disagree with this statement: "Truck drivers should be given extra driving licence points"?
- | | | |
|--------------------------|------|---|
| AGREE | (53) | 1 |
| DISAGREE | | 2 |
| NEITHER/DON'T KNOW . . . | | 9 |

Why do you say this? _____ (54)

- f) Do you agree or disagree with this statement: "Log book restrictions are useless"?
- | | | |
|-----------------------|------|---|
| AGREE | (55) | 1 |
| DISAGREE | | 2 |
| REFUSE TO ANSWER .. . | | 8 |
| DON'T KNOW . . . | | 9 |

Why do you say this? _____ (56)

- g) Do you agree or disagree that NSW speed restrictions for trucks are appropriate?
- | | | |
|--------------------------|------|---|
| AGREE | (57) | 1 |
| DISAGREE | | 2 |
| NEITHER/DON'T KNOW . . . | | 9 |

Why? _____ (58)

- h) Do you think that lane width is adequate for commercial vehicles on ...
- | | | | |
|------|-------------------|------|---|
| READ | ALL ROADS | (59) | 1 |
| | MOST ROADS . . . | | 2 |
| | SOME ROADS . . . | | 3 |
| | FEW ROADS . . . | | 4 |
| | NO ROADS . . . | | 5 |
| | DON'T KNOW . . . | | 9 |

- i) Do you agree or disagree that toll charges for commercial vehicles are fair?
- | | | |
|--------------------------|------|---|
| AGREE | (60) | 1 |
| DISAGREE | | 2 |
| NEITHER/DON'T KNOW . . . | | 9 |

Why do you say this? _____ (61)

- j) If you could make any suggestions to the government to improve road safety and the road transport industry, in general, what would you say?

_____ (62)

_____ (63)

16. In how many truck or semi-trailer accidents (to which the police were called) have you been involved during the last two years? (64)
- | | |
|--------------------------|---|
| NONE | 1 |
| ONE | 2 |
| TWO | 3 |
| THREE | 4 |
| FOUR | 5 |
| OVER FOUR | 6 |
| REFUSE TO ANSWER | 8 |
| DON'T KNOW | 9 |
17. A driver often rates another driver when he first sees the other vehicle on the road, according to the type of vehicle. How would you rate ...
- a) The driver of the ordinary car (passenger car, sedan, or station waggon)? IS HE: (65) (66) (67)
- | | | |
|---------------------|-----------------------|---------------------|
| SKILLED 1 | CONSIDERATE 1 | RECKLESS 1 |
| or | or | or |
| UNSKILLED 2 | INCONSIDERATE | CAUTIOUS 2 |
| (DON'T KNOW) .. . 9 | OF OTHER | (DON'T KNOW) .. . 9 |
| | ROAD USERS 2 | |
| | (DON'T KNOW) .. . 9 | |
- b) How about drivers of large trucks or lorries (rigids) with or without trailers? ARE THEY: (68) (69) (70)
- | | | |
|---------------------|-----------------------|---------------------|
| SKILLED 1 | CONSIDERATE 1 | RECKLESS 1 |
| or | or | or |
| UNSKILLED 2 | INCONSIDERATE | CAUTIOUS 2 |
| (DON'T KNOW) .. . 9 | OF OTHER | (DON'T KNOW) .. . 9 |
| | ROAD USERS 2 | |
| | (DON'T KNOW) .. . 9 | |
- c) And drivers of semi-trailers or articulates? ARE THEY: (71) (72) (73)
- | | | |
|---------------------|-----------------------|---------------------|
| SKILLED 1 | CONSIDERATE 1 | RECKLESS 1 |
| or | or | or |
| UNSKILLED 2 | INCONSIDERATE | CAUTIOUS 2 |
| (DON'T KNOW) .. . 9 | OF OTHER | (DON'T KNOW) .. . 9 |
| | ROAD USERS 2 | |
| | (DON'T KNOW) .. . 9 | |
- d) What about motor cyclists? ARE THEY: (74) (75) (76)
- | | | |
|---------------------|-----------------------|---------------------|
| SKILLED 1 | CONSIDERATE 1 | RECKLESS 1 |
| or | or | or |
| UNSKILLED 2 | INCONSIDERATE | CAUTIOUS 2 |
| (DON'T KNOW) .. . 9 | OF OTHER | (DON'T KNOW) .. . 9 |
| | ROAD USERS 2 | |
| | (DON'T KNOW) .. . 9 | |
- e) And drivers of cars towing caravans? ARE THEY: (77) (78) (79)
- | | | |
|---------------------|-----------------------|---------------------|
| SKILLED 1 | CONSIDERATE 1 | RECKLESS 1 |
| or | or | or |
| UNSKILLED 2 | INCONSIDERATE | CAUTIOUS 2 |
| (DON'T KNOW) .. . 9 | OF OTHER | (DON'T KNOW) .. . 9 |
| | ROAD USERS 2 | |
| | (DON'T KNOW) .. . 9 | |

Well, that's all now Thank you very much indeed for your cooperation and patience in answering these questions. Let's hope this survey may lead to a better understanding of the truckies' problems than often seems to exist at present.

APPENDIX 1B:

OTHER MOTORIST QUESTIONNAIRE

DRIVER QUESTIONNAIRE

PLACE OF INTERVIEW: _____

INTERVIEWER: _____

DAY OF WEEK: _____

DATE: _____

TIME INTERVIEW COMMENCED: _____

TIME INTERVIEW COMPLETED: _____

Any comments on respondent's interest and general level of involvement in the questionnaire:

	(2)	(3)	(4)	(5)
1				

(Identification)

	(6)	(7)

(Place)

	(8)	(9)

(Interviewer)

	(10)	(11)	(12)	(13)

(Day) (Date)

	(14)	(15)

(Time)

	(16)	(17)

(Comments)

When you started to interview this person, was there a choice of people to be interviewed?

(18)
YES 1
NO 2

The Traffic Accident Research Unit of N.S.W. is conducting a survey of road usage and driver behaviour this month. Have you been driving, or do you intend to drive on this trip? (Do not continue if "no" is answered). What sort of vehicle are you using? (Continue only if type of vehicle is not a truck, semi trailer, tanker etc.)

We would be very interested to know your answers to some questions about your attitudes and habits as they affect your own and other people's road usage and traffic safety. Your answers to the questions will be anonymous. I do not wish to know your name or address. Do you have a few minutes to spare?

Please understand that you do not have to answer any questions, but that it would be helpful to our understanding of road use and the ideas of road users if you would agree to answer them. Please try to be as accurate and honest as you can. I would prefer you not to answer a question, than to answer it untruthfully, so please tell me if you wish to skip any questions.

FIRST OF ALL:

- 1(a) What do you think is the most important factor contributing to road accidents?

(19) (20)

--	--

- (b) Are there other important factors you would like to mention?

(21) (22)

--	--

(23) (24)

--	--

(25) (26)

--	--

- (c) What do you think are the most important factors contributing to large truck or semitrailer accidents?

(27) (28)

--	--

(29) (30)

--	--

(31) (32)

--	--

- 2 Now, here are some questions to show us how you fit into the overall picture of road users:

- (a) Approximately how many miles/kilometres have you driven in the last week in the vehicle you are using today?

(33) (34) (35)

MILES

--	--	--	--

(MAKE SURE THAT YOU HAVE IDENTIFIED DISTANCE UNITS CORRECTLY)

or

(36) (37) (38)

KILOMETRES

--	--	--	--

- (b) How many miles/kilometres have you driven in the last week in any other vehicle?

(39) (40) (41)

MILES

--	--	--	--

(MAKE SURE YOU HAVE CORRECTLY IDENTIFIED DISTANCE UNITS)

or

(42) (43) (44)

KILOMETRES

--	--	--	--

- (c) What sort of vehicle was this other vehicle?

(45)

CAR	1
MOTOR CYCLE	2
PANEL VAN/UTILITY	3
RIGID TRUCK	4
SEMI TRAILER	5
OTHER (State)	6

- (d) Is your mileage for last week that of a typical or average week?

(46)

YES	1
NO	2
DON'T KNOW	9

- (e) What is the reason for (purpose of) this trip that you are on?

