

**EVALUATION SURVEY ON DRIVER
FATIGUE**

**A NATIONAL STUDY OF HEAVY
VEHICLE OPERATORS**

MAY 2007



**Prepared by
AMR Interactive**



Australian Government
Department of Employment and
Workplace Relations



Australian Government
Australian Transport Safety Bureau

National Transport Commission

Reform Evaluation Survey on Driver Fatigue: A National Study of Heavy Vehicle Operators

Report Prepared by: **AMR Interactive**

ISBN: 1 921168 63 3

REPORT OUTLINE

Date:	May 2007
ISBN:	1 921168 63 3
Title:	Reform Evaluation Survey on Driver Fatigue: A National Study of Heavy Vehicle Operators
Address:	National Transport Commission Level 15/628 Bourke Street MELBOURNE VIC 3000 E-mail: ntc@ntc.gov.au Website: www.ntc.gov.au
Type of report:	Research report
Objectives:	To provide a baseline for future measurement of the impact of the 2006 Heavy Vehicle Driver Fatigue reform on road transport industry awareness, attitudes and behaviour relating to driver fatigue.
NTC Programs:	NTC Strategic Program, Road Safety
Key Milestones:	Delivery of final report in May 2007.
Abstract:	<p>The NTC is assessing the effectiveness and the impact of its major national reforms.</p> <p>The 2006 Heavy Vehicle Driver Fatigue reform shifts the focus from the driver to other roles within companies with the power to exercise control over driver fatigue. The reform also targets external third parties in the road transport chain who can also exert influence and affect compliance with road safety regulations.</p> <p>The survey assesses the awareness and attitudes of driver fatigue among road transport companies, freight forwarders, logistics companies, and major consignors or ancillary operators such as farmers who consign and move their own freight.</p> <p>A complementary survey has been conducted of long and short haul heavy vehicle drivers.</p>
Purpose:	For information.
Key words:	Road safety, reform evaluation, heavy vehicle, driver fatigue.
Enquiries to be addressed to:	Jeff Potter National Transport Commission L15/628 Bourke Street MELBOURNE VIC 3000

FOREWORD

The National Transport Commission (NTC) is a body established under an inter-governmental agreement with a charter to develop, monitor, and maintain uniform or nationally consistent regulatory and operational reforms relating to road transport, rail transport, and inter-modal transport. The NTC is funded jointly by the Australian Government, States and Territories.

Under this agreement, the NTC has a statutory obligation to review the success of, and maintain, the agreed reforms it has developed. However, in order to assess the effectiveness of its reforms, the NTC must first establish a set of base level compliance data for reform evaluation.

In 2004, the NTC contracted ARRB Transport Research to conduct an initial survey of existing data collections within Australia relevant to the effective implementation of NTC road transport reforms. ARRB also advised the NTC on a strategy to develop a usable set of base level compliance data for road transport reform evaluation. The ARRB report concluded that collection of data on key issues from multiple sources would be necessary, before and throughout the lifespan of reforms and beyond. The aim of these surveys is to address gaps in the identified data by obtaining a set of base level compliance data in order to build a more complete picture of the impact of these national reforms over time.

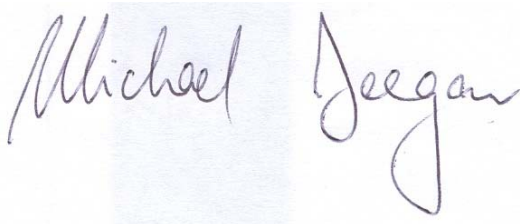
In the context of the 2006 Heavy Vehicle Driver Fatigue reform, this survey assesses the awareness and attitudes of driver fatigue among road transport companies, freight forwarders, logistics companies, major consignors such as retailers and manufacturers, and ancillary operators such as farmers who both consign and move their own freight.

A complementary survey has also been conducted over the same period of road transport operators, freight forwarders, logistics companies and third party consignors who exert influence and can affect compliance with road safety regulations.

The results from these surveys will serve as a baseline for comparison with past and future evaluations of reforms on driver fatigue.

A similar exercise is anticipated two to three years following implementation of this reform.

On behalf of Commissioners I would like to thank all those who took the time and effort to take part in the survey for providing valuable insights into this important issue.

A handwritten signature in black ink that reads "Michael Deegan". The signature is written in a cursive style and is positioned over a light blue rectangular background.

Michael Deegan

Chairman

ACKNOWLEDGEMENTS

This survey would not have been possible without the support of the participating companies and the individual drivers who kindly took part.

The NTC acknowledges the funding provided by the Australian Transport Safety Bureau (ATSB) and by the Office of the Australian Safety and Compensation Council (ASCC), a branch of the Department of Employment and Workplace Relations.

The NTC would also like to thank Chris Brooks from the ATSB, representatives from the Office of the ASCC, and Jeff Potter and Christine Roche of the NTC who all provided valuable assistance with the formulation of the surveys and with the drafting of the final reports.

GLOSSARY

Ancillary operator:	A firm that carries freight in its own vehicles but whose main business is normally non-transport related.
Articulated vehicle:	A combination consisting of a prime mover towing a semi-trailer.
B-double:	A combination consisting of a prime mover towing two semi-trailers where the first semi-trailer is connected to the prime mover by a fifth wheel coupling and the second semi-trailer is connected to the first semi-trailer by a fifth wheel coupling.
Consignee:	A consignee of goods is a person who actually receives the goods after completion of their transport by road but does not include a person who merely unloads the goods.
Consignor:	A <i>consignor</i> of goods is a person who engages an operator of a vehicle, either directly or indirectly or through an agent or other intermediary, to transport the goods by road; who has possession of, or control over, the goods immediately before the goods are transported by road; or who loads a vehicle with the goods, for transport by road, at a place where goods in bulk are stored or temporarily held and that is unattended (except by a driver of the vehicle or any person necessary for the normal operation of the vehicle) during loading. If none of these apply, and the goods are imported into Australia — a person who imports the goods is a consignor.
Employee driver:	A driver employed directly by a company, not under contract.
Freight forwarder:	A sub-category of hire and reward operators that act as intermediaries between clients (consignors) and those that carry out the transport task (sub-contractors). A freight forwarder can also be a prime contractor under the new reform.
Freight operator:	A sub-category of hire and reward operators that secure consignments on a contractual basis, either directly from consignors or from freight forwarders.
Heavy vehicle:	Drivers in the survey were required to drive a heavy vehicle of at least 12 tonnes gross vehicle mass.
Hire and reward operator	A firm that is involved in carrying freight for another firm on a contractual basis.
Gross vehicle mass (GVM):	The maximum loaded mass of a vehicle.
Independent driver:	An owner driver/operator not working as a subcontractor.
Long haul trip:	A trip taking the driver more than 100 km from the driver's base.

Mainly-long haul:	A term used in the report to define heavy vehicle drivers in the survey sample for whom at least 90% of their trips take them more than 100 km from their base.
Mainly-short haul:	A term used in the report to define heavy vehicle drivers in the survey sample for whom less than 30% of their trips take them more than 100 km from their base.
Owner driver/operator:	Self-employed carriers operating their own business.
Prime contractor:	A prime contractor is a person who engages someone else to drive a regulated heavy vehicle under a contract for services. (<i>Example of a prime contractor: A logistics business that engages a subcontractor to transport goods.</i>)
Rigid truck:	A heavy vehicle that is not articulated.
Road train:	A combination, other than a B-double, consisting of a motor vehicle towing at least 2 trailers (counting as a single trailer a converter dolly supporting a semi-trailer).
Scheduler:	A person who schedules a driver's work or rest time; or who schedules the transport of passengers or goods by road; or who makes a demand that affects a time in a schedule, such as the distribution manager for a retail chain or a loading agent or freight forwarder who sets a deadline for a delivery.
Short haul trip:	A trip taking the driver up to 100 km from the driver's base.
Stay awake drug:	One of a number of stimulant drugs other than caffeine, often illegal, used to increase alertness.
Subcontractor:	A driver engaged for a specific task or period of time, working who would usually operate for a range of clients, and under a business or company name.
Transitional Fatigue Management Scheme:	A voluntary alternative to the standard regulated driving hours. It provides drivers with a set of interim arrangements designed to assist industry by enabling more flexible rostering hours of drivers.

SUMMARY

Background and Objectives

The NTC is keen to assess the impacts of its national reforms over time and to develop a long term strategy to evaluate the effectiveness of the reforms it has developed. Currently two major reforms are being implemented in 2006-07 and 2007-08. Both the Compliance and Enforcement reform (2003) (National Transport Commission, 2002, 2003) and the new Heavy Vehicle Driver Fatigue reform (2006) (National Transport Commission, 2004a, 2004b) target heavy vehicle road transport operations (both long distance and urban).

Fatigue is one of the main causes of crashes involving heavy vehicle drivers. Current prescriptive approaches are inflexible, not fully effective and are inconsistent with requirements under occupational health and safety laws.¹

The Heavy Vehicle Driver Fatigue reform shifts the focus from the driver to a range of other roles within a company. These roles are responsible for management and safety practices, e.g. scheduling, with the ability to manage driver fatigue precursors, such as opportunity for sleep, time of day influences, and the cumulative nature of fatigue and sleep loss. The aim of this reform is to improve road safety through the implementation of company policies and practices to address the management of driver fatigue in the road transport supply chain.

This reform will affect all parties in the road transport supply chain, including freight forwarders, shippers, stevedores, packers, loaders, and third parties such as major consignors of goods including manufacturers, farmers, and retailers among others who exert influence and can affect compliance with road safety regulations.

In order to gauge the impacts of the Heavy Vehicle Driver Fatigue reform on road transport industry management and safety practices, the NTC needs to gather data both prior to and post-implementation of this reform. Two studies were conducted relating to driver fatigue, one with heavy vehicle operators and consignors, and one with heavy vehicle drivers. This report covers transport operators, freight forwarders and third party consignors.

The purpose of this survey is to assess, prior to implementation of the new reform, the current attitudes, awareness and understanding among these parties of driver fatigue management issues, and their day to day experience of fatigue-related issues.

Results from this survey have also been compared with those from the parallel driver survey and from an earlier survey on driver fatigue conducted with road transport operators in 1998 (Williamson, Feyer, Friswell and Sadural, 2001).

¹ See background information to the fatigue reform in House of Representatives, Standing Committee on Communication, Transport and the Arts (2000), Motor Accidents Authority, NSW (2001), National Transport Commission (2001), National Transport Commission (2002), and National Road Transport Commission and Ken Smith – Smithworks Consulting (2001).

The Study

A preliminary, qualitative study was conducted to explore issues with drivers and companies involved in road freight transport. Companies included freight operators, freight forwarders and ancillary operators. Preliminary focus groups with drivers and in-depth interviews with companies were conducted during April/May 2006.

The main quantitative telephone survey was conducted in August/September 2006, involving a final sample of 314 companies across Australia. Companies were required to operate heavy vehicles of at least 12 tonnes gross vehicle mass to transport freight. Companies were sampled in two main categories from several sources:

- Hire and reward operators (including freight operators and freight forwarders) sourced from the Yellow Pages (online).
- Consignors who transport their own goods (i.e. ancillary operators) covering categories of agriculture, manufacturing, wholesaling and retail, were sourced from lists of relevant major companies on the business website *IBISworld* (<http://www.ibisworld.com.au/enterprise/home.aspx>), supplemented with a pool of farmers sampled from the Yellow Pages; or through a specialist recruitment company. Companies were identified through recruitment networks and screened to qualify for the survey.

The questionnaire was developed around the objectives for the research, with input from the qualitative research. The questions covered a range of issues including the company and work profile; attitudes to driver fatigue; knowledge of contributors to fatigue; and practices and strategies in place to manage fatigue.

Summary of Results

The Survey as a Baseline

The survey serves as a baseline prior to fuller implementation in 2008 of the Heavy Vehicle Driver Fatigue reform. An important role of the study is as a baseline for measures of awareness, attitudes and behaviour of companies in the context of driver fatigue. Changes in these measures at some later stage can be used to assess the effectiveness of the reform in meeting its objectives. It should also be noted, however, that the survey was conducted during the Heavy Vehicle Driver Fatigue reform public consultation period, which may have influenced awareness and perceptions.

The survey also provides an opportunity to assess changes that have occurred since the last survey was conducted, with long distance transport companies, in 1998 (Williamson, Feyer, Friswell and Sadural, 2001b).

Attitudes and Perceptions of Fatigue

The new Heavy Vehicle Driver Fatigue reform is being implemented at a time when two thirds of companies, as measured in the survey, consider that driver fatigue is well managed in the industry. This positive attitude was stronger than in 1998, so gains have already been made since that time. A fifth of companies surveyed, however, continue to consider that fatigue is badly managed, so there continues to be scope for improvement in how well companies are provided with systems to implement good practices, and how well the benefits of the reform to the industry are promoted. Three quarters of companies also considered that the current regulations allow them to help their drivers manage fatigue effectively.

These strongly positive attitudes about the current situation around driver fatigue may mean that there will be resistance to the introduction of further actions and requirements of companies. The results suggest that the NTC will need to promote the benefits of the new reform to convince companies that any new requirements are of importance, particularly direct benefits to companies. Smaller operations would be a primary target for this type of promotion, as they were less likely to feel that the current regulations are effective for them.

Issues that should be addressed in promoting the new reform would include overcoming resistance to the perceived inflexibility/restrictiveness of requirements around existing driving hours. This resistance was primarily expressed around problems that drivers experienced. It is possible that company managers would also like more flexibility, for example where they consider they need to change schedules to meet customer needs.

Almost all companies recognised 'long driving hours', 'insufficient rest' and 'inadequate sleep' as factors that could contribute to driver fatigue. There was lower recognition of other factors known to be of importance, including 'night driving', 'too much non-driving work' and 'driving in the early afternoon'; but nomination of these factors had increased since the 1998 survey. So while there is scope for further improvement in knowledge in order to encourage companies to take into account all the factors of importance when managing their trips, improvements have already been achieved.

Further positive changes from the 1998 survey were for lower nomination of the less desirable strategy of 'taking stay awake drugs' and the less effective strategy of 'adjusting the ventilation'. These changes indicate a more sophisticated understanding by companies of the range of factors influencing fatigue and what needs to be done for effective management. This improvement, however, needs to be seen in the context that three quarters of companies considered 'sticking to the working hours regulations' could contribute to fatigue. Companies clearly have concerns about current legislation. Whether or not these concerns are valid in practice, they should be addressed in the way that the new legislation is promoted.

Company Practices

There was a continuation of the pattern observed in the 1998 survey for larger companies to be more likely to implement formal practices to manage fatigue. Comparisons with the 1998 survey, however, showed that substantial improvements had been made in covering subcontractor and independent drivers with formal driver fatigue and medical policies, which was found in the current survey to be at a similar level of coverage as for employee drivers. These changes indicate that companies are becoming more accepting of responsibility for subcontractor and independent drivers.

One area in which non-employee drivers were still treated very differently was in payment for non-driving work. Almost all (90%) of companies using employee drivers paid them for non-driving work. Companies were less likely to pay their subcontractors (72%) for non-driving work, and even less likely to pay their independent drivers (59%).

Trips Profiles

Three quarters of companies reported experiencing late arrivals on at least some of their trips, although very few reported a frequency greater than 'some'. There was a trend for greater delays to be experienced by smaller companies. Smaller companies were shown to be less likely to monitor arrival times or take action with later arrivals. This relationship suggests that smaller operations are less likely to monitor trips because of a lower

incidence of late arrivals; but it is also possible that they report fewer later arrivals simply because they are less aware of them.

The regularity of trip times/destinations will help companies and drivers in planning schedules, by taking into account experience of the trips. Half of companies had regular trip times/destinations for most of their work, including a fifth for all of their work. Companies that had a mix of short and long haul trips (1-29% long haul) were the most likely to report irregular work patterns, possibly because the lower frequency long haul trips are the ones that are less planned. Smaller companies also had a lower incidence of regular trips. These types of companies appear more vulnerable to potential problems with scheduling and fatigue.

Companies reported substantial control over their schedules, with the decision maker for estimating arrival times most likely to be either a company manager or the driver. While the customer was only involved in setting arrival times for less than a quarter of companies, customers could have substantial influence on schedules. Overall, two thirds of companies reported having to change schedules to suit customer needs on at least some of their trips, including a fifth on at least most of their trips. There appears, however, to have been some improvement in this area compared with the results from the 1998 survey.

Pressures from schedules and arrival times are a potential problem for drivers who are trying to manage their working hours within a regulated framework. A fifth of companies did not monitor arrival time on any of their trips, and there had been no change in this incidence compared with the 1998 survey. Furthermore, about half of companies overall did nothing about arrival times, either not monitoring or not taking action for late arrival. There was a trend for this to be greater among companies only using 'employee drivers', among companies operating fewer than 30 trucks, and among the mainly-long haul group. This pattern leads to the following observations:

- Companies are tougher in monitoring/taking action on late arrivals where subcontractor and independent drivers are involved in their operations, suggesting that these drivers are seen to have more responsibility to be on time.
- Larger companies are tougher in monitoring/taking action on late arrivals, suggesting that they have a greater reputation to uphold, to remain competitive in their industry. Larger companies were also found to be more likely to schedule trips to take into account delays resulting from queuing.
- The mainly-long haul companies are not as tough about monitoring/taking action on late arrivals, possibly because delays are accepted as more likely to happen on long trips. This group of companies was also found to be more likely to schedule trips to take into account delays resulting from queuing.

Conclusions

The results of the study provide a baseline for measures of awareness, attitudes and behaviour of companies in the context of driver fatigue. Changes in these measures at some later stage can be used to assess the effectiveness of the reform in meeting its objectives. The ability to sample freight operators and freight forwarders through the Yellow Pages produced a sampling method with high representativeness. The process for sampling ancillary operators was more limited owing to the low incidence of ancillary operations among major companies, and the need to introduce a less random approach to maintain a cost-efficient method. Furthermore, the survey was conducted during the Heavy

Vehicle Driver Fatigue reform public consultation period, which may have influenced awareness and perceptions.