(47)

--

- (f) What would be the approximate number of miles/kilometres that you would have driven in your present vehicle in the last year?

(48) (49) (50) (51)

MILES

--	--	--	--	--	--

(CHECK THAT YOU HAVE IDENTIFIED DISTANCE UNITS CORRECTLY)

or

(52) (53) (54) (55)

KILOMETRES

--	--	--	--	--	--

(g) Does anyone else drive this vehicle?

(56)
Go to (i) — YES 1
Go to (ii) — NO 2

(i) IF THE ANSWER IS YES: then add the miles that you estimate they would drive it to your own annual mileage to give you the mileage that the vehicle is driven per year.

(ii) IF THE ANSWER IS NO: Then can we make the annual mileage the vehicle is driven per year the same as your annual mileage in this vehicle to give us (FILL IN BOXES)

(CHECK THAT YOU HAVE FILLED IN THE CORRECT BOXES)

	(57)	(58)	(59)	(60)		
<u>MILES</u>						
or						
<u>KILOMETRES</u>	(61)	(62)	(63)	(64)		

3(a) Is the trip you are on now

WHOLLY WITHIN 50 MILES (65)
OF YOUR HOME 1
INTERSTATE 2
ONLY WITHIN N.S.W. BUT
MORE THAN 50 MILES
FROM YOUR HOME 3
(REFUSE TO ANSWER) 8
(DON'T KNOW) 9

(b) How many kilometres/miles does this round trip (there and home) involve?

	(66)	(67)	(68)	(69)		
<u>MILES</u>						
or						
<u>KILOMETRES</u>	(70)	(71)	(72)	(73)		

(c) How often have you done this trip before?

(74)
NEVER 1
ONCE 2
TWICE 3
SEVERAL TIMES 4
MANY TIMES 5
IT IS MY REGULAR TRIP 6
(REFUSE TO ANSWER) 8

(d) How long will this trip take you?
(IF THE TRIP IS A TOURING HOLIDAY,
CHECK THE NUMBER OF DAYS GIVEN ARE
DRIVING DAYS)

	(75)	(76)	(77)	(78)		
	(79)	(80)	(2)	(3)	(4)	(5)
			2			

(e) How long had you been driving prior to this stop, since you had a half-hour or longer rest?

	(6)	(7)
<u>HOURS</u>		

(f) How long is it since you had at least a five-hour break from driving?

	(8)	(9)
<u>HOURS</u>		

(g) How long is it since you had at least a 24-hour break from driving? (From driving more than 50 miles per day)

	(10)	(11)	(12)	(13)
	(DAYS)	(HOURS)		

4(a) What class licence do you hold?

(Cars, manual or automatic, light lorries etc.)	CLASS 1 OR A	(14)	1
(Taxis - not metropolitan)	CLASS 2 OR B		2
(Rigid, heavy lorries)	CLASS 3 OR C		3
(Buses)	CLASS 4 OR D		4
(Articulated vehicle)	CLASS 5 OR E		5
	MOTOR CYCLE RIDER'S LICENCE ..		6
	METROPOLITAN TAXI		7
	MOTORVAN LICENCE		8
	(REFUSE TO ANSWER)		9

FILTER: IF 2, 4, 7 or 8 are circled, please ask "Have you any endorsements to drive other vehicles, and if so, what are they?" (e.g. endorsed to drive articulated vehicle)

(15)

--

(b) How many years have you held this class of licence?

(16) (17)

--	--

(c) For how many years have you been driving altogether?
(Since you first held any class of licence?)

(18) (19)

--	--

5. Would you tell me in which of these ways you learned to drive the following vehicles (SHOW CARD A)?

	CAR (20)	MOTOR CYCLE (21)
DRIVING SCHOOL	1	1
FIRM/COMPANY/ARMY	2	2
PARENTS	3	3
FRIEND	4	4
SELF-TAUGHT	5	5
HAS NOT LEARNT	6	6
REFUSE TO ANSWER	8	8
DOES NOT KNOW	9	9

NOT ON CARD

6(a) What sort of vehicle are you driving now? Is it ...

(22)

A SEDAN CAR	1
STATION WAGON	2
UTILITY	3
PANEL VAN	4
MOTOR CYCLE	5
OTHER (State)	6

(b) What is the make?

(23) (24)

--	--

(c) What is the model?

(25) (26)

--	--

(d) Are you towing ...

(27)

A CARAVAN	1
A TRAILER	2
A BOAT	3
NOTHING	4
OTHER (State)	5

(e) What is the age of the vehicle (refers to main engine-part, not part being towed)?

(28) (29) (30) (31)

--	--	--	--

(YEARS) (MONTHS)

7(a) Who owns this vehicle?

READ (32)

GO TO (b)	YOURSELF	1
	YOURSELF IN PARTNERSHIP	2
GO TO (c)	OTHER	3
	REFUSE TO ANSWER	8

- (b) FILTER: OWNER-DRIVER
For how long have you been using this particular vehicle?

(33)	(34)	(35)	(36)
(YEARS)		(MONTHS)	

- (c) Approximately how many other vehicles are owned by this vehicle's owner?

	(37)
NONE	1
ONE	2
TWO TO FIVE	3
SIX TO TEN	4
ELEVEN TO TWENTY	5
OVER TWENTY	6
REFUSE TO ANSWER	8
DON'T KNOW	9

- (d) How did you learn to operate this particular vehicle or model that you are driving today? (AS ON CARD B).

	(38)
DRIVING SCHOOL	1
FIRM/COMPANY/ARMY	2
PARENTS	3
FRIEND	4
SELF-TAUGHT	5
PREVIOUS OWNER/RETAILER	6
(Not on card) - [DOES NOT KNOW	9

8. SHOW CARD C. Using this card, how would you rate this vehicle for:

- (a) Steering

	(39)
VERY POOR	1
POOR	2
MODERATE	3
GOOD	4
EXCELLENT	5
(Not on card) - [REFUSE TO ANSWER	8
[DON'T KNOW	9

- (b) Stability (e.g. cornering ability)

	(40)
VERY POOR	1
POOR	2
MODERATE	3
GOOD	4
EXCELLENT	5
(Not on card) - [REFUSE TO ANSWER	8
[DON'T KNOW	9

- (c) Acceleration

	(41)
VERY POOR	1
POOR	2
MODERATE	3
GOOD	4
EXCELLENT	5
(Not on card) - [REFUSE TO ANSWER	8
[DON'T KNOW	9

- (d) Braking ability

	(42)
VERY POOR	1
POOR	2
MODERATE	3
GOOD	4
EXCELLENT	5
(Not on card) - [REFUSE TO ANSWER	8
[DON'T KNOW	9

- (e) Its gear shift mechanism and number of gears

	(43)
VERY POOR	1
POOR	2
MODERATE	3
GOOD	4
EXCELLENT	5
(Not on card) - [REFUSE TO ANSWER	8
[DON'T KNOW	9

- (f) How many gears does this vehicle have? (READ)

PROBE: Is that the total number of gear ratios available to you?

FORWARD

(44) (45)

--	--

REVERSE

(46)

--

0 (47)

- (g) In this vehicle, how much does vibration worry you?

READ [A LOT 1
A LITTLE 2
NOT AT ALL 3
DON'T KNOW 9

How much does noise worry you?

READ [A LOT 1
A LITTLE 2
NOT AT ALL 3
DON'T KNOW 9

What about heat and cold?

READ [A LOT 1
A LITTLE 2
NOT AT ALL 3
DON'T KNOW 9

And ventilation?

READ [A LOT 1
A LITTLE 2
NOT AT ALL 3
DON'T KNOW 9

- (h) Is there anything else you would like to say about this vehicle?

(52)

--

- 9(a) How many people, besides yourself, are travelling in your vehicle?

NUMBER OF ADULTS

(53)

--

NUMBER OF CHILDREN
(0-16 YEARS)

(54)

--

- (b) Briefly describe the relationship of these people to yourself (e.g. family, friend, paying passenger, hitchhiker, workmate, etc.)