The survey results already show some important improvements in knowledge and practices compared with the survey conducted in 1998:

- An improvement in the attitude that fatigue is well managed in the industry.
- An improvement in the attitude that the current regulations help companies to help drivers to manage fatigue effectively.
- Substantial improvement in the implementation of formal driver fatigue and medical policies to subcontractor and independent drivers. A reduction in the implementation of a medical policy for employee drivers may reflect a growing implementation of Fatigue Management Schemes as part of accreditation requirements.
- A substantial increase in the incidence of restrictions for subcontractor and independent drivers on all types except 'nights worked per week'; a reduction in the incidence of the restriction on 'nights worked per week' for employee drivers; and a reduction in the average number of hours worked per week, for all driver types.
- Perceptions of an increase in awareness of driver fatigue both within the company and more broadly in the industry were lower in the current survey. This may simply reflect the level of awareness that has already been achieved over the years, and provides a good baseline on which to measure the impact of promotion of the new Reform.
- Increases in nomination of several factors as contributors to fatigue, including 'driving in early afternoon', 'driving at night', and 'too much non-driving work'. These increases are encouraging as these are factors known to contribute to fatigue.
- Reductions in rating 'taking stay awake drugs' and 'adjusting the ventilation' as helpful strategies in managing fatigue. These changes are also encouraging, as these strategies are not recommended for effective avoidance of driver fatigue.
- Trends for an increase in nominating 'management and driver in consultation' as a method used for determining trip times; and a decrease in the incidence of changing trip schedules to suit customer demands on 'most/all' trips.

AT A GLANCE

Measure	Results for Companies
Payment methods	<p><i>Rate</i></p> <ul style="list-style-type: none"> 53% paid their employee drivers by an ‘hourly rate’, compared with 38% for subcontractors and 22% for independent drivers. <p><i>Award</i></p> <ul style="list-style-type: none"> 74% paid their employee drivers above the award, rated compared with 52% for subcontractors and 46% for independent drivers. <p><i>Non-Driving Work</i></p> <ul style="list-style-type: none"> 90% paid their employee drivers for non-driving work, compared with 72% for subcontractors and 59% for independent drivers.
General Perceptions of Fatigue	<ul style="list-style-type: none"> 80% considered that awareness of driver fatigue in the industry in which they worked had increased over the last year, including 40% considering that it had ‘increased a lot’. Perception of an increase was lowest among ancillary operators (26% ‘increased a lot’) and in smaller-sized companies operating 1-2 trucks (18% ‘increased a lot’).
Contributors to Fatigue	<ul style="list-style-type: none"> >75% recognised ‘long driving hours’, ‘insufficient rest’ and inadequate sleep’ as factors that could be major contributors to driver fatigue. Other factors established as contributors to fatigue were not as well nominated: <ul style="list-style-type: none"> 41% considered ‘night driving’ as a potential major contributor; 37% considered ‘too much non-driving work’; and 11% considered ‘driving in the early afternoon’. 78% considered that ‘sticking to the working hours regulations’ could be at least a minor contributor to fatigue (29% as a major contributor).
Helpful Strategies to Manage Fatigue	<ul style="list-style-type: none"> 66% considered ‘stopping to sleep’ as ‘very helpful’ in managing fatigue, and 59% considered ‘stopping to rest’ as ‘very helpful’. The second tier of strategies, judged as ‘helpful’ by over half of companies, included actions within the vehicle of ‘adjusting ventilation’ (75%) and ‘listening to the radio or music’ (76%); and ‘having a drink containing caffeine’ (56%). Few considered other types of stimulants as helpful: ‘taking stay awake drugs’ (12%) and ‘smoking’ (15%). Only 17% considered ignoring the regulations ‘to finish a trip when close to home’ as helpful.

Measure	Results for Companies
Attitudes to Managing Fatigue	<ul style="list-style-type: none"> • 68% considered that driver fatigue was at least ‘quite well’ managed in the industry, including 18% considering it ‘very well’ managed. • 73% considered that the current regulations allowed them to help their drivers manage fatigue effectively. • There was a substantial improvement over the 1998 survey, where 56% considered that the regulations allow effective fatigue management. • The main reasons given for not considering the regulations to be effective were around inflexibility and restrictiveness.
Policies and Schemes	<ul style="list-style-type: none"> • 79% implemented ‘standard working hours’ for drivers. • 53% implemented a ‘formal driver fatigue management policy’ and 53% implemented a ‘formal medical policy’. • 57% implemented a more formal industry fatigue management scheme, including 38% with the ‘Transitional Fatigue Management Scheme’. • Implementation of policies for subcontractors and independent drivers was much higher than in the 1998 survey.
Managing Working Hours	<ul style="list-style-type: none"> • Practices for managing working hours were most likely to be applied to employee drivers. • The most common activities were to ‘manage working hours according to the working hours legislation’, ‘restrict the number of hours worked per day’ and ‘restrict the number of continuous days worked’. • Changes from the 1998 survey were for: <ul style="list-style-type: none"> – a substantial increase in the incidence of restrictions for subcontractor and independent drivers on most practices; and – a reduction in the average number of hours worked per week, for all driver types.
Fatigue Management Strategies	<ul style="list-style-type: none"> • >90% reported ‘monitoring the working hours that drivers do’, ‘allowing enough time between trips for sleep’ and ‘allowing flexible schedules for drivers to rest when needed’. • Activities with lower implementation included: <ul style="list-style-type: none"> – use workers other than drivers for loading and unloading (73%); – monitor the levels of fatigue of drivers (74%); and – provide education about fatigue (75%). <hr/> <ul style="list-style-type: none"> • The most common ways in which companies monitored fatigue, nominated by over two thirds of companies overall, were: <ul style="list-style-type: none"> – review any incidents or accidents; – ask drivers how they felt; and – review drivers’ log books.

Measure	Results for Companies
Trip Times	<ul style="list-style-type: none"> • Half (48%) of companies had regular trip times/destinations for most of their work, including a fifth (20%) for all of their work. • A range of methods was used by companies to determine trip times. The most common method, nominated by half (54%) of companies, was 'management and the driver in consultation'.
Arrival Times	<ul style="list-style-type: none"> • 52% estimated arrival times for at least 'most' of their trips, while a quarter of companies estimated arrival times for 'none' of their trips. • 51% nominated a manager within their own company, and a further 29% nominated the driver. • 42% <u>monitored</u> the arrival time for all their trips, while 20% did not monitor arrival time on any of their trips. • 75% reported experiencing late arrivals on at least 'some' of their trips, but very few reported a frequency greater than 'some'. • Very few companies (2.5%) encouraged drivers to arrive earlier by offering a bonus.
Impacts on Trip Times	<ul style="list-style-type: none"> • 31% reported never having to change schedules to suit customer needs. • 22% reported having to change schedules to suit customer needs on at least 'most' trips, increasing to 66% on at least 'some' occasions. • Fewer companies reported having to delay a load because of driver fatigue: 48% on at least 'some' of their trips, but including only 6% reporting it for at least 'most' of their trips.
Relationships with attitudes	<ul style="list-style-type: none"> • Companies that considered that fatigue was managed well in the industry were more likely than those who considered it was managed badly to: <ul style="list-style-type: none"> - restrict the number of continuous days worked per week; - have a fatigue management scheme of some type; - monitor the levels of fatigue of drivers; - make drivers take rest breaks when they are driving; and - show trends for restricting hours worked per day. • Companies that considered that the laws allowed them to help drivers manage fatigue effectively were more likely than those who did not to: <ul style="list-style-type: none"> - minimise night driving as a way to manage fatigue; and - report that they delay a load because of fatigue on 'no trips' (which suggests that are less likely to experience fatigue and hence do not need to delay trips).

CONTENTS

1. INTRODUCTION	1
1.1 Background	1
1.2 Objectives of the Research	2
2. METHOD.....	2
2.1 Qualitative Research	2
2.2 Survey Research	2
2.2.1 <i>The Sample</i>	2
2.2.2 <i>Questionnaire</i>	4
2.3 Analysis	5
2.3.1 <i>General Results and Group Comparisons</i>	5
2.3.2 <i>Weighting by Drivers</i>	5
2.3.3 <i>Statistical Tests</i>	6
2.3.4 <i>Comparisons with the 1998 Survey</i>	6
3. RESULTS	6
3.1 Profile of Companies	6
3.2 Payment Methods	10
3.3 Attitudes and Perceptions about Driver Fatigue	13
3.3.1 <i>General Perceptions</i>	13
3.3.2 <i>Contributors to Driver Fatigue</i>	16
3.4 Fatigue Management – General Attitudes	21
3.5 Workplace Environment	23
3.5.1 <i>Policies and Schemes</i>	23
3.5.2 <i>Managing Working Hours</i>	25
3.5.3 <i>Fatigue Management Strategies</i>	29
3.6 Trip Profiles	32
3.6.1 <i>Trip Times</i>	32
3.6.2 <i>Arrival Times</i>	34
3.6.3 <i>Impacts on Trip Times</i>	38
3.6.4 <i>Impacts on Trip Times – Changing Schedules</i>	40
3.6.5 <i>Comparisons with the 1998 survey</i>	41
3.7 Relationships with Attitudes	43
4. DISCUSSION.....	45
4.1 Company Profile	45
4.2 The Survey as a Baseline	45
4.3 Attitudes and Perceptions of Fatigue	45
4.4 Company Practices	46
4.5 Trip Profiles	46
5. CONCLUSIONS	47
6. REFERENCES	49
7. APPENDICES.....	51
7.1 Appendix A – Additional Detail on Method	51
7.1.1 <i>Recruitment of Companies</i>	51
7.1.2 <i>Interview Procedure</i>	52
7.1.3 <i>Interview Outcomes</i>	52
7.1.4 <i>Statistical Analysis</i>	52
7.2 Appendix B – Questionnaire	53
7.3 Appendix C – Comparing the Parallel Surveys of Drivers and Companies	63
7.3.1 <i>The Surveys</i>	63
7.3.2 <i>Perception of How Well Fatigue is Managed in the Industry</i>	64
7.3.3 <i>Contributors to Fatigue</i>	64
7.3.4 <i>Helpfulness of Strategies</i>	65

LIST OF TABLES

Table 1.	Summary of Locations and Sample Sizes.....	3
Table 2.	Main Categories of Companies Used for Comparisons in the Analysis, Including Sample Size and Maximum 95% Confidence Interval for Results.....	5
Table 3.	Profile of the Survey Sample, by Company Groupings	7
Table 4.	Main Types of Freight Transported, by Company Groupings	8
Table 5.	Activity Clusters	9
Table 6.	Profile Activity Clusters by Company Type	10
Table 7.	Payment Methods, by Driver Type and Company Groupings	11
Table 8.	Award Rate by Driver Type, by Company Groupings	12
Table 9.	Payment for Non-Driving Work, by Company Groupings.....	13
Table 10.	Factors that Could be Major Contributors to Driver Fatigue, by Company Groupings.....	17
Table 11.	Driver Strategies Rated as ‘Helpful’ to Manage Fatigue, by Company Groupings.....	19
Table 12.	Factors that Could be Contributors to Driver Fatigue, in 1998 and 2006.....	20
Table 13.	Driver Strategies Rated as ‘Helpful’ to Manage Fatigue, in 1998 and 2006..	20
Table 14.	Reasons that Current Regulations do not Allow Effective Management	22
Table 15.	Policies and Schemes in Place, by Company Groupings.....	23
Table 16.	Practices in Place, by Type of Driver	24
Table 17.	Practices in Place in Companies Employing Each Driver Type, in 1998 and 2006	25
Table 18.	Managing Working Hours, by Driver Group.....	26
Table 19.	Restrictions in Place, by Driver Type and Company Groupings.....	27
Table 20.	Level of Restrictions in Place, by Driver Type.....	27
Table 21.	Implementation and Level of Restrictions on Working Hours in Place in Companies Employing Each Driver Type, in 1998 and 2006	28
Table 22.	Driver Fatigue Management, by Company Groupings.....	30
Table 23.	Ways of Monitoring Fatigue, by Company Groupings.....	31
Table 24.	Methods of Determining Trip Times, by Company Groupings.....	33
Table 25.	Decision Maker of Estimated Arrival Time, by Company Groupings	35
Table 26.	Trips where Arrival Time is Monitored, by Company Groupings.....	35
Table 27.	Consequences of a Driver Being Late, by Company Groupings	36
Table 28.	Bonus for Driver Arriving Early, by Company Groupings	37
Table 29.	Results on Questions about Trip Times, Arrivals and Delays, in 1998 and 2006.....	42
Table 30.	Relationships Between Attitudes and Behaviours	44
Table 31.	Summary Sampling Pool of Consignors	51
Table 32.	Profile of the Companies and Drivers in the Two Surveys.....	63

Table 33. Perception of How Well Fatigue is Managed in the Industry	64
Table 34. Rating of Contributors to Fatigue.....	64
Table 35. Driver Strategies Rated as ‘Helpful’ to Manage Fatigue.....	65

LIST OF FIGURES

Figure 1. Change in Industry Awareness of Driver Fatigue, by Company Groupings	14
Figure 2. Change in Company’s Awareness of Driver Fatigue, by Company Groupings	15
Figure 3. Factors that Might Contribute to Driver Fatigue, by Company Groupings...	16
Figure 4. Driver Strategies Rated as ‘Very Helpful’ to Manage Fatigue	18
Figure 5. How Well Fatigue is Managed in the Industry, by Company Groupings	21
Figure 6. Whether Current Regulations Help the Company to Help Drivers Manage Fatigue Effectively, by Company Groupings.....	22
Figure 7. Incidence of Regular Trip Times/Destinations, by Company Groupings	32
Figure 8. Incidence of Estimating Arrival Times, by Company Groupings	34
Figure 9. How Often Late Arrivals Occur, by Company Groupings	37
Figure 10. Delays Waiting in Queues to Unload, by Company Groupings	38
Figure 11. Queuing Accounted for in Schedules, by Company Groupings	39
Figure 12. Changing Schedules to Suit Customer Demands, by Company Groupings	40
Figure 13. Delaying a Load for Driver Fatigue, by Company Groupings	41

1. INTRODUCTION

1.1 Background

The NTC is keen to assess the impacts of its national reforms over time and to develop a long term strategy to evaluate the effectiveness of the reforms it has developed. Currently two major reforms are being implemented in 2006-07 and 2007-08. Both the Compliance and Enforcement reform (2003) (National Transport Commission, 2002, 2003) and the new Heavy Vehicle Driver Fatigue reform (2006) (National Transport Commission, 2004a, 2004b) target heavy vehicle road transport operations (both long distance and urban).

Fatigue is one of the main causes of crashes involving heavy vehicle drivers. Current prescriptive approaches are inflexible, not fully effective and are inconsistent with requirements under occupational health and safety laws.²

The Heavy Vehicle Driver Fatigue reform shifts the focus from the driver to a range of other roles within a company. These roles are responsible for management and safety practices, e.g. scheduling, with the ability to manage driver fatigue precursors, such as opportunity for sleep, time of day influences, and the cumulative nature of fatigue and sleep loss. The reform seeks to improve road safety through the implementation of company policies and practices through an accreditation process which will address the management of driver fatigue in the road transport supply chain.

This reform will affect all parties in the road transport supply chain, including freight forwarders, shippers, stevedores, packers, loaders, and third parties such as major consignors of goods including manufacturers, farmers, and retailers among others who exert influence and can affect compliance with road safety regulations.

In order to gauge the impacts of the Heavy Vehicle Driver Fatigue reform on road transport industry management and safety practices, the NTC needs to gather data both prior to and post-implementation of this reform. As a result, two surveys have been conducted on driver fatigue, one with heavy vehicle operators and one with heavy vehicle drivers.

This survey assesses, prior to implementation of the new reform, the current attitudes, awareness and understanding of driver fatigue management issues, among transport operators, freight forwarders and third party consignors and their day to day experience of driver fatigue-related issues. It should also be noted, however, that the survey was conducted during the Heavy Vehicle Driver Fatigue reform public consultation period, which may have influenced awareness and perceptions.

Results from this survey have also been compared with those from the driver survey and from an earlier survey on driver fatigue conducted with road transport operators in 1998 (Williamson, Feyer, Friswell and Sadural, 2001b).

² See background information to the fatigue reform in House of Representatives, Standing Committee on Communication, Transport and the Arts (2000), Motor Accidents Authority, NSW (2001), National Transport Commission (2001), National Transport Commission (2002), and National Road Transport Commission and Ken Smith – Smithworks Consulting (2001).

1.2 Objectives of the Research

This survey assesses the current attitudes, awareness and understanding of driver fatigue management issues, among transport operators, freight forwarders and third party consignors and their day to day experience of driver fatigue-related issues.

A further objective was to make comparisons of the results on relevant questions with a survey conducted with long distance truck operators in 1998 (Williamson, Feyer, Friswell and Sadural, 2001).

2. METHOD

2.1 Qualitative Research

A preliminary, qualitative study was conducted to explore issues with both drivers and companies involved in road freight transport, operating vehicles of at least 12 tonnes gross vehicle mass. Companies surveyed included hire and reward operators such as transport operators and freight forwarders and ancillary operators.

Exploratory focus groups with drivers and in-depth interviews with companies were conducted during April/May 2006. The results of this stage of the research were used to develop the questionnaire for the main survey.

2.2 Survey Research

2.2.1 The Sample

The main quantitative survey was conducted in August/September 2006, involving a telephone survey of a final sample of 314 companies across Australia. Companies were recruited to be involved in road freight transport operating vehicles of at least 12 tonnes gross vehicle mass (GVM).