(55) (56) (57) (58)

--	--	--	--

- 10(a) Does your vehicle have any seat belts fitted?

GO TO (b) [YES 1
NO 2
GO TO (c) [REFUSE TO ANSWER 8
DON'T KNOW 9

- (b) FILTER WHEN SEAT BELTS FITTED:
When in the driver's seat, are all the controls easy to see and reach with the seat belt on?

YES 1
NO 2

What about with it off?

- (c) FILTER: WHEN NO SEAT BELTS:
Are all the controls east to see and reach?

YES 1
NO 2

- (d) NOTE: DETAILS IF "NO" ANSWERED IN ANY CASE ABOVE:
What are the details; what can't you see or reach?

(62) (63)

--	--

(SEAT BELT ON) _____

(64) (65)

--	--

(SEAT BELT OFF) _____

- (e) When you drive your present vehicle,
how often do you wear seat belts?
(SHOW CARD D)

(66)

ALWAYS	1
MOSTLY	2
OCCASIONALLY	3
RARELY	4
NEVER	5
NOT FITTED	6
(NOT ON CARD) { REFUSE TO ANSWER	8

- (f) Using the numbers on the same card,
how often would you wear seat belts
if they were fitted and if there
were no laws about their use?

(67) (68)

--	--

(69)

ALWAYS	1
MOSTLY	2
OCCASIONALLY	3
RARELY	4
NEVER	5
(NOT ON CARD) { REFUSE TO ANSWER	8
DON'T KNOW	9

- (g) Why do you pick this one?

(70) (71) (72) (73)

--	--	--	--

(74) (75) (76) (77)

--	--	--	--

- 11 We would like to know what sort of things you do in the car while you are
driving other than activities related to driving itself.

- (a) For instance, can you hear the radio
or cassettes while you are driving?

(78)

NO	1
YES	2
NO RADIO OR CASSETTE PLAYER FITTED	3

- (b) Do you ever smoke while driving?

(79)

NO	1
YES	2

(80)

--

(2) (3) (4) (5)

3			
---	--	--	--

- (c) How many cigarettes would you smoke per day
(Whether driving or not)?

(6) (7)

--	--

(8) (9)

--	--

- (d) What percentage of drivers do you think would drink
alcohol during or within four hours before driving?

(10) (11) (12)

--	--	--

- (e) Approximately how many hours would you spend at the
wheel in an average week?

(13) (14)

--	--

- (f) Do you like to have someone travelling with you, as a passenger, on long trips? (15)
- | | |
|------------------|---|
| NO | 1 |
| YES, USUALLY | 2 |
| SOMETIMES | 3 |
| REFUSE TO ANSWER | 8 |
| DON'T KNOW | 9 |
- READ

- (g) Approximately how many hours per week would you spend on your vehicle, on non-driving activities such as maintenance, cleaning etc. (16) (17)
- | | |
|--|--|
| | |
|--|--|

- (h) Have you ever experienced "seeing something that wasn't there" (had a hallucination) while driving in the last year? (18)
- | | |
|------------------|---|
| NO | 1 |
| ONCE | 2 |
| SEVERAL TIMES | 3 |
| FREQUENTLY | 4 |
| REFUSE TO ANSWER | 8 |

- Was it (or were they) AT NIGHT (DARK) 1
or DURING THE DAY (LIGHT) 2
DON'T KNOW 9 (19)

- Could you describe the circumstances? (20)
- (PROBE FULLY:) Were you tired? ☐

- Had you been driving long? ☐ (21)

- Had you taken alcohol or drugs? ☐ (22)

- What did you see? ☐ (23)

- 12 Certain people are known to differ in their viewpoints according to their life styles, so the next few questions are concerned with some general details about you as a person: FIRST OF ALL:

- (a) Would you tell me which of these age groups you are in (SHOW CARD E)? (24)
- | | |
|----------------------------------|---|
| 17-20 | 1 |
| 21-24 | 2 |
| 25-29 | 3 |
| 30-39 | 4 |
| 40-49 | 5 |
| 50-59 | 6 |
| 60 OR ABOVE | 7 |
| (NOT ON CARD) [REFUSE TO ANSWER | 8 |

- (b) Would you tell which one of these numbers describes your marital state (SHOW CARD F)? (25)
- | | |
|----------------------------------|---|
| SINGLE | 1 |
| MARRIED OR DEFACTO RELATIONSHIP | 2 |
| DIVORCED OR SEPARATED | 3 |
| WIDOWED | 4 |
| (NOT ON CARD) [REFUSE TO ANSWER | 8 |

- (c) (SHOW CARD G): Which of these numbers indicates your income. These refer to gross or "before tax" income and are listed as annual or weekly rates. (Remember to double the weekly amount if you get paid each fortnight).

- | Annual | Weekly | (26) |
|-----------------------------------|------------------|------|
| UNDER \$2,000 | - LESS THAN \$39 | 1 |
| \$2,000 TO \$6,000 | - \$40 TO \$115 | 2 |
| \$6,001 TO \$10,000 | - \$116 TO \$192 | 3 |
| \$10,001 TO \$15,000 | - \$193 TO \$288 | 4 |
| OVER \$15,000 | - OVER \$288 | 5 |
| (NOT ON CARD) [REFUSED TO ANSWER | | 8 |
| DON'T KNOW | | 9 |

- (d) Would you tell me how far you have gone with your formal education? Which of these have you completed (SHOW CARD H)

(27)
PRIMARY SCHOOL 1
HIGH SCHOOL (NO INT. SC.) .. 2
HIGH SCHOOL (INT. SC.) .. 3
LC/HIGHER SC. 4
TECH COLLEGE OR UNIVERSITY
(No diploma or degree) .. 5
TECH COLLEGE/APPRENTICESHIP
(With trade certificate) .. 6
TECH COLLEGE/UNIVERSITY
(Diploma or degree) .. 7
(NOT ON CARD) [REFUSE TO ANSWER .. 8

- (e) What do you do in your spare time (hobbies, activities - social, sport etc.)

_____ (28)

- (f) How often do you watch T.V.? Is it ...

(29)
OFTEN 1
SOMETIMES 2
NEVER 3

What about betting on the races, Is it ...

(30)
OFTEN 1
SOMETIMES 2
NEVER 3

What about playing the pokies (poker machines)? Is it ...

(31)
OFTEN 1
SOMETIMES 2
NEVER 3

- (g) Would you tell me which of these numbers indicates your usual drinking pattern? (SHOW CARD I)

(32, 33)
THREE TIMES (SITTINGS) .. 01
OR MORE A DAY
TWO TIMES (SITTINGS OR
MORE A DAY) 02
ONCE A DAY 03
NEARLY EVERY DAY 04
THREE OR FOUR TIMES A WEEK .. 05
ONE OR TWO TIMES A WEEK .. 06
TWO OR THREE TIMES/MONTH .. 07
ABOUT ONCE A MONTH 08
LESS THAN ONCE A MONTH 09
NEVER 10
(NOT ON CARD) [DON'T KNOW/DEPENDS
ON OCCASION 99
REFUSED TO ANSWER 98

- (h) How many drinks would you have at an average sitting? (1 drink = 1 can - little or NSW can - of beer, 1 glass of wine, 1 nip of spirits)?

(34) (35)

- 13(a) The present economic climate is not good and many people seem to have suffered. Have you been affected at all? How?

_____ (36)

- (b) How often are you worried that you will never be able to catch up with your debts (SHOW CARD J)

(37)
ALL THE TIME 1
OFTEN 2
SOMETIMES 3
NEVER 4

- (c) Using the same card, how often are you concerned about not making as much money as you need or want to make?

(38)
ALL THE TIME 1
OFTEN 2
SOMETIMES 3
NEVER 4

- (d) During the last year, how many times have you (as indicated by the numbers on this card - SHOW CARD K) ...

	BEEN SO ANGRY THAT YOU THREW OR BROKE THINGS (39)	BEEN INVOLVED IN A FIST FIGHT (40)
AT LEAST ONCE A DAY	1	1
AT LEAST ONCE A WEEK	2	2
AT LEAST ONCE A MONTH	3	3
SEVERAL TIMES	4	4
ONCE OR TWICE	5	5
NEVER	6	6

- (e) How many weeks' holidays do you get each year?
(PROBE:) Do you have public holidays? If answer
is "Yes", add two weeks to stated number of weeks
annual leave.

(41) (42)

--	--

- 14(a) What are the things you like most about driving?

(43) (44)

--	--

(45) (46)

--	--

- (b) What are the things you like least about driving?

(47) (48)

--	--

(49) (50)

--	--

15. Do you agree or disagree with the following statements?

(51) (52)

--	--

- (a) "Those who drive on the roads all the time
as part of their jobs (e.g. commercial
drivers) should be given extra driving
licence points"

AGREE 1
DISAGREE 2
NEITHER/DON'T KNOW . . . 9

Why do you say this?

(54)

--

- (b) "Long distance heavy transport drivers
(trucks and semi trailers) should be
under strict control as to the number
of hours they can drive at a stretch and
within a week".

AGREE 1
DISAGREE 2
NEITHER/DON'T KNOW . . . 9

Why do you say this?

(56)

--

- (c) "There should be speed restrictions for heavy
long distance vehicles on all roads".

AGREE 1
DISAGREE 2
NEITHER/DON'T KNOW . . . 9

Why do you say this?

(58)

--

- (d) "Lane widths marked on city and country
roads are adequate".

AGREE 1
DISAGREE 2
NEITHER/DON'T KNOW . . . 9

- (e) "Toll charges on expressways are fair" (60)
- | | |
|----------------------------|---|
| AGREE | 1 |
| DISAGREE | 2 |
| NEITHER/DON'T KNOW | 9 |

Why do you say this?

_____ (61)

- (f) If you could make any suggestions to the government to improve road safety and driving conditions in general, what would you say?

_____ (62)

_____ (63)

15. In how many accidents (to which the police were called) have you been involved, as a driver, during the last two years? (64)
- | | |
|--------------------------|---|
| NONE | 1 |
| ONE | 2 |
| TWO | 3 |
| THREE | 4 |
| FOUR | 5 |
| OVER FOUR | 6 |
| REFUSE TO ANSWER | 8 |
| DON'T KNOW | 9 |

16. A driver often rates another driver when he first sees the other vehicle on the road, according to the type of vehicle. How would you rate

- (a) The driver of the ordinary car (passenger car, sedan, or station waggon)?
- IS HE: (65) (66) (67)
- | | | |
|------------------------|------------------------|------------------------|
| SKILLED 1 | CONSIDERATE 1 | RECKLESS 1 |
| or | or | or |
| UNSKILLED 2 | INCONSIDERATE | CAUTIOUS 2 |
| (DON'T KNOW) 9 | OF OTHER | (DON'T KNOW) 9 |
| | ROAD USERS 2 | |
| | (DON'T KNOW) 9 | |

- (b) How about drivers of large trucks or lorries (rigids) with or without trailers? ARE THEY: (68) (69) (70)
- | | | |
|------------------------|------------------------|------------------------|
| SKILLED 1 | CONSIDERATE 1 | RECKLESS 1 |
| or | or | or |
| UNSKILLED 2 | INCONSIDERATE | CAUTIOUS 2 |
| (DON'T KNOW) 9 | OF OTHER | (DON'T KNOW) 9 |
| | ROAD USERS 2 | |
| | (DON'T KNOW) 9 | |

- (c) And drivers of semi-trailers, ARE THEY: (71) (72) (73)
- | | | |
|------------------------|------------------------|------------------------|
| SKILLED 1 | CONSIDERATE 1 | RECKLESS 1 |
| or | or | or |
| UNSKILLED 2 | INCONSIDERATE | CAUTIOUS 2 |
| (DON'T KNOW) 9 | OF OTHER | (DON'T KNOW) 9 |
| | ROAD USERS 2 | |
| | (DON'T KNOW) 9 | |

- (d) What about motor cyclists? ARE THEY: (74) (75) (76)
- | | | |
|------------------------|------------------------|------------------------|
| SKILLED 1 | CONSIDERATE 1 | RECKLESS 1 |
| or | or | or |
| UNSKILLED 2 | INCONSIDERATE | CAUTIOUS 2 |
| (DON'T KNOW) 9 | OF OTHER | (DON'T KNOW) 9 |
| | ROAD USERS 2 | |
| | (DON'T KNOW) 9 | |

;) And drivers of cars towing caravans?

ARE THEY:

	(77)		(78)		(79)
SKILLED 1		CONSIDERATE 1		RECKLESS 1	
or		or		or	
UNSKILLED 2		INCONSIDERATE		CAUTIOUS 2	
(DON'T KNOW) .. 9		OF OTHER		(DON'T KNOW) .. 9	
		ROAD USERS 2			
		(DON'T KNOW) .. 9			

Well, that is all now. Thank you very much indeed for your cooperation and patience in answering these questions. We hope that this survey will add to our understanding of different groups of road users and their opinions about road safety.

(80)



APPENDIX II: DATA AND DATA ANALYSIS TABLES

Table AI: Relationships between exposure indices (all figures rounded to two decimal places)

Variables	χ^2 (1)	df (2)	p (3)	C (4)	upper limit of C (5)
Weekly km (6) x Annual km of truck driver	424.10	16	0.00*	0.64	0.89
Weekly km (6) x Annual km of other motorist	66.64	16	0.00*	0.33	0.89
Hours at wheel x Annual km (truck driver)	159.38	8	0.00*	0.46	0.82
Hours at wheel x Annual km (other motorist)	52.88	8	0.00*	0.30	0.82

In this and following tables:-

1. χ^2 is used to denote the calculated chi-square value used for testing the significance of the relationship between the variables concerned.
2. df denotes the degree of freedom used for determining the significance of the relationship.
3. p = probability
* is used to denote a significant result of the test.
4. C = contingency coefficient which is a measure of the extent of the association or relationship between the variables concerned. It is especially useful for these kind of data where we have categorised responses rather than using the data in interval measurement form.

5. Since C is unlike a correlation coefficient in that the upper limit (when the two variables are perfectly related) is not 1.0, the upper limit has been included wherever the values of C have been given.
6. Weekly km is the sum of each respondent's km driven in the last seven days in the present vehicle and any other vehicles.

TABLE AII: Truck driver and other motorist responses to questions relating to the present trip (data figures rounded to one decimal place; "Refused", "Don't know", or unstated answers excluded).

Variable of interest	Truck driver	(Sample N)	Other motorist	(Sample N)
Time taken for trip (including loading, unloading and rest times for truck drivers: mean standard deviation	79.4 hrs 67.5 hrs	(610)	52.2 hrs 94.3 hrs	(545)
Number of km in round trip: mean standard deviation	227.9 218.6	(613)	168.1 249.3	(547)
Type of trip: wholly within 50 miles of usual depot/home	1.3%	(615)	9.8%	(551)
Interstate	59.7%		28.1%	
Within N.S.W. more than 50 miles from depot/home	39.0%		62.1%	
$(\chi^2 = 135.0, 2 \text{ df}, p < 0.0001^*, C = 0.34, \text{upper limit of } C = 0.71)$				
Frequency of trip (how often the trip has been done before):				
never	6.5%	(615)	22.7%	(551)
once/twice	4.0%		15.0%	
several times	11.2%		26.0%	
many times	22.6%		28.3%	
regular trip	55.6%		7.6%	
unstated	0.0		0.4%	
$(\chi^2 = 333.9, 5 \text{ df}, p < 0.0001^*, C = 0.47, \text{upper limit of } C = 0.71)$				
Number of vehicles with no passengers	482	(615)	142	(549)
Average number of vehicle occupants	1.3		2.26	
$(\chi^2 = 363.6, 5 \text{ df}, p < 0.0001^*, C = 0.49, \text{upper limit of } C = 0.71)$				

Table AII: (Cont).