The sample pool of companies was developed in two main categories:

- **MAIN BUSINESS AS TRANSPORT:** Companies were sourced from the Yellow Pages (Online) in the categories of *transport* and *transport and forwarding agents*. These two categories have been referred to as *Freight Operators* and *Freight Forwarders* respectively in the report. Company details were randomly selected from the lists in the Yellow Pages (online).
- **MAJOR CONSIGNORS:** Companies who transported their own goods covering categories of agriculture, manufacturing, construction, wholesale and retail. This category has been referred to as *Ancillary Operators* in the report. These companies were sourced in three ways:
 - Firstly through the business website *IBISworld*³ which was found to have lists of major companies in a range of industries, covering those categories required for the study (<http://www.ibisworld.com.au/enterprise/home.aspx>). Examining the range of

³ IBISworld is a company that specialises in research and information on Australian business. Given the nature of its operation and the breadth of coverage, it was considered a better source of information on major consignors than through purchasing business lists.

companies confirmed the suitability of the lists. Company names were then searched on the Internet to generate head office telephone contact details.

- Since a significant number of ancillary operators involved in road freight transport are farmers, the ancillary operator pool was boosted through selecting a sample of farmers from the Yellow Pages.
- Since the incidence of heavy vehicle operators among consignors accessed through the above sources was not high, it was not feasible to achieve a sizeable quota in this way. To supplement the number of ancillary operators in the final sample, an additional 30 were accessed through a specialist recruitment agency. A final total of 61 companies sampled in the category of ancillary operators were interviewed.

The final sample was split between freight operators (218), freight forwarders (35) and ancillary operators (61). This distribution maintained a ratio of freight operators to freight forwarders in line with the number of companies listed in the Yellow Pages.

Companies were split between NSW/Victoria (60%) and the rest of Australia (40%), broadly in relation to population.

The final sample is described in Table 1, including main category of company, location, and size of operation. The categories of size of operation have been based on dividing out very small operations (1-2 trucks) and large operations (30 or more trucks).

Although the companies were categorised based on a reasonable distinction between freight operators, freight forwarders and ancillary operators, the profile of activities nominated during the survey suggests that in reality this division is too restrictive. Nevertheless, the initial categorisation is an objective one that is useful for the purposes of making comparisons in the survey.

Additional detail on the method is provided in Appendix A.

Table 1. Summary of Locations and Sample Sizes

	Total	Freight Operators	Freight Forwarders	Ancillary Operators
Location				
NSW/Victoria	189	130	23	36
Other locations	125	88	12	25
Number of trucks operated				
1-2	68	34	10	24
3-29	196	150	16	30
30+	33	33	9	6
TOTAL	314	218	35	61

2.2.2 Questionnaire

The questionnaire was developed around the objectives for the research, with input from the qualitative research. The full questionnaire is provided in Appendix B. The questions covered:

- company profile, including location, activities, size of operation and driver employment;
- freight transport profile including main types of freight and short/long haul distribution;
- pay rates for each type of driver employed, for both driving and non driving work;
- practices and strategies in place to manage fatigue;
- management of working hours, including restrictions on hours, days and night work;
- profile of work trips including regularity of times/destinations, estimating trips times and arrival times and experience of delays;
- impact of customer demands and driver fatigue on trip schedules;
- attitudes and perceptions about driver fatigue in the industry and within the company;
- perceptions of contributors to fatigue and helpfulness of strategies to manage fatigue; and
- overall attitude towards the value of current regulations to help manage fatigue effectively.

2.3 Analysis

2.3.1 General Results and Group Comparisons

The main body of the Results Section (section 3) summarises the findings for each question. Comparisons have been made between different categories of companies, based on a number of groupings. These are summarised in Table 2, along with the sample sizes in the survey, and the corresponding maximum 95% confidence interval for survey results.

Table 2. Main Categories of Companies Used for Comparisons in the Analysis, Including Sample Size and Maximum 95% Confidence Interval for Results

Grouping	Categories	Sample size	% of sample	Maximum 95% confidence interval for results
Total companies		314	100%	±6%
Type of operator	Freight Operator	218	69%	±7%
	Freight Forwarder	35	11%	±17%
	Ancillary Operator	61	19%	±13%
Employment [17 companies did not employ drivers]	Employee drivers only	143	46%	±8%
	Mixed drivers	154	49%	±8%
Number of trucks [insufficient information for two companies]	1-2	68	22%	±12%
	3-29	196	62%	±7%
	30+	48	15%	±14%
Long haul trips [insufficient information for nine companies]	0%	76	25%	±11%
	1-29%	67	22%	±12%
	30-89%	83	27%	±11%
	90-100%	79	26%	±11%

2.3.2 Weighting by Drivers

Results have also been included based on the total number of drivers covered by the companies in the survey. This has been achieved by weighting the results for each company on the total number of drivers employed. Where results were based on individual driver groups—employed, subcontractor and independent—it was possible to weight results separately for each driver group.

For example, in Table 3, 60% of the companies surveyed were in NSW and Victoria (first column), and these companies employed 72% of the drivers covered by all the companies in the survey (second column).

Similarly, in Figure 1, 40% of companies said that awareness of driver fatigue in the industry had ‘increased a lot’ (first column), and these companies covered 49% of drivers (second column).

2.3.3 Statistical Tests

In reading the results of the survey, it is important to note that each result is not a precise figure but an estimate based on a sample of companies.

As a guide to the level of precision of the results for each grouping in the survey, Table 2 includes the 'maximum error range' about a percentage result from a random sample of a given size, based on a 95% confidence. This interval is the range around a percentage result from a random sample of a given size in which we have 95% confidence that the true population figure lies. This range in the estimation is greatest for a survey result of 50%.

Chi-square tests have been used to compare differences among the groups of companies. Statistically significant differences within each grouping have been highlighted by:

- a symbol above the grouping measure (*) in charts; or
- by bolding higher results in tables (24).

Results have been reported at a statistical significance level of $p < .05$.

2.3.4 Comparisons with the 1998 Survey

Comparisons have also been made with results on relevant questions from the survey conducted in 1998 with long distance transport companies (Williamson, Feyer, Friswell and Sadural, 2001b). Not all results were included in the published report on the 1998 survey.

As the current survey included a broader range of companies operating trucks (i.e. including consignors and short haul operators) comparisons would optimally be based only on long haul transport companies in the current survey. The sample size in this group, however, was only $n=69$, which limited effective comparison. Comments on the results have been made in the context of the differences in the samples.

3. RESULTS

3.1 Profile of Companies

Table 3 summarises the profile of companies in the survey, using the standard company groupings banner. This profiling provides a good background on which to view the other results in the survey. The main differences between the groupings occurred around the types of drivers employed and the number of trucks operated.

There was a trend for larger companies to be more likely to operate in NSW/Victoria than in the rest of Australia; and larger companies were much more likely to employ different types of drivers, in particular sub-contract and independent drivers. Overall, the 15% of companies in the survey that operated 30+ trucks accounted for 61% of the drivers. This distribution is of prime importance when considering the operations and activities of these larger companies, as these will affect or cover the majority of drivers.

Companies were also asked about the main types of freight carried (Table 4). A wide range of freight was reported. The main categories reported were 'general or mixed freight' (47%), 'building materials' (32%), 'farm produce' (24%), 'groceries' (16%) and 'dangerous goods' (16%).

Table 3. Profile of the Survey Sample, by Company Groupings

#NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.

Profile			TYPE OF OPERATOR			DRIVER GROUP		TRUCKS OPERATED			LONG HAUL TRIPS			
	Companies (n=314) %	Drivers# %	Freight operator (n=218) %	Freight forwarder (n=35) %	Ancillary operator (n=61) %	Employee only (n=143) %	Mix (n=154) %	1-2 (n=68) %	3-29 (n=196) %	30+ (n=48) %	0% (n=76) %	1-29% (n=67) %	30-89% (n=83) %	90-100% (n=79) %
Location														
NSW/Victoria	60	72	60	66	59	57	64	53	60	73	63	69	60	52
Other	40	28	40	34	41	43	36	47	40	27	37	31	40	48
Type of Operator														
Freight operator	69	62	–	–	–	68	73	50	77	69	63	76	63	75
Freight Forwarder	11	20	–	–	–	10	13	15	8	19	16	10	12	6
Ancillary	19	18	–	–	–	22	14	35	15	13	21	13	25	19
Driver employment														
Employee	89	71	91	94	80	–	90	74	93	98	86	93	92	87
Subcontractor	35	19	34	54	25	–	71	16	34	65	39	51	34	19
Independent	31	11	34	26	21	–	63	24	29	50	29	33	37	25
No drivers	5	–	4	0	13	–	–	15	4	0	8	0	5	9
Employee only	46	26	44	43	51	–	–	53	47	25	46	34	43	54
Mix	49	74	51	57	36	–	–	32	49	75	46	66	52	37
Number of trucks operated														
1-2	22	2	16	29	39	25	14	100	0	0	22	19	17	29
3-4	18	4	18	11	20	25	10	0	28	0	13	19	12	27
5-29	45	32	51	34	30	40	53	0	72	0	46	46	51	35
30+	15	62	15	26	10	8	23	0	0	100	18	15	19	9
Long Haul Trips (>100 km from base)														
0%	24	30	22	34	26	24	23	25	23	29	–	–	–	–
1-29%	21	21	23	20	15	16	29	19	22	21	–	–	–	–
30-89%	26	33	24	29	34	25	28	21	27	33	–	–	–	–
90-100%	25	16	27	14	25	30	19	34	25	15	–	–	–	–

Bolded: Key differences, with a statistically significant difference between groups ($p < .05$).

Table 4. Main Types of Freight Transported, by Company Groupings

#NOTE: The 'Drivers' column is weighted by the number of drivers in the company.

Main types of freight carried	Companies (n=314)		TYPE OF OPERATOR			DRIVER GROUP		TRUCKS OPERATED			LONG HAUL TRIPS			
	%	Drivers#	Freight operator (n=218)	Freight forwarder (n=35)	Ancillary operator (n=61)	Employee only (n=143)	Mix (n=154)	1-2 (n=68)	3-29 (n=196)	30+ (n=48)	0% (n=76)	1-29% (n=67)	30-89% (n=83)	90-100% (n=79)
Refrigerated/temp. controlled	11	19	12	14	7	10	13	4	12	15	1	12	11	19
Dangerous goods	16	28	16	17	15	9	24	10	12	38	13	19	19	10
Livestock	5	1	6	0	3	3	4	7	4	2	1	4	6	6
Farm produce	24	30	25	20	25	24	25	32	21	25	12	16	25	39
Farming requirements	6	4	8	0	5	6	6	3	8	4	1	4	7	13
Building materials	32	33	33	20	31	28	37	28	31	40	21	42	37	28
Raw materials	8	9	8	3	11	12	5	4	8	13	1	13	10	9
Metal/steel/plastic	6	9	7	3	3	5	7	4	6	8	4	7	5	8
Other bulk	10	6	9	9	13	9	9	12	10	6	9	4	10	13
Machinery	27	22	29	9	28	20	32	25	28	23	26	31	25	24
Car carrying	3	1	4	3	0	4	2	1	3	2	3	3	2	3
Containers/pallets	4	8	4	6	2	1	6	1	4	6	5	4	0	4
Groceries	16	19	17	23	8	13	21	6	19	19	18	21	12	14
Foodstuffs/drinks	7	29	8	3	5	4	10	4	5	17	11	4	7	5
Furniture	4	1	3	11	0	6	2	4	4	0	5	7	2	0
Household electrical goods	2	4	2	3	0	2	2	0	2	4	3	1	0	3
Other manufactured goods	11	6	11	3	15	8	12	10	11	8	13	22	2	8
General or mixed freight	47	49	52	66	18	38	58	41	47	54	51	49	35	52
Express freight	10	17	13	6	3	9	12	7	9	17	11	13	6	10
Any other	4	7	4	6	5	4	5	3	5	4	4	3	11	0

Bolded: Higher results, with a statistically significant difference between groups ($p < .05$).

There were few differences between the company groupings:

- freight operators and freight forwarders were much more likely than ancillary operators (18%) to be carrying 'general freight';
- larger companies (operating 30+ trucks) were much more likely than smaller companies to carry dangerous goods;

- freight forwarders were less likely than freight operators or ancillary operators to be involved in transporting machinery or building materials; and
- carrying livestock increased with the amount of long haul driving conducted by the company, being highest among companies with 90-100% of trips as long haul (39%).

Companies were also asked about the range of activities that they were involved in. Five types of activities were presented (Table 5). It is in this context that categorising companies as ‘trucking/transport’ or ‘consignor’ was found not to be a precise definition. For example, not all companies specifically listed as a ‘trucking company’ in the Yellow Pages nominated the activity ‘you are contracted to transport freight for other companies’.

As a further way of describing the companies in the survey, a *cluster analysis* technique was used to assess how companies grouped together on the five activities. This produced five clusters, profiled in Table 5.

Table 5. Activity Clusters

NOTE: Main activities defining the cluster are **bolded**

Activities	Clusters					
	Total %	All Activities %	Contracted+ Logistics+Receiver %	Logistics (+Contracted) %	Contacted Only %	Transport Own + Receiver %
<i>% of sample</i>		21%	23%	12%	10%	33%
You use your own trucks or trailers to transport your own goods [ON-ROAD]	51	100	0	28	0	79
You are contracted to transport freight for other companies [CONTRACTED]	76	100	100	69	100	39
You hire trucking companies to transport your goods [CONSIGNOR]	49	100	50	33	0	38
You organise the transport of freight for consignors or receivers [LOGISTICS]	70	100	100	100	0	40
You receive freight transported by trucks belonging to other companies [RECEIVER]	68	100	100	0	0	73

Shaded: Highlighting main responses for each Cluster

The clusters are summarised as follows:

- one cluster (1 – 21%) reported undertaking all of the five activities;
- another similar sized cluster (2 – 23%) was of contractors involved in logistics, receiving freight from other companies;

- two further smaller clusters were primarily broadly involved as transport contractors, one cluster exclusively as contractors (4 – 10%) and one cluster defined by its involvement in logistics (3 – 12%); and
- the final cluster, accounting for a third of companies overall, was primarily involved in transporting its own goods, including receiving goods from other companies (5 – 33%).

This descriptive analysis can be seen as providing a more detailed picture of the range of companies operating heavy vehicles, to appreciate the diversity of how they operate. The company groups are profiled against these clusters in Table 6.

Table 6. Profile Activity Clusters by Company Type

Activity Cluster	Companies (n=314) %	TYPE OF OPERATOR			DRIVER GROUP		TRUCKS OPERATED			LONG HAUL TRIPS			
		Freight operator (n=218) %	Freight forwarder (n=35) %	Ancillary operator (n=61) %	Employee only (n=143) %	Mix (n=154) %	1-2 (n=68) %	3-29 (n=196) %	30+ (n=48) %	0% (n=76) %	1-29% (n=67) %	30-89% (n=83) %	90-100% (n=79) %
All Activities	21	19	37	18	13	31	15	21	27	24	27	19	14
Contracted+ Logistics+Receiver	23	28	26	2	21	26	16	23	29	21	30	23	19
Logistics (+Operator)	12	17	3	3	10	13	10	13	13	9	9	16	15
Contracted Only	10	13	11	0	13	7	10	11	6	8	15	8	9
Transport Own + Receiver	33	23	23	77	43	23	49	31	25	38	19	34	43

Bolded: Higher result, with a statistically significant difference between groups ($p < .05$).

3.2 Payment Methods

Companies were asked about payment methods for the different types of drivers that they employed. Payment methods were summarised into four categories, as shown in Table 7. Payment methods differed substantially by type of driver. Half (53%) of companies paid their employee drivers by an ‘hourly rate’, compared with about a third (38%) for subcontractors and a fifth (22%) for independent drivers. Payment by ‘load/trip’ increased for subcontractors (46% of companies) and independent drivers (63%). Overall, about half (47%) of drivers were paid ‘hourly’, and a third (36%) were paid ‘by the load/trip’.

There were few clear differences by company type. The main difference was for larger companies to be more likely to pay their employee drivers ‘by the load/trip’, or with a mixed system (usually hourly for short haul trips and by the load for long haul trips), and less likely to pay them on a ‘day/week/salary’ rate.

Table 7. Payment Methods, by Driver Type and Company Groupings

#NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.

Driver Type and Rate	Companies %	Drivers# %	TRUCKS OPERATED			LONG HAUL TRIPS			
			1-2 %	3-29 %	30+ %	0% %	1-29% %	30-89% %	90-100% %
Employee	(n=279)		(n=50)	(n=182)	(n=47)	(n=65)	(n=62)	(n=76)	(n=69)
Hourly	53	58	52	52	57	57	53	57	45
By day, week, or salary	17	5	37	16	4	14	18	12	27
By the load, trip or job	20	25	9	21	26	26	12	20	19
Mixed/other system	10	12	2	11	13	3	17	11	9
Subcontractor	(n=109)		(n=11)	(n=67)	(n=31)	(n=30)	(n=34)	(n=28)	(n=18)
Hourly	38	27	50	35	40	<u>52</u>	38	29	27
By day, week, or salary	7	1	20	5	7	3	6	7	13
By the load, trip or job	46	57	30	52	40	41	47	50	47
Mixed/other system	9	14	0	9	13	3	9	14	13
Independent	(n=97)		(n=16)	(n=57)	(n=24)	(n=22)	(n=22)	(n=31)	(n=20)
Hourly	22	14	20	17	35	43	29	10	11
By day, week, or salary	8	2	7	11	0	5	14	7	5
By the load, trip or job	63	68	53	<u>70</u>	52	48	52	<u>76</u>	<u>68</u>
Mixed/other system	8	16	20	2	13	5	5	7	16
Total drivers#									
Hourly		47							
By day, week, or salary		4							
By the load, trip or job		36							
Mixed/other system		13							

Bolded: Trends in results between groups.