Variable of interest	Truck driver (Sample N)	Other motorist (Sample N)
Length of driving period:		
(1) Since last ½-hour or longer rest/break:		
mean	3.6 hrs	2.5 hrs
standard deviation	3.1 hrs (610)	1.7 hrs (550)
(χ² = 99.4, 5 df, p < 0.0001*, C = 0.28, upper limit of C = 0.71).		
(2) Since last 5-hour or longer rest break:		
mean	8.8 hrs	4.9 hrs
standard deviation	12.1 hrs (609)	4.8 hrs (549)
(χ² = 85.9, 6 df, p < 0.0001, C = 0.26, upper limit of C = 0.71).		
(3) Since last 24-hour or longer rest/break:		
mean	109.2 hrs	100.0 hrs
standard deviation	275.9 hrs (608)	324.8 hrs (491)
(χ² = 48.5 7 df, p < 0.0001*, C = 0.21, upper limit of C = 0.71).		

TABLE AIII: Truck driver responses to questions relating to the present trip (figures rounded to one decimal place; unknown/not stated answers excluded).

Variable of interest	Response	
	%	f
Present load :		
building materials	15.7	97
farm supplies/produce	15.0	92
general freight	7.8	48
empty/unladen	13.0	80
food clothing	17.1	105
fuel, coal, petrol	3.4	21
industrial (e.g. carbon black, paper bags)	11.9	73
machinery, cars, caravans	9.1	56
luxury items (eg tobacco, TV's)	6.5	40
unstated	0.5	3
		N = 615
Weight of load in tones ≈ tonnes (excluding those vehicles which were unladen): mean		
standard deviation	15.3	7.9

TABLE AIV: A summary of truck driver and other motorist responses which are indicative of driving experience (data figures are rounded to one decimal place).

Variable of interest	Truck driver (Sample N)	Other motorist (Sample N)
Class of licence held:		
(1) car, light lorry, etc.	0.0%	63.9%
(2) heavy, rigid truck, etc.	7.8%	16.5%
(3) bus driver	8.5%	3.4%
(5) articulated truck	82.8%	10.9%
other classes/refuse to answer	0.9%	5.3%
Percentage of drivers endorsed to drive vehicles of		
Class 3	0.5%	0.5%
Class 5	8.1%	1.3%
not so endorsed	91.4%	98.2%
Years with this class of licence:		
mean	12.0	13.7
standard deviation	7.2	11.3
($\chi^2 = 54$, 4 df, $p < 0.0001^*$, $C = 0.21$, upper limit of $C = 0.71$).		
Years of driving experience:		
mean	16.8	16.0
standard deviation	7.8	11.9
($\chi^2 = 88.4$ df, $p < 0.0001^*$, $C = 0.26$, upper limit of $C = 0.71$)		
Learned to drive a car through:		
driving school	3.3%	19.4%
company/army	3.3%	5.1%
parents	30.7%	34.5%
friend	16.3%	18.0%
self taught	46.1%	21.8%
other/refuse	0.3%	1.2%
unstated		
($\chi^2 = 128$, 5 df, $p < 0.0001^*$, $C = 0.32$, upper limit of $C = 0.71$)		
Learned to drive present vehicle through:		
previous owner/retailer	1.8%	2.0%
company/army	8.8%	0.4%
friends	3.3%	1.5%
self taught	83.4%	93.8%
other/refuse/unstated	2.7%	2.3%

Table AIV: (Cont).

Variable of interest	Truck driver	(Sample N)	Other motorist	(Sample N)
Prefer to have no company (passengers) when driving	51.9%	(615)	10.7%	(551)
Hours spent per week on loading (truck drivers only), maintenance, cleaning vehicle, etc.:				
mean	15.3	(590)	1.8	(539)
standard deviation	11.8		2.4	
Experienced hallucination while driving within the last year	28.8%	(615)	12.9%	(551)
$(\chi^2 = 59, 3 \text{ df}, p < 0.0001^*, C = 0.22, \text{upper limit of } C = 0.71)$				
Crashes to which the police were called in the last two years:				
none	71.7%		80.0%	
one	22.0%		14.7%	
two	4.4%	(615)	2.7%	(551)
three or more	1.5%		0.4%	
refuse/unstated	0.4%		2.2%	
$(\chi^2 = 16, 2 \text{ df}, p < 0.001^*, C = 0.12, \text{upper limit of } C = 0.71)$				

TABLE AV : Responses of either truck drivers or other motorists to questions relating to driving experience (figures are rounded to one decimal place)

Sample	Variable/Responses	% of Sample ¹	
Truck Driver	% who use alerting drugs	40.7	
Other Motorist	% who learned to drive a motor cycle:		
	through a friend	6.2	
	self taught	44.5	
	have not learnt	44.7	
	other/unstated	4.6	
Truck Driver	% who learned to drive through:	Rigid trucks	semitrailers
	driving school	3.1	4.4
	company/army	12.4	12.2
	parents	17.1	9.9
	friend	18.7	15.6
	self taught	47.4	52.5
	have not learnt/other/unstated	1.3	5.4
Truck Driver	things liked <u>most</u> about the job:	First	Second
	independence/freedom/escape from city etc.	36.3	21.7
	money/security	10.4	4.2
	travel/meeting people	20.0	18.9
	enjoy driving/like trucks	13.2	5.5
	other	13.5	10.9
	nothing liked about the job	4.6	0.0
	unstated/don't know	2.0	38.8
Truck Driver	things liked <u>least</u> about the job:	First	Second
	long hours/difficult hours	29.2	8.1
	breakdowns/tyre failures	8.1	4.7
	other traffic/cars	7.2	5.5
	restrictions/police/DMT/DMR/road tax	10.7	8.1
	loading	11.2	4.7
	hurry/bosses/customers	5.9	3.3
	bad weather/bad roads	5.0	6.2
	nothing	8.5	0.5
	other	12.4	4.3
	unstated/don't know	1.8	54.6

¹ N = 615 for truck driver sample
N = 551 for other motorist sample

TABLE AV : CONTINUED

Sample	Variable/Responses	Rigid trucks	semitrailers
Other Motorist	things liked <u>most</u> about driving:	First	Second
	independence/convenience	29.4	9.8
	travel	22.0	6.7
	being in control/skill involved	14.0	5.6
	when there's no traffic, etc.	8.5	4.2
	other	12.9	5.1
	nothing	11.4	1.5
	unstated/don't know	1.8	67.1
Other Motorist	things liked <u>least</u> about driving:	First	Second
	other traffic/other drivers	46.3	14.0
	bad weather/bad roads	15.7	9.6
	boredom/time consuming	8.2	2.4
	nothing	5.1	0.0
	other	23.3	8.7
	unstated/don't know	1.4	65.3

TABLE AVI : Truck drivers' vehicle characteristics (figures are rounded to one decimal place)

Vehicle Characteristic		Sample description	(Sample N)
Truck type: (% of sample)	Articulated (semi-trailer)	79.2	(615)
	Rigid with no trailer	17.7	
	Rigid with trailer	2.9	
	Unstated	0.2	
Carrying capacity:		15.7 t*	(609)
mean		4.3 t*	
standard deviation			
Tare weight:	mean	11.3 t*	(611)
	standard deviation	3.9 t*	
Percentage of vehicles in which both hands must be used to change gears		5.2	(615)

* ton = tonne for the purposes of this survey. Statistics are assessed from the mid points of each category, using 1t for those categories below 2t, and 18t for those of 16t and over.

TABLE AVI : CONTINUED

TABLE AVI : CONTINUED

Vehicle Characteristic	Sample description	(Sample N)
Percentage of vehicles with a sleeping rig	48.9	(615)
Percentage of vehicles with: an operating tachograph an inoperative tachograph	17.7 5.9	(615)

TABLE AVII : Other motorists' vehicle characteristics (figures rounded to one decimal place).