Underlined: Trends between groups

All types of drivers were most likely to be paid more than the award rate, being highest for employee drivers (74%), but remaining relatively high for subcontractors (52%) and independent drivers (46%) (Table 8). A quarter or more of companies were, however, unsure about the rate for the latter two driver types. Over three quarters of drivers across the companies in the survey were paid above the award rate.

Payment above the award rate was greatest in the group of larger companies operating 30+ trucks. There was also a trend for short haul companies (0% of trips being long haul) to pay their subcontractor and independent drivers above the award rate.

Table 8. Award Rate by Driver Type, by Company Groupings

#NOTE: The 'Drivers' column is weighted by the number of drivers in the company.

Driver Type and Rate	Companies %	Drivers %	TRUCKS OPERATED			LONG HAUL TRIPS			
			1-2 %	3-29 %	30+ %	0% %	1-29% %	30-89% %	90-100% %
Employee drivers	(n=279)		(n=50)	(n=182)	(n=47)	(n=65)	(n=62)	(n=76)	(n=69)
Less than the award rate	1	0	4	1	0	2	2	0	1
At the award rate	19	8	30	20	6	17	18	16	<u>28</u>
More than the award rate	74	87	54	76	85	77	69	80	65
Don't know	6	4	12	4	9	5	11	4	6
Subcontractor	(n=109)		(n=11)	(n=67)	(n=31)	(n=30)	(n=34)	(n=28)	(n=18)
At the award rate	23	12	<u>45</u>	21	19	17	24	29	27
More than the award rate	52	65	18	<u>55</u>	<u>58</u>	<u>67</u>	56	46	27
Don't know	25	23	<u>36</u>	24	23	17	21	25	47
Independent	(n=97)		(n=16)	(n=57)	(n=24)	(n=22)	(n=22)	(n=31)	(n=20)
At the award rate	23	17	<u>31</u>	<u>26</u>	8	14	36	19	25
More than the award rate	44	52	31	42	<u>58</u>	<u>64</u>	32	48	35
Don't know	33	31	38	32	33	23	32	32	40
Total drivers#									
Less than the award rate		0							
At the award rate		10							
More than the award rate		79							
Don't know		11							

Bolded: Higher result, with a statistically significant difference between groups ($p < .05$).Underlined: Trends between groups

Payment for non-driving work was greatest by companies for their employee drivers (90%) (Table 9). Companies were less likely to pay their subcontractors (72%) for non-driving work, and even less likely to pay their independent drivers for non-driving work (59%). When paid for non-driving work, it was most likely to be at the same rate as for driving. Companies operating three or more trucks were more likely than the smallest-sized group of operators to pay at a different rate (20% vs 4%), although the majority still paid at the same rate.

Overall, the large majority (86%) of drivers in companies covered by the survey were paid for non-driving work, with two thirds (64%) overall being paid 'at the same rate' as for driving.

Table 9. Payment for Non-Driving Work, by Company Groupings

#NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.

Pay Rate and Driver Type	Companies %	Drivers# %	TRUCKS OPERATED			LONG HAUL TRIPS			
			1-2 %	3-29 %	30+ %	0% %	1-29% %	30-89% %	90-100% %
Employee	(n=279)		(n=50)	(n=182)	(n=47)	(n=65)	(n=62)	(n=76)	(n=69)
Yes – at same rate	70	64	76	69	66	68	69	74	68
Yes – not at same rate	16	23	4	19	21	18	18	17	13
Yes – unknown if at same rate	4	4	4	3	4	5	5	4	1
No	10	9	16	8	9	8	8	5	16
Don’t know	1	0	0	1	0	2	0	0	1
Subcontractor	(n=109)		(n=11)	(n=67)	(n=31)	(n=30)	(n=34)	(n=28)	(n=18)
Yes – at same rate	60	68	64	60	58	67	53	61	60
Yes – not at same rate	10	8	9	12	6	3	9	18	13
Yes – unknown if at same rate	2	3	0	1	3	3	3	0	0
No	24	21	18	21	32	23	29	18	20
Don’t know	5	1	9	6	0	3	6	4	7
Independent	(n=97)		(n=16)	(n=57)	(n=24)	(n=22)	(n=22)	(n=31)	(n=20)
Yes – at same rate	46	55	50	46	46	59	59	45	25
Yes – not at same rate	8	4	6	9	8	5	5	10	15
Yes – unknown if at same rate	5	10	6	4	8	5	0	10	5
No	32	23	38	32	29	32	32	29	35
Don’t know	8	8	0	11	8	0	5	6	20
Total Drivers#									
Yes – at same rate		64							
Yes – not at same rate		18							
Yes – unknown if at same rate		4							
No		13							
Don’t know		1							

Bolded: Higher result, with a statistically significant difference between groups (p<.05).

3.3 Attitudes and Perceptions about Driver Fatigue

3.3.1 General Perceptions

Companies were asked about their attitude and perceptions on a number of aspects of driver fatigue (Figure 1).

Over three quarters (80%) of companies considered that awareness of driver fatigue in the industry in which they worked had increased over the last year, including two fifths (40%) considering that it had ‘increased a lot’. Perception of an increase was lower among ancillary operators (26% ‘increased a lot’) than among freight operators (43%) or freight forwarders operators (46%). Change in awareness was also lowest in smaller-sized

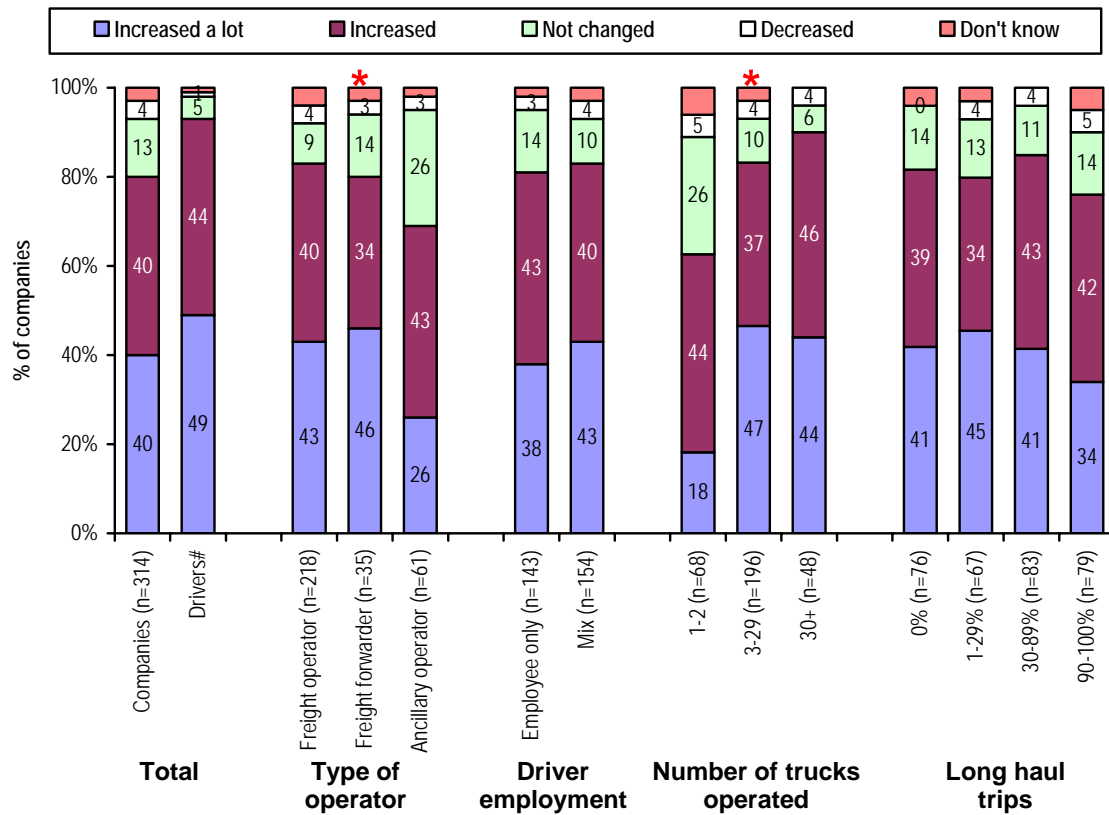
companies operating 1-2 trucks (18% ‘increased a lot’) compared with larger companies operating 3-29 trucks (47%) or 30+ trucks (44%).

Comparison with the 1998 survey

The level of increase was lower than reported in the 1998 survey, in which 60% of companies reported that awareness ‘increased a lot’. The context of the question in the 1998 survey was change in ‘last five years’, so the change might be expected to be lower in the current survey. Furthermore, in comparing these measures of periods.

Figure 1. Change in Industry Awareness of Driver Fatigue, by Company Groupings

#NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.



* Statistically significant difference between groups (p<.05).

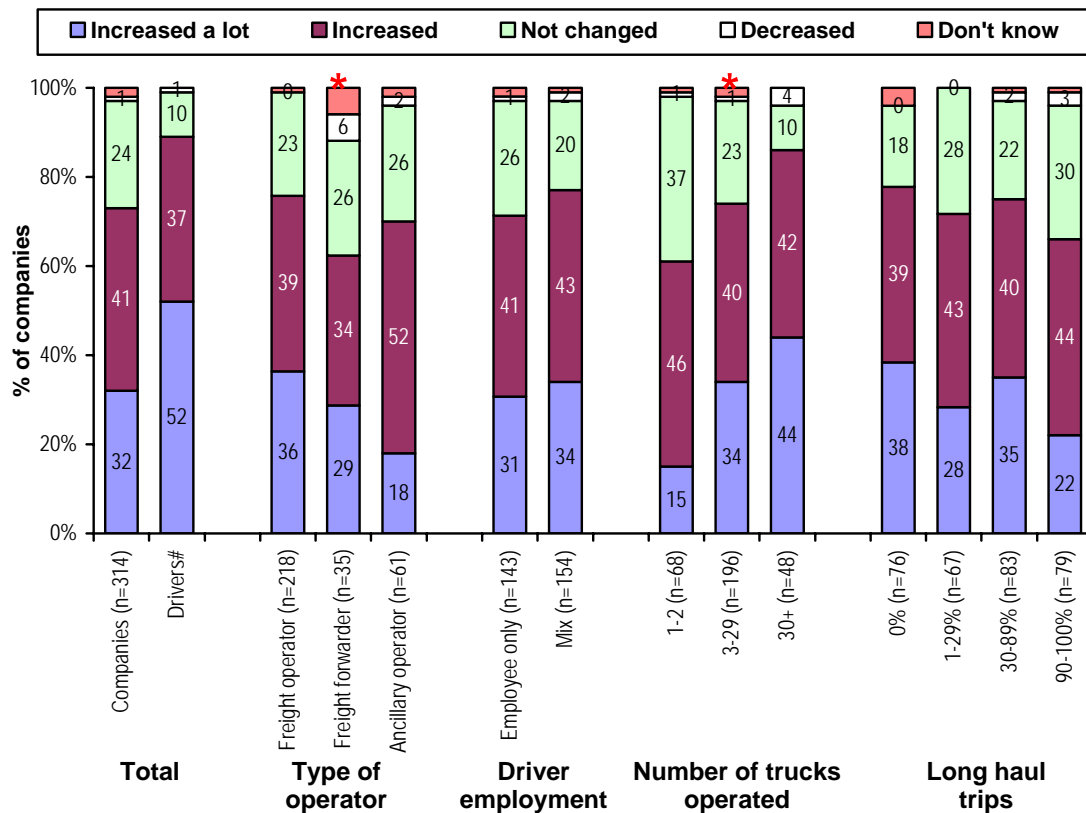
Increase in the company’s awareness of driver fatigue over the last year was at a lower level than that reported for the industry. About three quarters (73%) of companies considered that company awareness had increased, including a third (32%) considering that it had ‘increased a lot’. Perception of an increase was again lowest among ancillary operators (18% ‘increased a lot’); and lowest among smaller companies, operating one to two trucks (15% ‘increased a lot’).

Comparison with the 1998 survey

The level of increase in awareness within the company was again lower than reported in the 1998 survey, in which 49% of companies reported that awareness in their company had ‘increased a lot’ over the last five years. The difference was larger when considering only the main long haul companies in the current survey as a more direct comparison. A response of ‘no change’ in awareness increased from 14% in 1998 to 30%.

Figure 2. Change in Company’s Awareness of Driver Fatigue, by Company Groupings

#NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.



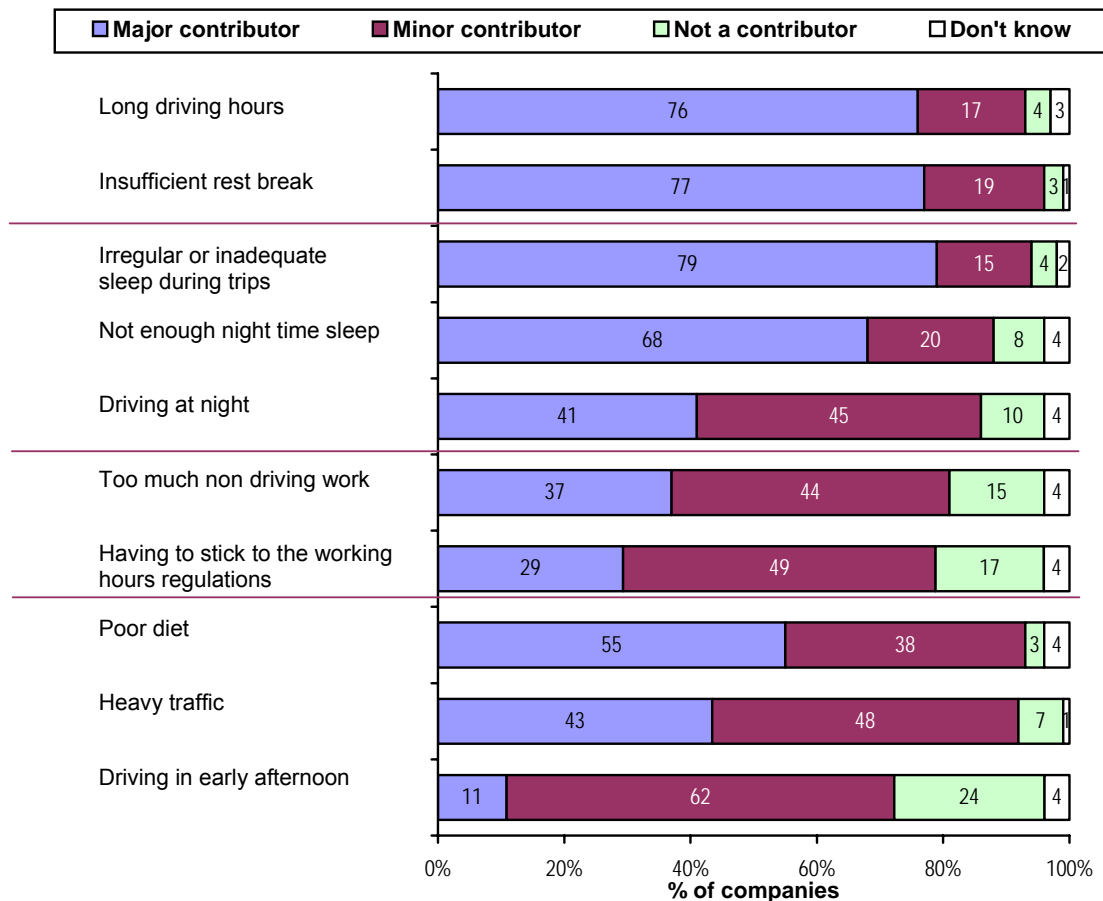
* Statistically significant difference between groups (p<.05).

3.3.2 Contributors to Driver Fatigue

Almost all companies recognised ‘long driving hours’, ‘insufficient rest’ and inadequate sleep’ as factors that could contribute to driver fatigue, including three quarters of companies nominating these as ‘major’ contributors (Figure 3). There was lower recognition of night driving as a potential contributor, rated as a potential ‘major’ contributor by fewer than half (41%) of companies. Similarly, other factors that have been established as contributors to fatigue were not well nominated, including: ‘too much non-driving work’ (37% major) and ‘driving in the early afternoon’ (only 11% major). Even ‘poor diet’ and ‘heavy traffic’ were more likely to be nominated than these factors.

Interestingly, three quarters (78%) of companies considered that ‘sticking to the working hours regulations’ could contribute to fatigue. This trend suggests that some companies may have concerns that the legislation allows drivers to work too long, or possibly that the legislation forces drivers to have work/rest patterns that are not practical. (This is supported by criticism of the regulations in a later question in the survey.)

Figure 3. Factors that Might Contribute to Driver Fatigue, by Company Groupings



There was very little difference between company groupings in nominating major contributors of fatigue (Table 10). The main difference was for ancillary operators to be the least likely to nominate ‘sticking to the working hours regulations’ as a contributor (18% vs 32% for the freight operators and freight forwarders).

Table 10. Factors that Could be Major Contributors to Driver Fatigue, by Company Groupings

#NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.

Major Contributors	Companies (n=314) %	Drivers %	TYPE OF OPERATOR			DRIVER GROUP		TRUCKS OPERATED			LONG HAUL TRIPS			
			Freight operator (n=218) %	Freight forwarder (n=35) %	Ancillary operator (n=61) %	Employee only (n=143) %	Mix (n=154) %	1-2 (n=68) %	3-29 (n=196) %	30+ (n=48) %	0% (n=76) %	1-29% (n=67) %	30-89% (n=83) %	90-100% (n=79) %
Hours/breaks factors														
Long driving hours	76	70	76	71	80	80	74	79	76	73	80	70	76	78
Insufficient rest break	77	68	74	83	82	76	77	74	76	83	80	78	80	72
Sleep/night factors														
Irregular or inadequate sleep during trips	79	73	78	86	79	81	79	75	79	83	86	84	78	72
Not enough night time sleep	68	54	66	66	77	71	66	74	66	69	72	69	70	63
Driving at night	41	35	35	51	56	44	39	50	35	50	49	36	41	41
Work factors														
Having to stick to the working hours regulations	29	19	32	31	18	26	33	31	32	19	30	33	27	29
Too much non driving work	37	39	41	26	30	34	42	31	36	52	37	42	37	34
Other factors														
Heavy traffic	43	38	44	43	39	50	38	41	45	38	43	43	47	37
Poor diet	55	60	57	57	48	51	60	47	55	67	57	54	51	59
Driving in early afternoon	11	9	9	17	13	10	10	12	9	17	12	13	11	8

Bolded: Higher result, with a statistically significant difference between groups (p<.05).