Vehicle Characteristic	Samole description (N = 551).
Type of vehicle: sedan car station wagon utility panel van motor cycle other	67.0% 15.8% 6.7% 4.5 4.0% 2.0%
Percentage of vehicles towing: caravans trailers boats other nothing	2.0% 3.3% 1.1% 1.3% 92.3%

TABLE AVIII: Drivers' responses to questions about their vehicles (figures rounded to one decimal place; unstated responses excluded from analyses)

Variable of interest	Truck driver	(Sample N)	Other motorist	(Sample N)
Age of vehicle in months: mean standard deviation ($\chi^2 = 43.2$, 6 df, $p < 0.0001^*$)	37.2 37.8	(611)	52.5 43.6	(549)
Ownership of vehicle: self other ($\chi^2 = 247.5$, 2 df, $p < 0.0001^*$)	46.0 54.0	(614)	83.8 16.2	(551)
Months which vehicle has been owned (owner-drivers only) mean standard deviation ($\chi^2 = 10.6$, 4 df, $p < 0.05^*$)	21.2 21.4	(282)	25.1 25.3	(459)
Number of other trucks (truck drivers) or other vehicles (other motorists) owned by this vehicle's owner (% of sample) None one 2 - 5 6 - 20 > 20 unstated	34.1 9.4 20.5 16.9 18.0 1.1	(615)	57.0 24.3 8.3 4.7 4.2 1.5	(551)
Attitude towards vehicle's steering: poor/very poor moderate good/excellent unstated ($\chi^2 = 2.5$, 3 df, $p > 0.05$)	2.6 11.7 85.6 0.1	(615)	3.3 14.0 82.4 0.3	(551)
Attitude towards vehicle's stability: (% of sample) poor/very poor moderate good/excellent unstated ($\chi^2 = 3.1$, 3 df, $p > 0.05$)	2.8 11.1 85.7 0.4	(615)	2.7 14.5 82.6 0.2	(551)

Table AVIII (Cont)

Variable of interest	Truck driver	(Sample N)	Other motorist	(Sample N)
Attitude toward vehicle's acceleration (% of sample)				
poor/very poor	15.0		9.3	
moderate	29.9	(615)	25.8	(551)
good/excellent	54.8		64.8	
unstated	0.3		0.1	
($\chi^2 = 20.6$, 4 df, $p < 0.0001^*$).				
Attitude towards vehicle's brakes: (% of sample)				
poor/very poor	5.1		2.5	
moderate	10.6	(615)	11.8	(551)
good/excellent	83.9		85.7	
unstated	0.4		0.0	
($\chi^2 = 11.9$, 4 df, $p < 0.05^*$).				
Attitude towards vehicle's gears: (% of sample)				
poor/very poor	7.0	(615)	3.4	(551)
moderate	13.8		11.4	
good/excellent	79.1		84.7	
unstated	0.1		0.5	
($\chi^2 = 9.9$, 4 df, $p < 0.05^*$).				
General satisfaction with vehicle expressed (% of sample)	38.5	(615)	45.0	(551)
($\chi^2 = 65.3$, 5 df, $p < 0.0001^*$).				
Number of gear ratios available, forward: mean	11.5		3.5	
standard deviation	3.7	(614)	0.8	(529)
reverse: mean	2.1		1.0	
standard deviation	0.9		2.0	
% who cannot hear radio/cassettes while driving (of those who have radio/player).	5.5	(493)	7.4	(459)

Table AVIII (Cont)

Variable of interest	Truck driver	(Sample N)	Other motorist	(Sample N)
% who are <u>unworried</u> by:				
(1) vibration ($\chi^2 = 5.73$, 1 df, $p < 0.05^*$).	75.0	(615)	68.6	(551)
(2) noise ($\chi^2 = 1.28$, 1 df, $p > 0.05$).	72.5	(615)	69.3	(551)
(3) temperature ($\chi^2 = 4.55$, 1 df, $p < 0.05^*$).	67.2	(615)	72.8	(551)
(4) ventilation ($\chi^2 = 4.31$, 1 df, $p < 0.05^*$).	85.9	(615)	80.6	(551)
% of vehicles with seat belts fitted	20.3	(615)	92.9	(551)
% of vehicles (with seat belts fitted) where some of the controls were not easy to see or reach when belts were worn.	29.6	(125)	10.2	(512)
% of vehicles (both with the without fitted seat belts) where some of the controls were <u>not</u> easy to see and reach when no belts were worn.	4.6	(615)	1.1	(551)

TABLE AIX: Factors nominated as contributing to road crashes by truck drivers and other motorists in percentages of each sample whose responses could be coded in the given categories. † (figures rounded to one decimal place).

FACTORS	% of truck drivers	% of other motorists
1. The most important factor contributing to road accidents (one factor coded):		
road factors	20.7	11.6
driver factors	76.9	84.8
vehicle factors	0.3	1.1
weather factors	0.3	0.9
traffic factors	0.7	0.4
truck factors	0.3	0.9
other factors	0.2	0.0
don't know	0.7	0.4
2. Other important factors (up to three factors coded):		
road	31.5	38.4
driver	132.3	122.6
vehicle	6.1	14.2
weather	3.5	5.7
traffic	0.5	0.6
truck	3.6	2.6
other	0.7	0.8

† Percentages may total over 100, since more than one factor was coded and since coding categories were large, which means that one respondent may cite several factors coded within one category. For example, the category of "road factors" included "bad roads", "narrow roads", "pot holes", "bad edges/shoulders", "trees/poles by the road", "bridges", "stock or animals on the road", etc.

TABLE AX: Factors nominated as contributing to truck crashes by truck drivers and other motorists in percentages of each sample whose response could be coded within the given categories † (figures rounded to one decimal place)

Factors	% of truck drivers	% of other motorists
Road factors	35.6	16.3
Driver factors	50.4	34.2
Weather factors	4.9	1.1
Unsafe behaviour of other (non-truck) vehicles	28.6	24.8
Truck factors:		
non-specific (e.g. "large size", "think they own the road", etc)	1.0	13.4
underpowered/slow trucks	0.7	1.6
loading factors	9.0	8.5
vehicle factors (poor maintenance, poor design, unroadworthy, etc.)	20.8	7.0
tyre factors	6.9	1.0
driver-fatigue factors	59.6	50.2
other, truck factors	1.2	0.9
other factors.	0.2	0.6

† see footnote to Table AIX

TABLE AXI : A summary of responses to seat belt questions (figures rounded to one decimal place)

Variable	% of Sample ¹		
	in a semi-trailer	in a rigid truck	in a car
Frequency of actual seat belt use by truck drivers:			
Always/mostly	1.0	2.5	81.2
Occasionally/rarely	1.2	1.1	6.4
Never	18.4	20.3	8.9
Not fitted	66.3	26.8	1.8
Not applicable	12.8	49.1	1.0
Not stated	0.3	0.2	0.7
Frequency of actual seat belt use in a car by other motorists:			
Always/mostly	87.6		
Occasionally/rarely	4.2		
Never	1.3		
Not fitted	6.5		
Not stated	0.4		
Suppositional frequency of seat belt use by truck drivers (if fitted; if no laws):			
Always/mostly	7.6	12.2	58.0
Occasionally/rarely	4.5	4.8	7.8
Never	79.0	76.6	33.2
Not applicable	7.8	3.6	0.3
Not stated	1.1	2.8	0.7
Suppositional frequency of seat belt use in a car by other motorists (if fitted; if no laws):			
Always/mostly	74.5		
Occasionally/rarely	11.4		
Never	13.4		
Not stated	0.7		

¹ N = 615 for truck driver sample
N = 551 for other motorist sample

TABLE AXI: CONTINUED

Variable	% of Sample ¹		
	<u>truck drivers</u>		<u>Other motorists</u>
Reasons for answers to suppositional question	in trucks	in cars	in cars
Belts are safer	6.8	44.7	50.4
Safer not to wear belts	45.1	16.9	8.9
Belts are comfortable, help to control vehicle	2.1	3.6	5.1
Belts are uncomfortable/cause chafing, hinder driver	33.3	9.2	5.2
It is a habit to wear the belt	0.5	7.6	10.2
It is a habit not to wear the belt	2.4	6.3	3.3
Would only wear them under certain conditions (at high speeds, on long trips etc.)	1.6	6.2	13.1
Other	6.4	3.8	2.2
Unknown/refuse to answer	1.8	1.7	1.6

¹ N = 615 for truck driver sample
N = 551 for other motorist sample

TABLE AXII: Agreement/Disagreement by truck-drivers with certain statement, together with a summary of reasons for the given response (figures rounded to one decimal place).

STATEMENTS/REASONS FOR STATEMENTS		AGREE/DISAGREE	% (N-615)
<u>Statement:</u>	"POLICE TREAT TRUCK DRIVERS DIFFERENTLY FROM OTHER ROAD USERS".	Agree Disagree Don't know, etc.	69.6 22.1 8.3
<u>Reasons:</u>	Police treat truck drivers better Police treat truck drivers worse No difference in treatment Cannot generalise/don't know/ unstated		14.6 41.0 16.4 28.0
<u>Statement:</u>	"OTHER DRIVERS TREAT TRUCK DRIVERS DIFFERENTLY FROM CAR DRIVERS ON THE ROAD".	Agree Disagree Don't know, etc.	79.0 13.5 7.5
<u>Reason:</u>	Favourable statement, e.g. "treat us with respect". Unfavourable statement, e.g. "Don't make allowances for us". No difference Other/cannot generalise/don't know/ unstated		18.4 48.7 7.5 25.4
<u>Statement:</u>	"TRUCK DRIVERS SHOULD BE GIVEN EXTRA DRIVING LICENCE POINTS"	Agree Disagree Don't know, etc.	80.2 17.1 2.7
<u>Reason:</u>	Greater exposure, e.g., "We do more driving Everyone should obey the same rules Other/don't know/unstated		79.8 9.3 10.9
<u>Statement:</u>	"LOG BOOK RESTRICTIONS ARE USELESS"	Agree Disagree Don't know, etc.	73.6 24.4 2.0
<u>Reason:</u>	Too easy to cheat Do not apply to all long distance vehicles Drivers need some restriction Other/don't know/unstated		55.0 17.9 22.3 4.8

TABLE AXII: (CONT.)

STATEMENTS/REASONS FOR STATEMENTS		AGREE/DISAGREE	% (N-615)
<u>Statement:</u>	"N.S.W. SPEED RESTRICTIONS FOR TRUCKS ARE APPROPRIATE"	Agree	44.9
		Disagree	52.3
		Don't know, etc.	2.8
<u>Reasons:</u>	Should be faster/should be the same as for cars		49.0
	Should be faster in certain conditions (e.g., when unladen/on freeways, etc).		10.6
	It is unsafe to go any faster (if laden, for the state of the roads, etc).		34.7
	Other/don't know/unstated		5.7
<u>Statement:</u>	"TOLL CHARGES FOR COMMERCIAL VEHICLES ARE FAIR"	Agree	25.7
		Disagree	64.2
		Don't know	10.1
<u>Reasons:</u>	Charge is excessive, not good value		28.1
	Unfair since we already pay road tax, etc.		34.2
	Good value		20.7
	Covered by freight charges/passed onto customer		13.0
	Other/don't know/unstated		4.0

TABLE AXIII: Agreement/Disagreement by other motorists with certain statements and reasons given for such responses (figures rounded to one decimal place).

STATEMENTS/REASONS FOR STATEMENTS		AGREE/DISAGREE	% (N=551)
<u>Statement:</u>	"THOSE WHO DRIVE ON THE ROADS ALL THE TIME AS PART OF THEIR JOBS (E.G. COMMERCIAL DRIVERS) SHOULD BE GIVEN EXTRA DRIVING LICENCE POINTS"	Agree Disagree Don't know, etc.	54.4 43.2 2.4
<u>Reasons:</u>	Greater exposure, "on the road more" Everyone should obey the same rules Other/don't know/unstated		51.2 31.4 17.4
<u>Statement:</u>	"LONG-DISTANCE, HEAVY-TRANSPORT DRIVERS (TRUCKS AND SEMI-TRAILERS) SHOULD BE UNDER STRICT CONTROL AS TO THE NUMBER OF HOURS THEY CAN DRIVE AT A STRETCH AND WITHIN A WEEK"	Agree Disagree Don't know, etc.	82.4 14.9 2.7
<u>Reasons:</u>	Too difficult to enforce Does not apply to all long-distance vehicles Drivers need some restriction Other/don't know/unstated		1.5 13.8 81.8 2.9
<u>Statement:</u>	"THERE SHOULD BE SPEED RESTRICTIONS FOR HEAVY, LONG-DISTANCE VEHICLES ON ALL ROADS"	Agree Disagree Don't know, etc.	60.4 36.3 3.3
<u>Reasons:</u>	Should be faster/should be the same as for cars/ leave it to the driver Should be faster in certain conditions It is unsafe to go any faster Other/don't know/unstated		31.6 12.2 50.7 5.5
<u>Statement:</u>	"LANE WIDTHS MARKED ON CITY AND COUNTRY ROADS ARE ADEQUATE"	Agree Disagree Don't know, etc.	31.4 66.2 2.4
(Reasons not requested)			
<u>Statement:</u>	"TOLL CHARGES ON EXPRESSWAYS ARE FAIR"	Agree Disagree Don't know, etc.	55.0 35.4 9.6
<u>Reasons:</u>	Charge is excessive, not good value Already pay for roads out of taxation, etc. Good value Other/don't know/unstated		11.3 23.4 52.6 12.7

TABLE AXIV: Drivers' suggestions to the government (percentages reflect the percentage of respondents within each sample who made a specific suggestion which could be coded within the given category, up to three suggestions being coded for each respondent) †

Suggestion	% of truck drivers	% of other motorists
Improvement of roads/bridges/signs	102.0	110.7
Abolish restriction on the commercial transport industry	30.2	3.1
Improve driver education/harder licence tests	21.3	30.4
Licence caravan drivers, more regulation for caravan operation	50.9	13.5
More police enforcement	4.8	14.2
Increase freight rates, ensure adequate pay for truck drivers	3.7	0.2
Stricter control over vehicle design/maintenance and safety features	4.7	6.9
Other	12.3	7.7

† See footnote to Table AIX

TABLE AXV: Drivers' opinions about different classes of road users (figures rounded to one decimal place).

Class of road user	Opinion as to typical behaviour	% of truck drivers (Sample N=615)	% of other motorists (Sample N=551)
Car drivers	*** skilled	22.8	33.8
	unskilled	58.4	35.7
	don't know/can't generalize	18.8	30.5
	*** considerate	26.5	35.9
	inconsiderate	55.6	39.4
	don't know/can't generalize	17.9	24.7
Semi-trailer drivers	*** reckless	38.7	21.8
	cautious	30.7	45.9
	don't know/can't generalize	30.6	32.3
	skilled	92.7	92.4
	unskilled	1.3	1.6
	don't know/can't generalize	6.0	6.0
Drivers of large (rigid) trucks and lorries	*** considerate	89.9	79.7
	inconsiderate	2.3	8.5
	don't know/can't generalize	7.8	11.8
	*** reckless	3.4	10.3
	cautious	83.8	73.3
	don't know/can't generalize	12.8	16.4
Motor cyclists	skilled	81.8	80.8
	unskilled	7.8	8.5
	don't know/can't generalize	10.4	10.7
	*** considerate	78.5	63.3
	inconsiderate	9.5	23.0
	don't know/can't generalize	12.0	13.7
Motor cyclists	** reckless	11.9	21.1
	cautious	70.4	61.0
	don't know/can't generalize	17.7	17.9
	** skilled	57.6	45.2
	unskilled	27.3	33.6
	don't know/can't generalize	15.1	21.2
Motor cyclists	* considerate	56.6	47.5
	inconsiderate	30.4	32.5
	don't know/can't generalize	13.0	20.0

* p <0.01, ** P <0.001, *** p <0.0001

TABLE AXV: (CONT.)

Class of road user	Opinion as to typical behaviour	% of truck drivers (Sample N=615)	% of other motorists (Sample N=551)
Motor cyclists	reckless	42.3	46.8
	cautious	39.0	32.8
	don't know/can't generalize	18.7	20.4
Drivers of cars towing caravans	*** skilled	2.3	12.9
	unskilled	93.0	73.5
	don't know/ can't generalize	4.7	13.6
	*** considerate	11.9	29.6
	inconsiderate	81.3	56.1
	don't know/can't generalize	6.8	14.3
	*** reckless	58.4	28.3
	cautious	29.6	54.8
	don't know/can't generalize	12.0	16.9

* p < 0.01, ** p < 0.001, *** p < 0.0001

TABLE AXVI: Characteristics of truck drivers and other motorists
(all figures rounded to one decimal place and unstated
answers excluded from analyses).