Strategies involving ‘stopping’ were considered the most likely to be ‘very helpful’ in managing fatigue (Figure 4). Those involving ‘rest’ in particular were recognised as the most effective (nominated by about 60% or more of companies). The second tier of strategies, judged as helpful by over half of companies, included actions within the vehicle of ‘adjusting ventilation’ (75% ‘helpful’) and ‘listening to the radio or music’ (76%); and ‘having a drink containing caffeine’ (56%).

Taking other types of stimulants did not receive high endorsement, including ‘taking stay awake drugs’ (12% ‘helpful’) and ‘smoking’ (15%). In addition, the value of ‘driving hours regulations’ was well supported in the context of low endorsement of the helpfulness of ignoring the regulations ‘to finish a trip when close to home’ (17% ‘helpful’).

There was very little difference between company groupings in nominating helpfulness of strategies to deal with driver fatigue (Table 11). The main difference was for ancillary operators to be the most likely to nominate ‘having a drink with caffeine’ as ‘helpful’ (69% vs 52% among the other operators).

Figure 4. Driver Strategies Rated as ‘Very Helpful’ to Manage Fatigue

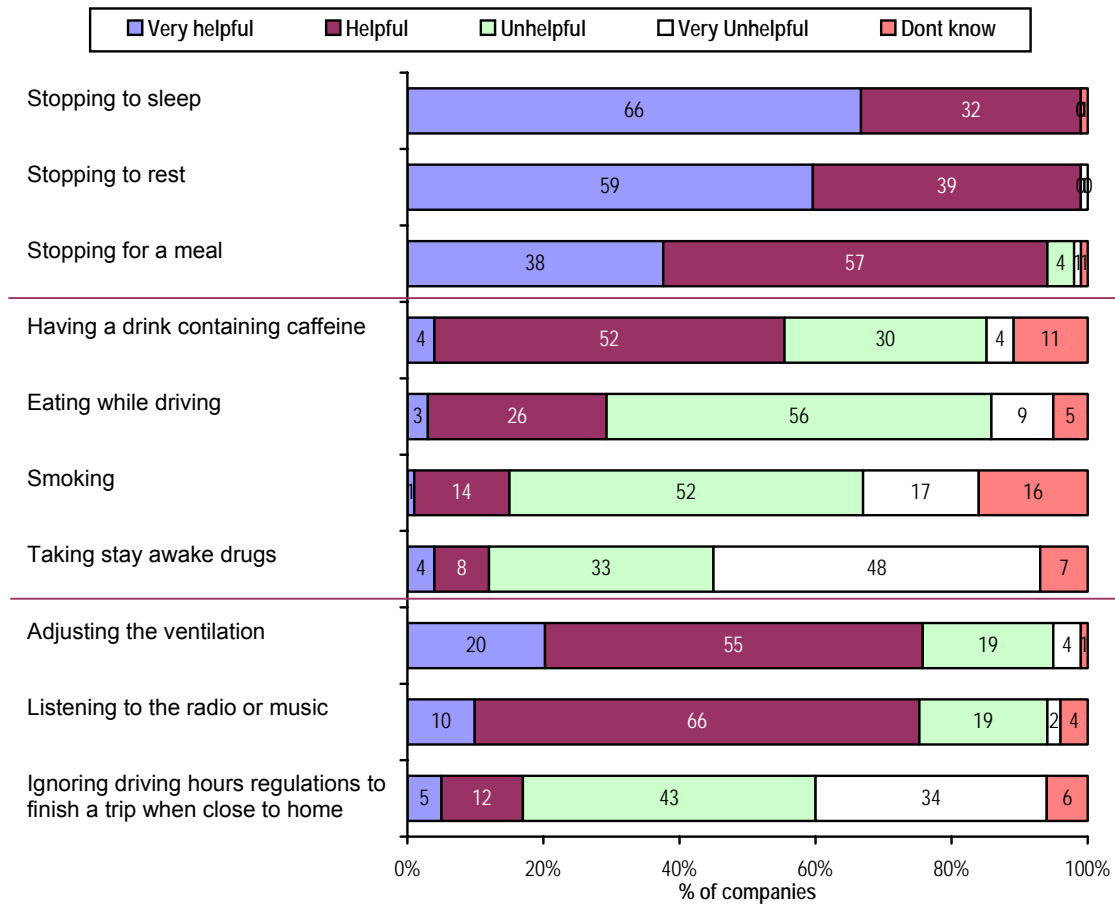


Table 11. Driver Strategies Rated as ‘Helpful’ to Manage Fatigue, by Company Groupings

#NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.

Strategies Rated as Helpful	Companies (n=314) %	Drivers# %	TYPE OF OPERATOR			DRIVER GROUP		TRUCKS OPERATED			LONG HAUL TRIPS			
			Freight operator (n=218) %	Freight forwarder (n=35) %	Ancillary operator (n=61) %	Employee only (n=143) %	Mix (n=154) %	1-2 (n=68) %	3-29 (n=196) %	30+ (n=48) %	0% (n=76) %	1-29% (n=67) %	30-89% (n=83) %	90-100% (n=79) %
Sleep/rest														
Stopping to sleep	98	94	99	100	97	98	99	100	98	96	97	100	98	99
Stopping to rest	98	100	99	100	97	98	99	97	98	100	96	100	99	99
Stopping for a meal	95	97	95	94	93	95	94	96	94	96	92	99	92	96
Eating/ingesting														
Having a drink containing caffeine	55	49	51	54	69	56	55	65	54	48	50	58	65	48
Eating while driving	30	29	30	23	33	27	31	35	28	25	28	33	25	33
Smoking	16	15	13	20	23	17	14	26	12	15	16	15	14	14
Taking stay awake drugs	12	9	11	14	16	9	13	19	10	10	16	13	10	11
Other Activities														
Listening to the radio or music	75	78	77	77	69	72	79	78	76	71	68	84	77	72
Adjusting the ventilation	75	71	76	77	74	76	74	76	76	71	79	75	73	76
Ignoring driving hours regulations to finish a trip when close to home	17	15	18	11	18	13	19	21	15	21	16	13	17	20

Bolded: Higher result, with a statistically significant difference between groups ($p < .05$).

Comparisons with the 1998 survey

For the question on *contributors to fatigue*, fewer factors were presented to companies in the 2006 survey. It is possible that this may alter the dynamic of responding, where respondents will tend to want to vary their responding (ie, not rate everything the same way), so that some items may inevitably be rated down. Furthermore, a scale was introduced—major, minor—rather than simple nomination. (The use of a scale may have offset a potential impact of reducing the number of factors.)

Table 12 indicates that the best comparison with the 1998 survey is on nomination as either a ‘major’ or a ‘minor’ contributor. Using this criterion, the contributors ‘heavy traffic’, ‘driving at night’, ‘too much non-driving work’ and ‘driving in early afternoon’ all

increased in nomination. The increases in the last three contributors in particular are encouraging as these are factors known to contribute to fatigue.

For the question on *strategies helpful in managing fatigue*, decreases in rating of helpfulness occurred for 'taking stay awake drugs' and 'adjusting the ventilation' (Table 13). These changes are also encouraging as these strategies are not recommended for effective avoidance of driver fatigue.

Table 12. Factors that Could be Contributors to Driver Fatigue, in 1998 and 2006

Strategies Rated as Contributors	1998 (contributor)%	2006 (Major contributor) %	2006 (Major/Minor contributor) %
Irregular or inadequate sleep during trips	87	79	94
Insufficient rest break	93	77	96
Long driving hours	92	76	93
Not enough night time sleep	87	68	89
Poor diet	87	55	93
Heavy traffic	62	43	91
Driving at night	33	41	86
Too much non driving work	66	37	81
Having to stick to the working hours regulations	-	29	78
Driving in early afternoon	26	11	73

Bolded: Higher result, with a statistically significant difference between the surveys ($p < .05$).

Table 13. Driver Strategies Rated as 'Helpful' to Manage Fatigue, in 1998 and 2006

Strategies Rated as Helpful	1998 %	2006 %
Sleep/Rest		
Stopping to sleep	99	98
Stopping to rest	99	98
Stopping for a meal	89	95
Eating/Ingesting		
Having a drink containing caffeine	62	55
Eating while driving	35	30
Smoking	21	16
Taking stay awake drugs	26	12
Other Activities		
Listening to the radio or music	79	75
Adjusting the ventilation	91	75
Ignoring driving hours regulations to finish a trip when close to home	-	17

Bolded: Higher result, with a statistically significant difference between the surveys ($p < .05$).

3.4 Fatigue Management – General Attitudes

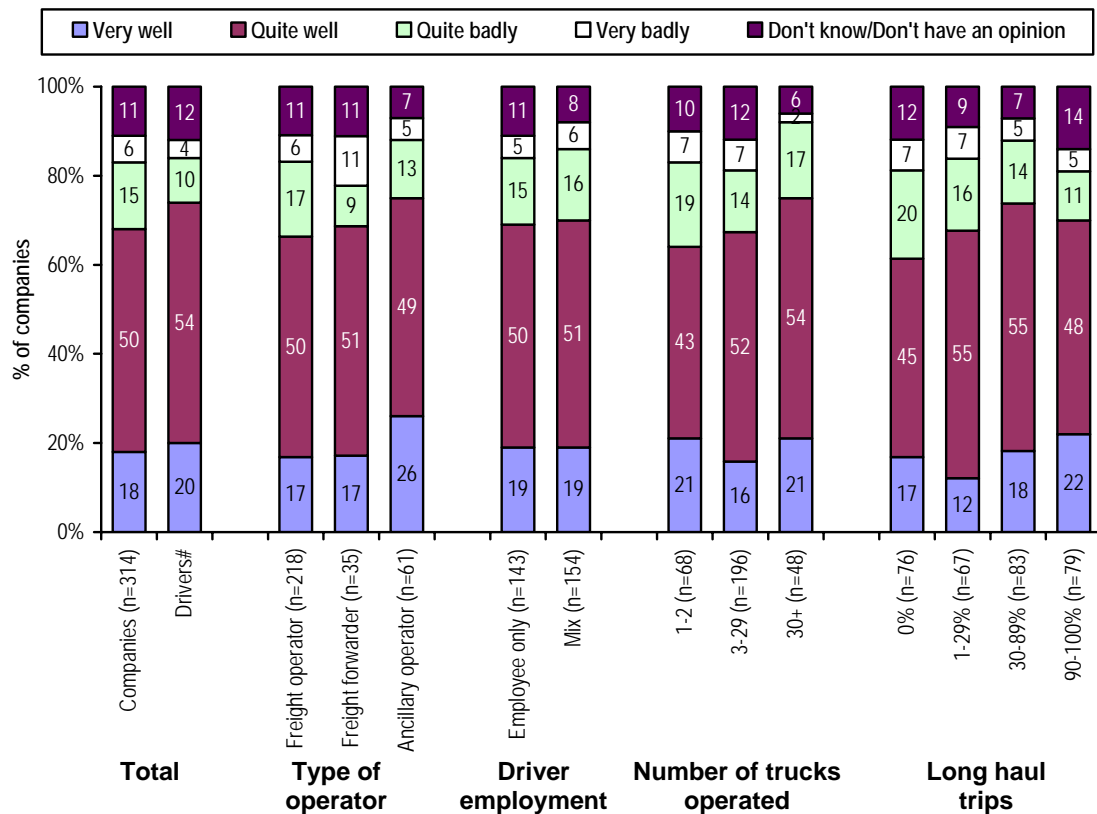
Two thirds (68%) of companies considered that driver fatigue was at least ‘quite well’ managed in the industry, including a fifth (18%) considering it ‘very well’ managed (Figure 5). A further fifth (21%) considered that it was ‘badly’ managed. There was little difference between the company groupings.

Comparison with the 1998 survey

This attitude towards management of fatigue was marginally better than the results in the 1998 survey in which 58% considered that fatigue was at least ‘quite well’ managed. In 1998, however, 14% gave ‘other’ responses, which were not reported in detail.

Figure 5. How Well Fatigue is Managed in the Industry, by Company Groupings

#NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.



* Statistically significant difference between groups ($p < .05$).

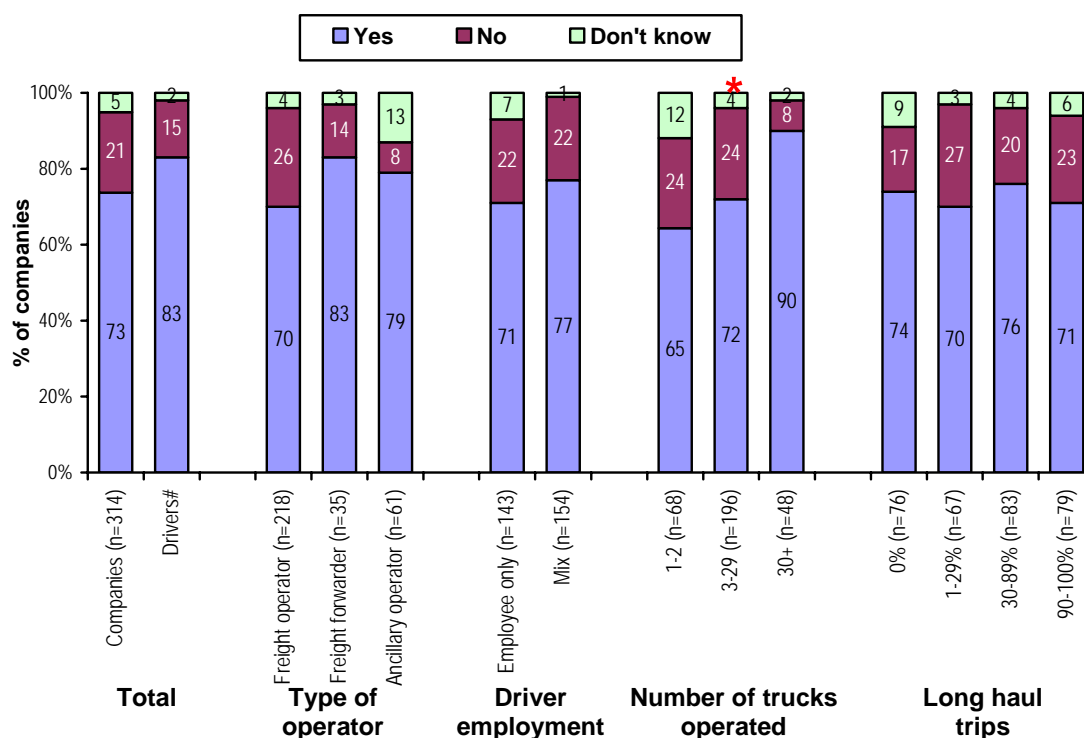
Three quarters (73%) of companies considered that the current regulations allowed them to help their drivers manage fatigue effectively (Figure 6). This attitude increased with the size of the company, from 65% of companies operating one to two trucks up to 90% of companies operating 30+ trucks. This pattern with operator size led to 83% of drivers working in companies that considered the regulations to be effective.

Comparison with the 1998 survey

The results from the current survey showed a substantial improvement over the 1998 survey, where 56% considered that the regulations allow effective fatigue management. A direct comparison with the main long haul companies (71% agreement) shows a similar level of improvement.

Figure 6. Whether Current Regulations Help the Company to Help Drivers Manage Fatigue Effectively, by Company Groupings

#NOTE: The 'Drivers' column is weighted by the number of drivers in the company.



* Statistically significant difference between groups ($p < .05$).

Those companies that did not consider the regulations to be effective were asked to give reasons. The large majority of responses were around the inflexibility and restrictiveness of the laws (Table 14). A very common response was about drivers 'not being able to follow their own body clock', nominated by half of the group. In addition to these types of responses, about a sixth of this group was critical of the 'log book' system.

Table 14. Reasons that Current Regulations do not Allow Effective Management

Reason	(n=67) %
Doesn't allow drivers to follow their own body clock	50
Drivers may wish to break earlier or later	18
Ideal rest area/parking may not be available at break time	9
Driver may have to stop overnight when close to home	5
Would prefer more frequent shorter breaks	4
Inflexible	10
Restrictive	9
Stress of meeting restrictions/filling log book	6
Other reference to log book	12

3.5 Workplace Environment

3.5.1 Policies and Schemes

Companies were asked about their implementation of a range of practices. The most common practice was ‘standard working hours’ for drivers, implemented by over three quarters (79%) of companies (Table 15). Half of the companies implemented a ‘formal driver fatigue management policy’ and half also implemented a ‘formal medical policy’. In addition, over half of companies (57%) implemented a more formal industry fatigue management scheme, including a third with the ‘Transitional Fatigue Management Scheme’ (38%).

Implementation of ‘standard working hours’ was more likely in larger companies (operating >2 trucks) and in companies more heavily involved in long haul transport. Implementation of a Fatigue Management Scheme again increased with the size of the operators. Half (54%) of companies operating 30+ trucks implemented a Transitional Fatigue Management Scheme, with the large majority (88%) implementing some type of fatigue management scheme. Ancillary operators were the least likely to implement a fatigue management scheme or have a formal driver fatigue policy.

Table 15. Policies and Schemes in Place, by Company Groupings

#NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.