Characteristic	Truck Driver (Sample N)	Other Motorist (Sample N)
Age in years: ¹ mean standard deviation ($\chi^2=152.4$, 6 df, $p < 0.0001$, $C=0.34^*$)	34.3 8.1 (612)	34.5 12.8 (549)
Income: ² mean standard deviation ($\chi^2=153.8$, 4 df, $p < 0.0001$, $C=0.35^*$)	\$12,280 \$ 4,230 (590)	\$8,917 \$4,255 (527)
Marital status (% of sample): single married/de facto divorced/ separated widowed unstated ($\chi^2=42.3$, 3 df, $p < 0.0001$, $C=0.19^*$)	17.6 73.3 8.0 0.7 0.4 (615)	33.2 59.2 5.4 1.8 0.4 (551)
Education (% of sample): primary school only secondary, below SC ³ secondary, SC or above tertiary unstated ($\chi^2=158.9$, 6 df, $p < 0.0001$, $C=0.35^*$)	16.7 34.8 37.9 9.7 0.9 (615)	5.8 21.1 38.3 34.2 0.6 (551)

1. Age mean and standard deviation values were calculated by using the mid point of each category, with 65 for the "above 60 years" category (see question 12a, Appendix I).
2. Income mean and standard deviation values were also calculated by using the mid points of each category, with \$1,000 for the lower and \$17,500 for the upper income categories (see question 12C, Appendix I). Respondents were asked to give "gross or 'before-tax' after-expenses income".
3. SC = School certificate.

TABLE AXVI : CONTINUED

Characteristic	Truck Driver (Sample N)	Other Motorist (Sample N)
Number of weeks holiday (% of sample):		
None	7.8	3.8
One-three	28.3	11.6
Four-five	32.8	14.7
Six	17.1	40.1
Over six	6.8	24.5
Unstated	7.2	5.3
($\chi^2=202.1$, 7 df, p <0.0001, C=0.4*)	(615)	(551)
Number of hours spent driving and on loading or car maintenance per week:		
mean	71.6	17.7
standard deviation	22.8	14.5
	(574)	(523)
Recreation activities (% of sample):		
driving activities	11.2	10.3
only time for sleep	12.5	5.6
other activities	76.1	83.5
unstated	0.2	0.6
($\chi^2=17.1$, 2 df, p <0.0001, C=0.12*)	(615)	(551)
Frequency of television watching (% of sample):		
often	28.3	43.0
sometimes	64.7	51.0
never	6.5	5.1
unstated	0.5	.9
	(615)	(551)
Frequency of betting on the races (% of sample):		
often	5.7	6.2
sometimes	16.6	26.3
never	77.2	66.8
unstated	0.5	0.8
	(615)	(551)

TABLE AXVI : CONTINUED

TABLE AXVI : CONTINUED

Characteristic	Truck Driver (Sample N)	Other Motorist (Sample N)
Frequency of playing poker machines (% of sample): often sometimes never unstated	3.9 40.8 54.8 0.5 (615)	4.9 36.8 57.5 0.8 (551)
% who smoke while driving ($\chi^2=25.7$, 1 df, $p < 0.0001$, $C=0.15^*$)	61.8 (615)	46.8 (551)
Number of cigarettes smoked per day ⁴ : mean standard deviation ($\chi^2=65.2$, 3 df, $p < 0.0001$, $C=0.31^*$)	38.3 21.4 (377)	27.5 25.4 (257)
Alcohol consumption ⁵ (% of sample): none light drinkers heavy drinkers unstated ($\chi^2=2.9$, 2 df, $p > .2$)	13.8 78.4 5.9 1.9 (615)	14.5 77.3 3.6 4.6 (551)
Worry over debts (% of sample): often sometimes never unstated ($\chi^2=26.6$, 3 df, $p < 0.0001$, $C=0.15^*$)	21.3 26.5 51.7 0.5 (615)	10.5 29.2 59.7 0.6 (551)
Concern over making enough money:(% of sample): often sometimes never unstated ($\chi^2=6.0$, 3 df, $P > 0.1$)	33.0 26.7 39.8 0.5 (615)	27.4 32.1 39.9 0.6 (551)

TABLE AXVI : CONTINUED

TABLE AXVI : CONTINUED

Characteristic	Truck Driver (Sample N)	Other Motorist (Sample N)
Expression of overt anger (% of sample):		
> once a month	19.0	10.5
< once a month	27.0	24.8
never	53.3	64.1
unstated	0.7	0.6
($\chi^2=24.97$, 5 df, $p = 0.0001$, $C=0.15^*$)	(615)	(551)
Frequency of fist fighting (% of sample):		
> once a month	1.8	0.9
< once a month	19.2	9.8
never	78.4	88.7
unstated	0.6	0.6
($\chi^2=24.85$, 3 df, $p < 0.0001$, $C=0.15^*$)	(615)	(551)

4. Truck drivers were asked for the number of cigarettes smoked on both working and non-working days. The values above are for a working day. For a non-working day, the mean was 31.8 and standard deviation was 19.1.
5. Light drinkers were those having less than eight "standard drinks" (containing 10g ethanol per day; heavy drinkers were those having over seven standard drinks per day.

TABLE AXVII: Summary of data analyses conducted to see if owner operators differed from employee drivers on certain variables (each figure rounded to two decimal places).

Variable	χ^2	df	p
Hours at the wheel per week	1.31	2	>0.50
Hours worked (driving and loading etc.) per week	2.06	2	>0.30
Alcohol consumption	0.89	2	>0.50
Use of alerting drugs	5.27	2	0.07
Comments about the vehicle	9.97	8	>0.20
Agreement/disagreement with log-book statement	0.01	1	>0.90
Reasons for feelings about log books	1.57	3	>0.60
Frequency of reported traffic crashes	0.26	2	0.80

TABLE AXVII: CONTINUED

TABLE AXVII : CONTINUED

Variable	χ^2	df	p
Reasons for liking the job	33.78	13	<0.01*
Reasons for disliking the job	27.69	14	0.02*
Vehicle age	11.02	4	0.03*
Vehicle carrying capacity	12.96	4	0.01*
Income	78.84	3	0.00*

APPENDIX III:

RESTRICTIONS ON WORKING TIME FOR TRUCK DRIVERS

(QUESTIONNAIRE RESPONSES)

Prior to the survey described in this report, discussions with truck drivers, and those dealing with them, had pointed to log books as a source of dissatisfaction within the trade. This dissatisfaction was not only because of the actual restrictions imposed (some form of restraint was usually considered necessary to protect employees and owner drivers from overwork and danger of traffic crashes due to driver fatigue). The major source of dissatisfaction appeared to be in the ways in which the log book system was open to abuse. Hence, two questions in the survey was directed toward obtaining drivers' attitudes toward log books. The first of these questions asked, "Do you agree or disagree with this statement: 'Log book restrictions are useless'?" The next question asked, "Why do you say this?" The reasons given were coded into six categories. The responses to these questions may be seen in Table I and II.

Table I : Responses to first question (agree/disagree).

Response	frequency	percentage
Agree	453	73.7
Disagree	150	24.3
Refuse to answer	3	0.5
Don't know	9	1.5
TOTAL	615	100.0

Table II : Reasons for agreeing or disagreeing to statement.

Reason	f	%
1. Agree because books bear little resemblance to reality ("only lie books", "easy to rig", "not policed").	339	55.1
2. Agree because books don't apply to cars, caravans, government vehicles, etc., and are not appropriate to conditions (distances between depots, parking, refreshment facilities, etc).	110	17.9

Table II : CONTINUED

Reason	f	%
3. Disagree because drivers need some restriction, more accidents without them.	137	22.3
4. Can't make a living if we stick to the log book regulations.	9	1.5
5. Refuse to answer.	3	0.5
6. Don't know.	17	2.8
Total	615	100.0