Policies and Schemes			TYPE OF OPERATOR			DRIVER GROUP		TRUCKS OPERATED			LONG HAUL TRIPS			
	% Companies (n=314)	Drivers#	Freight operator (n=218)	Freight forwarder (n=35)	Ancillary operator (n=61)	Employee only (n=143)	Mix (n=154)	1-2 (n=68)	3-29 (n=196)	30+ (n=48)	0% (n=76)	1-29% (n=67)	30-89% (n=83)	90-100% (n=79)
Standard working hours for drivers	79	84	81	77	70	80	79	69	81	81	74	75	84	78
Schemes														
Transitional Fatigue Management Scheme	38	53	39	51	26	36	41	24	38	54	36	37	45	33
Fatigue management scheme	49	64	53	49	34	42	59	29	49	73	41	45	58	49
Net Fatigue management scheme	57	76	59	69	43	50	67	37	57	88	49	57	65	56
Policies														
A formal driver fatigue management policy	53	69	60	49	28	48	61	26	56	77	46	52	60	47
A formal medical policy	53	63	55	49	46	45	62	38	51	79	47	51	60	51
None of these	9	2	6	9	16	10	5	21	7	0	14	7	5	9

Bolded: Higher result, with a statistically significant difference between groups (p<.05).

The implementation of practices was broadly consistent across driver groups (Table 16). The main trend was for a formal medical policy to be less likely to apply to independent drivers (39%) compared with employee drivers (52%) and subcontractors (47%).

Taking into account that not all types of drivers within a company would be covered by a particular policy/practice, over three quarters (79%) of drivers were covered by ‘standard working hours’, two thirds (64%) by a formal fatigue management policy and a third (38%) by a formal medical policy.

Table 16. Practices in Place, by Type of Driver

#NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company. Not all drivers in a company were covered by a particular practice, so some of these figures differ from those in Table 15.

Driver Type	Standard working hours for drivers (log book) %	A formal driver fatigue management policy for drivers %	A formal medical policy for drivers %
Employee (n=281)			
Yes	73	52	52
No	5	2	1
Don't know	1	1	1
NOT OFFERED IN COMPANY	21	45	46
Subcontractor (n=109)			
Yes	70	61	47
No	7	3	15
Don't know	2	3	3
NOT OFFERED IN COMPANY	21	34	36
Independent (n=97)			
Yes	66	55	39
No	12	6	19
Don't know	1	2	3
NOT OFFERED IN COMPANY	21	37	39
Total drivers [weighted]#			
Yes	79	64	57
No	6	3	5
Don't know	1	2	2
NOT OFFERED IN COMPANY	15	31	36

Bolded: Higher result, with a statistically significant difference between groups ($p < .05$).

Table 17. Practices in Place in Companies Employing Each Driver Type, in 1998 and 2006

Driver Type and Policy	1998 %	2006 %
Formal fatigue management policy		
Employee	48	52
Subcontractor	25	61
Independent	21	65
Formal medical policy		
Employee	61	47
Subcontractor	27	39
Independent	23	57

Bolded: Higher result, with a statistically significant difference between the surveys ($p < .05$).

Comparison with the 1998 survey

The implementation of policies was much higher in the current survey compared with the 1998 survey for subcontractors and independent drivers (Table 17). There was, however, a decrease in the implementation of a medical policy for employee drivers (from 61% to 47%).

This reduction did not appear to be related to the change in the sample structure, as the incidence in the current survey was still only 49% when measured specifically among long haul trucking companies. It is possible that medical policies have been replaced by industry schemes. While the incidence of schemes was not measured in the 1998 survey, information about the industry indicates that the take up of industry Fatigue Management Schemes has been increasing under requirements for accreditation.

3.5.2 Managing Working Hours

Companies were asked questions on a range of practices for managing driving hours. These were asked specifically about each type of driver that the company used—employee, subcontractor, and independent. In general, practices were most likely to be applied by companies to employee drivers, and equally less likely to apply to subcontractor and independent drivers (Table 18).

The most common practices were to ‘manage working hours according to the working hours legislation’, to ‘restrict the number of hours worked per day’ and to ‘restrict the number of continuous days worked’ (Table 18). These were the most common for all driver groups, applying to over four in five companies for employee drivers, and over two thirds of companies for subcontractor and independent drivers. The next most common practice was to ‘restrict the number of hours worked per week’. The least common practice was to restrict the number of nights drivers can work in a week’. This was nominated by only about half (47%) of companies applying to their employee drivers, and only about a quarter of companies employing subcontractor or independent drivers.

Table 18. Managing Working Hours, by Driver Group

#NOTE: Weighted by the number of drivers in each group

Driver Group	Manage working hours according to working hours legislation %	On the number of hours worked per day %	On the number of hours worked per week %	On the number of continuous days worked %	On the number of nights drivers can work in a week %
Employee (n=281)					
Yes	87	86	71	84	47
No	4	12	25	15	48
Don't know	9	2	4	1	5
Subcontractor (n=109)					
Yes	77	78	54	67	28
No	11	18	38	24	61
Don't know	11	3	8	9	11
Independent (n=97)					
Yes	66	77	53	70	26
No	16	18	36	21	59
Don't know	18	5	11	9	15
Total drivers [weighted]#					
Yes	90	92	77	89	54
No	5	8	20	9	44
Don't know	5	1	3	2	2

Bolded: Patterns of higher nominations.

The low incidence of 'restrictions on the number of nights worked in a week' may be influenced by companies not having night work at all (i.e. there is no restriction because it is not really applicable to them). It might be expected, in this case, that the incidence on restrictions may increase with the amount of long haul driving. The breakdown by company groupings in Table 19, however, does not show such a trend.

Restrictions on driving hours did, however, increase in incidence with the size of the company. So whether or not restrictions on night driving are seen as applicable to the company, the implementation of such restrictions does appear related to an overall increase in the amount of trucking activity by the company.

Companies that implemented restrictions on the number of hours/days of driving were also asked about the level of the restrictions. The mean hours/days are reported in Table 20 for each driver group, weighted to the number of drivers of that type. There were trends for employee drivers to be restricted to fewer hours per week (65.4 hours compared with 67.6 for subcontractors and 68.4 for independent drivers); but a higher number of continuous days (6.7 compared with 5.6 and 5.9 respectively). These were not confirmed as statistically significant. A few companies reported restrictions amounting to 10-13 day fortnights, which may likely reflect the range of size and types of companies included in the study.

Table 19. Restrictions in Place, by Driver Type and Company Groupings

#NOTE: Weighted by the number of drivers in each group

Driver Type and Restriction in Place	Total %	Drivers# %	TRUCKS OPERATED			LONG HAUL TRIPS			
			1-2 %	3-29 %	30+ %	0% %	1-29% %	30-89% %	90-100% %
Employee	(n=279)		(n=50)	(n=182)	(n=47)	(n=65)	(n=62)	(n=76)	(n=69)
Manage driving hours according to legislation	87	93	80	87	94	94	87	84	84
Hours worked per day	86	96	74	87	96	86	85	93	78
Hours worked per week	71	81	56	71	87	68	69	78	70
Continuous days worked	84	94	72	85	94	80	90	87	80
Nights worked in a week	47	60	34	47	60	45	48	46	48
Subcontractor	(n=109)		(n=11)	(n=67)	(n=31)	(n=30)	(n=34)	(n=28)	(n=18)
Manage driving hours according to legislation	77	86	67	75	85	85	74	76	75
Hours worked per day	78	82	56	77	88	85	78	76	75
Hours worked per week	54	67	22	52	69	58	52	50	58
Continuous days worked	67	77	22	72	73	77	74	62	42
Nights worked in a week	28	37	0	33	27	28	30	24	33
Independent	(n=97)		(n=16)	(n=57)	(n=24)	(n=22)	(n=22)	(n=31)	(n=20)
Manage driving hours according to legislation	66	72	57	61	85	70	63	61	68
Hours worked per day	77	85	50	78	95	85	60	82	74
Hours worked per week	53	71	36	48	75	50	44	52	58
Continuous days worked	70	79	43	77	74	74	67	64	74
Nights worked in a week	26	48	21	30	20	25	31	22	26

Bolded: Trends in results.

Table 20. Level of Restrictions in Place, by Driver Type

#NOTE: Weighted by the number of drivers in each group.

Restrictions	DRIVER GROUP#		
	Employee	Subcontractor	Independent
Hours worked per day (mean (standard deviation))	12.5 (1.8)	12.9 (1.5)	12.2 (2.2)
Hours worked per week (mean (standard deviation))	65.4 (12.1)	67.6 (8.4)	68.4 (10.4)
Continuous days worked (mean (standard deviation))	6.7 (2.6)	5.6 (0.6)	5.9 (1.6)
Nights worked in a week (mean (standard deviation))	5.4 (1.1)	5.1 (1.0)	5.7 (0.7)

Comparisons with 1998

Comparing the incidences and levels of restrictions on working hours indicates a number of changes (Table 21). If only long haul transport companies in the current survey were considered, for making more direct comparisons, the sample sizes would be reduced considerably, especially for the subcontractor and independent drivers. So the comparisons presented here are tentative.

The main changes indicated from the 1998 survey were for:

- a substantial increase in the incidence of restrictions for subcontractor and independent drivers on all types except 'nights worked per week';
- a reduction in the incidence of the restriction on 'nights worked per week' for employee drivers; and
- a reduction in the average number of hours worked per week, for all driver types.

Table 21. Implementation and Level of Restrictions on Working Hours in Place in Companies Employing Each Driver Type, in 1998 and 2006

Restrictions by Driver Type	1998		2006	
	Implementation %	Restriction mean#	Implementation %	Restriction mean#
Manage working hours according to legislation				
Hours worked per day	86	–	82	–
Subcontractor	56	–	77	–
Independent	52	–	<u>66</u>	–
Hours worked per day				
Employee	77	12.3	<u>86</u>	12.0
Subcontractor	38	12.1	78	12.3
Independent	44	12.0	77	11.8
Hours worked per week				
Employee	70	66.6	71	60.5
Subcontractor	38	<u>68.7</u>	<u>54</u>	63.5
Independent	40	68.7	<u>53</u>	64.2
Continuous days worked				
Employee	82	5.5	84	6.0
Subcontractor	40	5.8	67	5.6
Independent	37	5.3	70	5.9
Nights worked in a week				
Employee	62	4.7	47	4.8
Subcontractor	32	5.1	28	5.2
Independent	33	5.4	26	4.9

Bolded: Higher result, with a statistically significant difference between the two survey periods ($p < .05$).

Underlined: Trends between survey periods.

If restriction in place

3.5.3 Fatigue Management Strategies

Companies were presented with a series of 11 activities that they might undertake to manage driver fatigue. Each of these was nominated by at least two thirds of companies (Table 22). Larger companies nominated a larger number of activities overall, including several around 'working hours', 'taking breaks/getting enough sleeping' and 'providing education'. Interestingly, while fewer than three quarters (71%) of companies 'minimised night driving', only about half (55%) of drivers were covered in this way.

Activities were generally highly nominated. Activities nominated by fewer than 80% of companies included the following (also indicating the percentage of drivers covered):

- provide education about fatigue (95%);
- monitor the levels of fatigue of drivers (87%);
- use workers other than drivers for loading and unloading (79%);
- minimise night driving (55%); and
- provide education about health (91%).

The two education activities did cover over 90% of drivers, but the data shows that these activities were not implemented well in smaller companies.

Table 22. Driver Fatigue Management, by Company Groupings

Fatigue Management Activity	Companies (n=314) %	Drivers# %	TYPE OF OPERATOR			DRIVER GROUP		TRUCKS OPERATED			LONG HAUL TRIPS			
			Freight operator (n=218) %	Freight forwarder (n=35) %	Ancillary operator (n=61) %	Employee only (n=143) %	Mix (n=154) %	1-2 (n=68) %	3-29 (n=196) %	30+ (n=48) %	0% (n=76) %	1-29% (n=67) %	30-89% (n=83) %	90-100% (n=79) %
Monitor the working hours that drivers do	96	100*	97	97	90	96	98	91	96	100	95	97	98	94
Allow enough time between trips for sleep	94	96	95	100	84	93	95	88	95	96	95	93	93	94
Allow flexible schedules – drivers to rest when needed	93	94	94	94	90	94	95	84	96	96	91	94	96	91
Schedule trips so that drivers can have adequate breaks	93	96	96	94	84	94	94	82	82	97	93	96	94	90
Make drivers take rest breaks when they are driving	86	94	87	89	80	84	90	76	86	98	79	93	89	84
Restrict working hours for drivers	82	84	83	77	79	83	84	71	83	92	75	81	92	77
Provide education about fatigue	75	95	78	74	64	71	83	53	76	100	76	81	76	66
Monitor the levels of fatigue of drivers	74	87	77	71	64	77	75	63	73	92	70	76	81	67
Use workers other than drivers for loading and unloading	73	79	69	91	75	69	79	59	77	77	80	75	69	67
Minimise night driving	71	55	69	60	82	78	64	71	70	71	64	66	80	71
Provide education about health	68	91	67	63	74	66	75	57	64	98	70	69	76	61

Bolded: Higher result, with a statistically significant difference between groups ($p < .05$).

Highlighted: Results $< 75\%$

* Rounding up from 99.7%

Companies that reported they ‘monitor the fatigue of drivers’ were asked which of a series of activities they engaged in (Table 23). The most common ways in which companies monitored fatigue, nominated by about two thirds of companies, were:

- review any incidents or accidents;
- ask drivers how they felt; and
- review drivers’ log books.

A third (36%) of companies ‘reviewed truck computer records’, and a quarter (26%) used ‘monitoring devices’. These activities were among those much more likely to be implemented by companies operating 30+ trucks (63% and 60% respectively), and so in practice covered over half of drivers. The incidence of implementation was much higher for the larger companies (related to a higher incidence of monitoring fatigue overall).

So while the most used activities were primarily ‘post-event’—that is, occurring after a fatigue-related incident or situation may have already occurred—over half of drivers were working for companies that assessed their behaviour more objectively and in real time through computer monitoring technology.

A further difference by company groupings was for ancillary operators to be much less likely than other types of companies to ‘review log books’ (40% vs 71%), which would only be partly influenced by the marginally lower use of standard hours/log books by this group.

Table 23. Ways of Monitoring Fatigue, by Company Groupings

BASE: Fatigue monitored by the company.

#NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.

Monitoring Fatigue	Companies (n=314)		TYPE OF OPERATOR			DRIVER GROUP		TRUCKS OPERATED			LONG HAUL TRIPS			
	%	Drivers#	Freight operator (n=218) %	Freight forwarder (n=35) %	Ancillary operator (n=61) %	Employee only (n=143) %	Mix (n=154) %	1-2 (n=68) %	3-29 (n=196) %	30+ (n=48) %	0% (n=76) %	1-29% (n=67) %	30-89% (n=83) %	90-100% (n=79) %
Fatigue not monitored	26	13	23	29	36	23	25	37	27	8	30	24	19	33
Review any incidents or accident	68	85	69	63	66	67	69	48	68	92	71	67	77	56
Ask drivers how they felt	66	80	67	71	55	67	64	50	66	83	63	69	70	60
Review drivers log books	65	77	71	69	40	63	67	40	67	85	59	67	67	65
Review truck computer records	36	59	34	51	30	33	38	21	33	63	37	34	37	32
Use monitoring devices	26	54	27	34	19	25	27	14	21	60	31	28	24	19
Other responses														
Management/Personal attention	14	25	14	26	8	14	23	15	23	11	21	15	11	16
Scheduling/Shifts	14	15	16	11	8	15	20	16	21	9	15	18	15	12
Breaks/Rest	9	8	10	17	4	12	17	9	17	4	7	16	7	6

Bolded: Higher result, with a statistically significant difference between groups ($p < .05$).

Comparisons with 1998

The question format for ‘strategies to manage fatigue’ and ‘strategies to monitor fatigue’ was changed from the ‘open ended’ question format used in the 1998 survey, in which respondents were not directly prompted with the responses. A ‘prompted’ format avoids the limited ‘top of mind’ response associated with the ‘open ended’ format. The new format resulted in much higher nomination of all strategies.

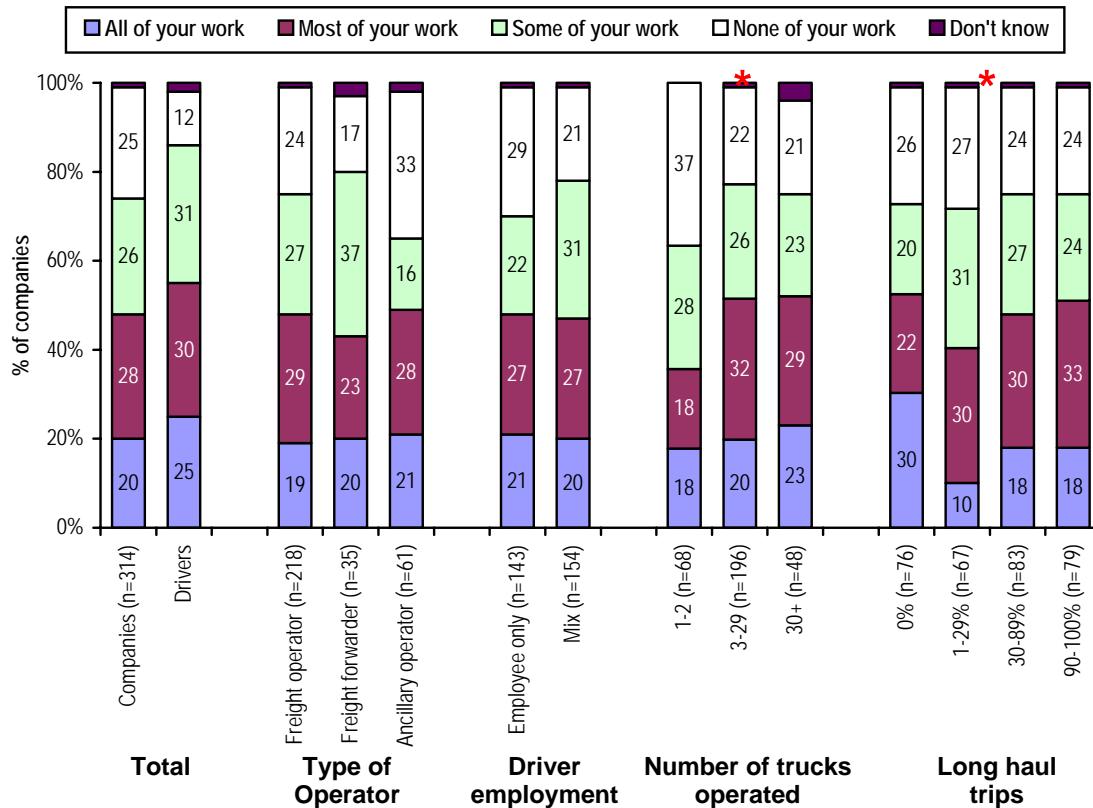
It was, however, still possible to compare the incidence of companies reporting that they ‘monitored fatigue of drivers’. Three quarters (74%) of companies reported monitoring in both surveys.

3.6 Trip Profiles

3.6.1 Trip Times

Half (48%) of companies had regular trip times/destinations for most of their work, including a fifth (20%) for all of their work (Figure 7). This regularity, however, was higher among exclusively short haul companies, where 30% of companies had regular trip times for all of their work. For those companies with at least some long haul trips, the regularity of trip times increased with the amount of long haul activity.

Figure 7. Incidence of Regular Trip Times/Destinations, by Company Groupings



* Statistically significant difference between groups ($p < .05$).

A range of methods was used by companies to determine trip times. The most common method, nominated by half (54%) of companies, was ‘management and the driver in consultation’ (Table 24). About a sixth (18%) of companies also nominated the ‘driver alone’. More practical considerations of the trip were also used: the kilometres travelled (23%) or from an actual trial trip (20%).

There was little difference between the company groupings. The main difference was for the mainly-short haul companies and mainly-long haul companies to be less likely than the other companies to have the estimation by ‘management and the driver in consultation’, suggesting that this is more likely to occur when there is a greater mix of short and long haul trips.

Four out of five (43%) companies could not say how much time was built into trip times for ‘sleep, breaks and breakdowns’. This question appeared difficult for the company representatives to respond to. (The results of this question were also not reported in the 1998 survey publication.) This pattern of responding, however, does suggest that it is not a common approach in companies.

Table 24. Methods of Determining Trip Times, by Company Groupings

#NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.

Method for Determining Trip Times	Companies (n=314)		TYPE OF OPERATOR			DRIVER GROUP		TRUCKS OPERATED			LONG HAUL TRIPS			
	%	Drivers#	Freight operator (n=218)	Freight forwarder (n=35)	Ancillary operator (n=61)	Employee only (n=143)	Mix (n=154)	1-2 (n=68)	3-29 (n=196)	30+ (n=48)	0% (n=76)	1-29% (n=67)	30-89% (n=83)	90-100% (n=79)
Estimated by...														
Management and the driver in consultation	54	59	53	57	54	52	56	46	56	56	43	60	64	51
Driver alone	18	12	20	17	13	15	21	19	17	19	14	18	19	18
Management alone	15	14	16	14	15	16	16	15	16	10	17	21	14	9
Based on trip														
Kilometres travelled in a day	23	27	26	26	13	18	29	24	23	21	25	30	20	18
Trial trip	20	19	20	17	25	20	22	21	20	19	17	21	22	19
Other responses														
Experience/previous knowledge	4	8	5	3	3	5	4	3	5	4	3	3	2	8
Computerised system/ Satellite	2	7	2	0	3	1	4	0	2	6	0	1	2	5
Regulations/Standard / Union requirement	2	1	2	3	0	1	2	0	2	2	3	1	1	1
No estimates	1	0	1	0	3	1	1	1	2	0	1	1	1	1
Don't know	6	3	7	3	7	9	4	6	7	4	9	1	5	10

Bolded: Higher result, with a statistically significant difference between groups (p<.05).

3.6.2 Arrival Times

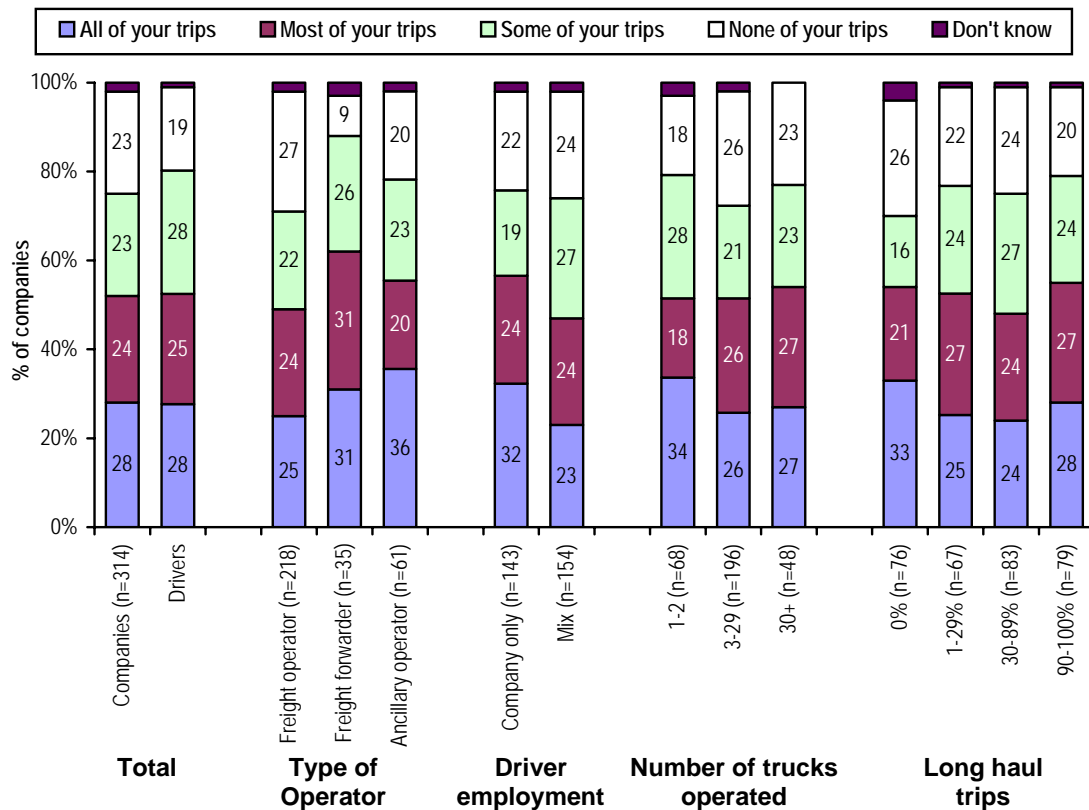
About half (52%) of companies estimated arrival times for at least ‘most’ of their trips (Figure 8). A quarter of companies estimated arrival times for ‘none’ of their trips. Freight forwarders were most likely to estimate at least some arrival times (10% on ‘no trips’ vs 20% for ancillary operators and 27% for freight operators). There were no other differences confirmed by company groupings.

The customer (consignor or consignee) of the goods was nominated as the decision maker for estimating arrival times by only a fifth (21% nominating either group) of companies (Table 25). Half (51%) of companies nominated a manager within their own company, and a further quarter (29%) nominated the driver.

The main difference between companies was for greater nomination of the driver by companies operating 1-2 trucks (40%) compared with larger companies (24% for 3-29 trucks, and 33% for 30+ trucks).

Two fifths (42%) of companies monitored the arrival time for all their trips (Table 26). A fifth (20%) of companies, however, did not monitor arrival time on any of their trips. Ancillary operators were the least likely to monitor all trips (26% vs 45% of freight operators and 46% of freight forwarders). Freight forwarders were the most likely to report monitoring at least some trips.

Figure 8. Incidence of Estimating Arrival Times, by Company Groupings



* Statistically significant difference between groups ($p < .05$).

Table 25. Decision Maker of Estimated Arrival Time, by Company Groupings

#NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.

Decision Maker	Companies (n=314)		TYPE OF OPERATOR			DRIVER GROUP		TRUCKS OPERATED			LONG HAUL TRIPS			
	%	Drivers#	Freight operator (n=218)	Freight forwarder (n=35)	Ancillary operator (n=61)	Employee only (n=143)	Mix (n=154)	1-2 (n=68)	3-29 (n=196)	30+ (n=48)	0% (n=76)	1-29% (n=67)	30-89% (n=83)	90-100% (n=79)
<i>Arrival times not estimated</i>	23	19	27	9	20	22	24	18	26	29	26	22	24	20
A manager in your company	51	51	51	66	43	51	52	49	52	52	53	57	51	47
The driver	29	30	28	23	38	28	29	40	24	33	25	22	29	39
The consignor of the goods	13	30	15	14	7	10	16	12	12	19	16	19	11	8
The receiver of the goods	14	23	14	20	10	13	16	12	13	19	16	18	12	8
Someone else	2	5	1	0	3	1	2	1	1	2	1	1	1	1

Bolded: Higher result, with a statistically significant difference between groups (p<.05).

Table 26. Trips where Arrival Time is Monitored, by Company Groupings

#NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.

Trips with arrival time monitored*	Companies (n=314)		TYPE OF OPERATOR			DRIVER GROUP		TRUCKS OPERATED			LONG HAUL TRIPS			
	%	Drivers#	Freight operator (n=218)	Freight forwarder (n=35)	Ancillary operator (n=61)	Employee only (n=143)	Mix (n=154)	1-2 (n=68)	3-29 (n=196)	30+ (n=48)	0% (n=76)	1-29% (n=67)	30-89% (n=83)	90-100% (n=79)
0%	20	10	21	6	26	22	16	22	21	15	22	16	22	22
1-49%	12	11	13	11	11	11	15	13	12	15	12	9	14	15
50-99%	21	30	18	23	33	22	21	25	20	21	20	31	24	13
100%	42	46	45	46	26	40	45	29	44	46	42	39	36	47
Don't know	4	3	3	14	3	5	3	10	2	4	4	4	4	4

Bolded: Higher result, with a statistically significant difference between groups (p<.05).

Table 27 shows the incidence of consequences to the driver of being late, as nominated by companies. The results are based on all companies, including those that reported never monitoring arrival times, to give a full industry perspective.

A quarter (25%) of companies reported that they would take ‘no action’. As a fifth (20%) of companies never monitored arrival times, this means that about half (46%) of companies overall did nothing about arrival times, either not monitoring or not taking action for late arrival. There was a trend for this to be greater among companies only using ‘employee drivers’, among companies operating fewer than 30 trucks, and among the main long haul group.

The most commonly nominated consequence was for the ‘schedule to be revised’, by a third (32%) of companies. Only a very small proportion of companies (4%) reported penalising the driver (‘impose a penalty’ or ‘not use the driver again’).

Table 27. Consequences of a Driver Being Late, by Company Groupings

#NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.

Consequences	Companies (n=314) %	Drivers# %	TYPE OF OPERATOR			DRIVER GROUP		TRUCKS OPERATED			LONG HAUL TRIPS			
			Freight operator (n=218) %	Freight forwarder (n=35) %	Ancillary operator (n=61) %	Employee only (n=143) %	Mix (n=154) %	1-2 (n=68) %	3-29 (n=196) %	30+ (n=48) %	0% (n=76) %	1-29% (n=67) %	30-89% (n=83) %	90-100% (n=79) %
Arrival times never monitored	20	10	21	6	26	22	16	22	21	15	22	16	22	22
No action	25	13	26	26	21	28	21	34	26	10	20	25	19	35
<i>Total – not monitor/ no action taken</i>	46	23	47	31	48	50	38	56	47	25	42	42	41	57
The schedule would be revised next time	34	43	35	40	28	32	38	25	35	42	37	39	35	28
The driver would be given a warning	9	14	6	17	11	8	10	7	8	15	11	4	12	6
Discussion with the driver	6	13	7	3	3	4	8	6	5	8	4	7	5	8
You would impose a penalty on the driver	2	1	1	3	3	0	3	0	2	4	0	3	1	3
The driver would not be used again	2	2	1	6	0	1	3	1	1	4	3	1	1	1
Don’t know	2	6	2	0	2	1	3	3	2	2	1	3	4	0

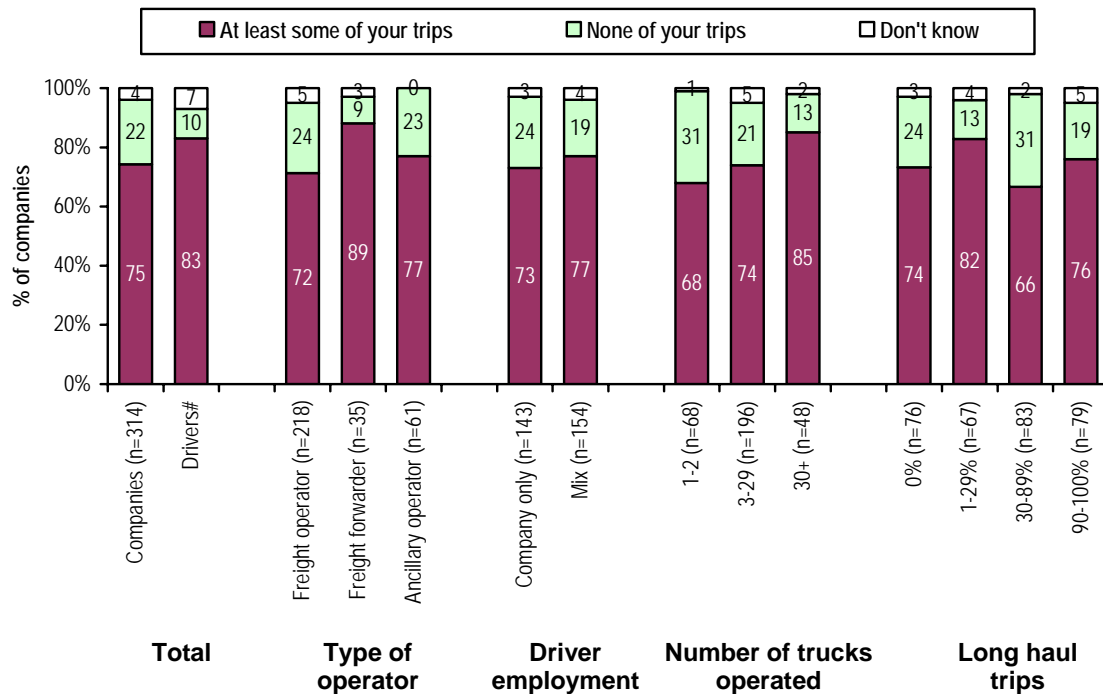
Bolded: Higher result, with a statistically significant difference between groups ($p < .05$).

Three quarters (75%) of companies reported experiencing late arrivals on at least some of their trips (Figure 9). Very few reported a frequency greater than ‘some’. There was a trend for greater delays to be experienced by smaller companies. Smaller companies were shown to be less likely to monitor arrival times or take action with later arrivals.

Very few companies (2.5%) encouraged drivers to arrive earlier by offering a bonus (Table 28). There was a trend for companies only using employee drivers to offer a bonus, and for a bonus to increase with the amount of long haul trips, but these incidences were still very low.

Figure 9. How Often Late Arrivals Occur, by Company Groupings

#NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.



* Statistically significant difference between groups (p<.05).

Table 28. Bonus for Driver Arriving Early, by Company Groupings

NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.

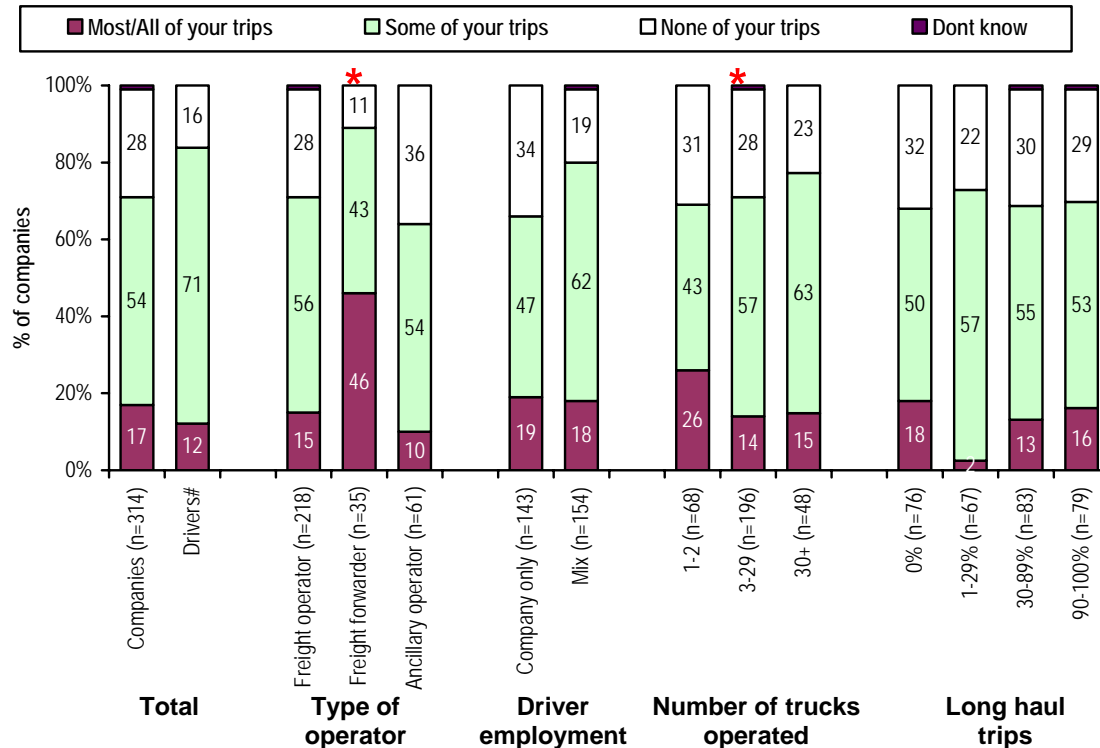
Bonus	Companies (n=314)		TYPE OF OPERATOR			DRIVER GROUP		TRUCKS OPERATED			LONG HAUL TRIPS			
	%	Drivers#	Freight (n=218)	Hire and Reward (n=35)	Ancillary (n=61)	Employee only (n=143)	Mix (n=154)	1-2 (n=68)	3-29 (n=196)	30+ (n=48)	0% (n=76)	1-29% (n=67)	30-89% (n=83)	90-100% (n=79)
Yes	3	2	3	3	2	4	1	1	3	2	0	1	4	4
No	97	98	97	97	98	95	99	99	96	98	100	99	96	95
Don't know	0	0	0	0	0	1	0	0	1	0	0	0	0	1

3.6.3 Impacts on Trip Times

About half (46%) of freight forwarders reported that their drivers get delayed waiting in queues on at least ‘most’ of their trips (Figure 10). This incidence was much higher than for freight operators (14%) or ancillary operators (10%). A quarter (27%) of smaller companies, operating 1-2 trucks, also reported this level of problem, ahead of larger companies (14%).

Figure 10. Delays Waiting in Queues to Unload, by Company Groupings

NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.

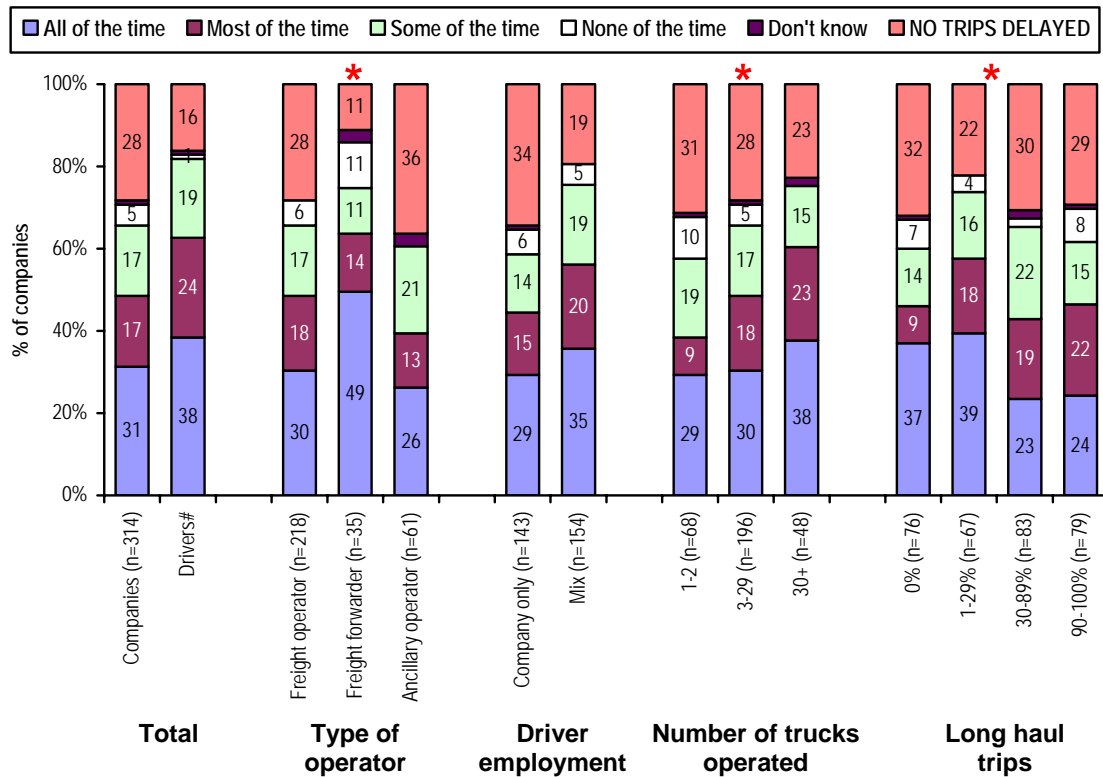


* Statistically significant difference between groups (p<.05).

Taking into account the incidence of having delays, half (48%) of companies reported that they took queuing time into account in trip schedules for ‘most’ or ‘all’ of their trips (Figure 11). The incidence of scheduling for delays was greatest among the freight forwarders (49%), increased with the size of the company, and was most likely to be done on all trips where the company had fewer long haul trips.

Figure 11. Queuing Accounted for in Schedules, by Company Groupings

NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.



* Statistically significant difference between groups (p<.05).

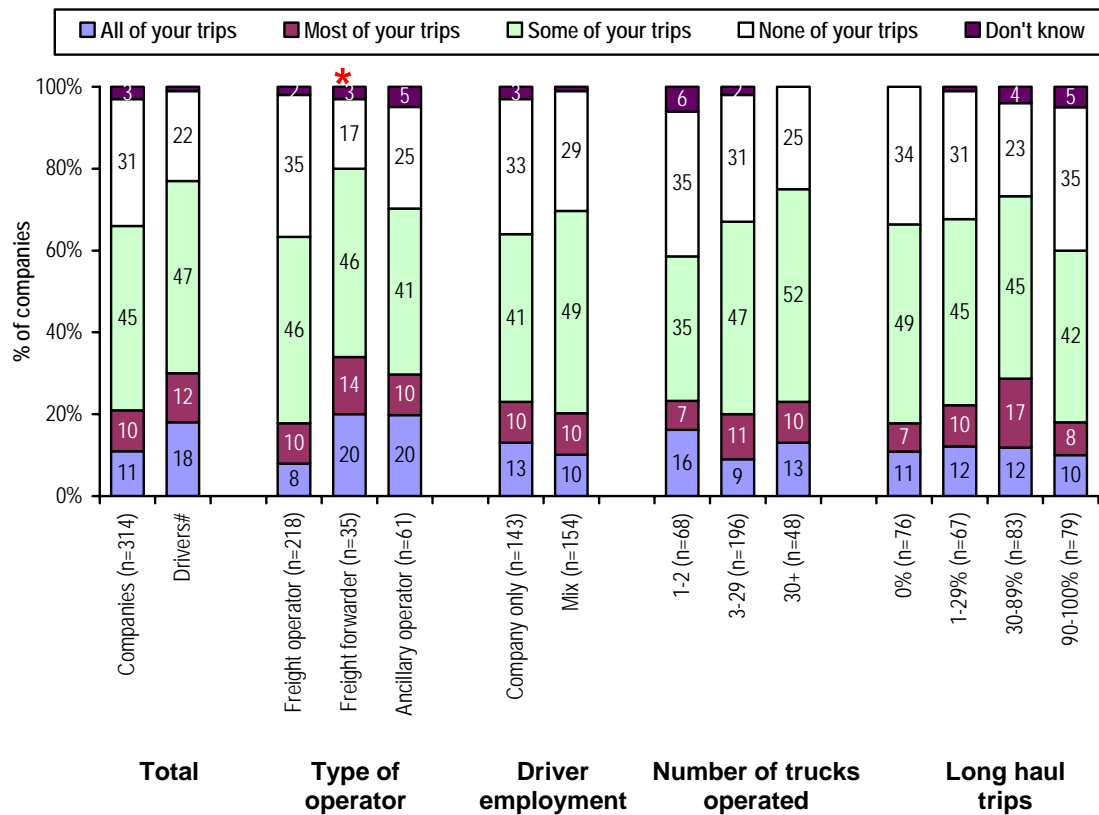
3.6.4 Impacts on Trip Times – Changing Schedules

About a third (31%) of companies reported never having to change schedules to suit customer needs (Figure 12). There was a trend for not changing trip schedules to be greatest for freight operators. Overall, two thirds of companies reported having to change schedules to suit customer needs on at least ‘some’ trips, including a fifth (21%) on at least ‘most’ trips.

A smaller percentage of companies reported having to delay a load because of driver fatigue (Figure 13). About half (48%) reported having to do so on at least ‘some’ of their trips, but including only 6% reporting it for at least ‘most’ of their trips. Ancillary operators were the least likely to report delaying a load, but the incidence increased with the size of the company.

Figure 12. Changing Schedules to Suit Customer Demands, by Company Groupings

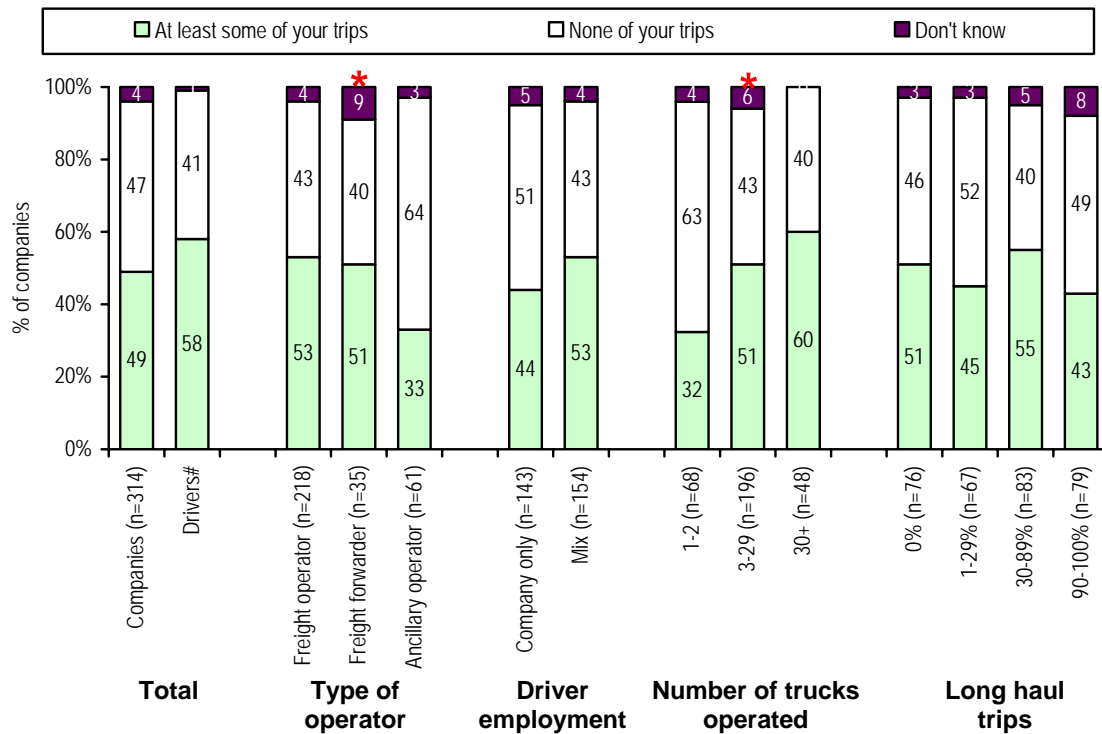
NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.



* Statistically significant difference between groups (p<.05).

Figure 13. Delaying a Load for Driver Fatigue, by Company Groupings

NOTE: The ‘Drivers’ column is weighted by the number of drivers in the company.



* Statistically significant difference between groups ($p < .05$).

3.6.5 Comparisons with the 1998 survey

Table 29 compares the results in the current survey with those from 1998, on questions about trip times, arrivals and delays where they were reported in the published report of the 1998 survey. The results for the current survey are based on the whole sample.

Based on this set of comparisons, there were few changes in the current survey. There were trends for an increase in nominating ‘management and driver in consultation’ as a method used for determining trip times (from 40% to 54%); and a decrease in the incidence of changing trip schedules to suit customer demands on ‘most/all’ trips (from 31% to 22%). Both of these trends are encouraging in terms of potential safety outcomes.

There was also a marginally lower incidence in the current survey of delaying a load because of driver fatigue.

Table 29. Results on Questions about Trip Times, Arrivals and Delays, in 1998 and 2006

MEASURE		1998 %	2006 %
Regular trip times/destinations	All/most trips	48	48
	Some trips	27	26
	No trips	25	25
	Don't know	–	1
Method for determining trip time	Management/driver in consultation	40	54
	Driver alone	8	18
	Management alone	18	15
	Kilometres travelled in a day	18	23
	Trial trip	16	20
Estimate time of arrival	All/most trips	53	52
	Some trips	22	23
	No trips	25	23
	Don't know	–	2
Frequency of late arrival	<i>Arrivals not monitored</i>	<u>26</u>	20
	All/most trips	4	2
	Some trips	66	62
	No trips	4	13
	Don't know	1	2
Decision maker for estimating arrival time	A manager in your company	52	51
	The driver	23	29
	[1998] Customer	26	21
	[2006] Consignor or receiver	26	21
	Someone else	1	2
Changing schedules to suit customer demands	All/most trips	31	22
	Some trips	40	45
	No trips	28	31
	Don't know	–	3
Delay load because of driver fatigue	All/most trips	<u>10</u>	6
	Some trips	<u>44</u>	42
	No trips	45	47
	Don't know	–	4

Bolded: Higher result, with a statistically significant difference between the two survey periods ($p < .05$).

Underlined: Trends between survey periods

3.7 Relationships with Attitudes

Some additional analysis was conducted to look at further relationships between attitudes to fatigue and practices in place (Table 30). Companies that considered that fatigue was managed well in the industry were more likely than those who considered it was managed badly to:

- restrict the number of continuous days worked per week;
- have a fatigue management scheme of some type;
- monitor the levels of fatigue of drivers;
- make drivers take rest breaks when they are driving; and
- show trends for restricting hours worked per day.

Companies that considered that the laws allowed them to help drivers manage fatigue effectively were more likely than those who did not:

- to minimise night driving as a way to manage fatigue; and
- to report that they delay a load because of fatigue on ‘no trips’ (which suggests that are less likely to experience fatigue and hence do not need to delay trips).

These relationships between attitudes and behaviour are somewhat different to the pattern reported for the 1998 survey results:

“Confidence in the industry’s management of fatigue and confidence in the regulations...were associated with less attention being paid to the problem. Those companies who reported that they thought fatigue was well managed in the industry were less likely to monitor fatigue and more likely to change schedules to suit customer demands but not for driver fatigue.

Companies who reported confidence in the regulations to manage fatigue used fewer management strategies, were less likely to otherwise restrict hours, and were more likely to change their schedules for customer demands but not for driver fatigue.”

The results from the current survey do not show such a strong negative pattern related to these attitudes. There continued to be a trend for companies that considered fatigue to be ‘very well’ managed in the industry to be less likely to restrict nights worked, but it is possible that this is less applicable to their work. Furthermore, the interpretation of a lower incidence of delaying loads because of fatigue may in fact reflect a lower level of experience of fatigue rather than a refusal to delay a load because of evidence of fatigue.

Table 30. Relationships Between Attitudes and Behaviours

The results show the percentage of companies for each perception (i.e. columns) reporting each of the measures (i.e. rows).

Measure#	HOW IS FATIGUE MANAGED IN THE INDUSTRY			LAWS ALLOW MANAGING FATIGUE EFFECTIVELY	
	Badly (n=67) %	Quite Well (n=158) %	Very Well (n=67) %	No (n=67) %	Yes (n=230) %
Restrictions on working hours (for employee drivers)					
Hours worked per day	79	89	85	88	85
Hours worked per week	60	77	68	70	74
Continuous days worked	76	87	87	83	87
Nights worked per week	52	51	36	49	44
Practices in place					
Formal medical policy	43	57	55	48	56
A Fatigue Management Scheme	63	78	76	72	77
Manage fatigue					
Monitor the levels of fatigue of drivers	63	78	76	72	77
Make drivers take rest breaks	79	91	90	87	88
Minimise night driving	63	74	71	61	73
Change schedules because of customer demands					
Some of your trips	58	71	64	66	67
Delay a load because of fatigue					
None of your trips	45	54	47	34	49

Bolded: Higher result, with a statistically significant difference between groups ($p < .05$).

4. DISCUSSION

4.1 Company Profile

The scope of the study was around surveying a range of companies within the road freight transport industry to cover the different parts of the supply chain, other than the driver. The focus was on freight operators, freight forwarders and ancillary operators.

The final sample of companies in the survey represents a particular mix of companies within the industry, developed through a practical and efficient sampling structure.

The ability to sample freight operators and freight forwarders through the Yellow Pages produced a sampling method with high representativeness. The process for sampling ancillary operators was more limited owing to the low incidence of ancillary operations among major companies, and the need to introduce a less random approach to maintain a cost-efficient method.

4.2 The Survey as a Baseline

The survey serves as a baseline prior to fuller implementation in 2007 of the Heavy Vehicle Driver Fatigue reform. An important role of the study is as a baseline for measures of awareness, attitudes and behaviour of companies in the context of driver fatigue. Changes in these measures at some later stage can be used to assess the effectiveness of the reform in meeting its objectives. It should also be noted that the survey occurred during the consultation phase for the Heavy Vehicle Driver Fatigue reform, which may have influenced awareness, perceptions and attitudes.

The survey also provided an opportunity to assess changes that have occurred since the last survey was conducted, with long distance transport companies, in 1998. The broader nature of the sample of companies in the current survey imposes limitations in this comparison. Limiting results from the current survey to a specific group of companies more directly comparable with the previous survey, however, reduced the sample size substantially, limiting the effectiveness of the comparison. In practice, assessment of change between the surveys was not substantially affected by the change in the breadth of the sample.

4.3 Attitudes and Perceptions of Fatigue

The new Heavy Vehicle Driver Fatigue reform is being implemented at a time when two thirds of companies, as measured in the survey, consider that driver fatigue is well managed in the industry. This positive attitude is stronger than in 1998, so gains have already been made since that time. A fifth of companies surveyed, however, continued to consider that fatigue is badly managed, so there continues to be scope for improvement in how well companies are provided with systems to implement good practices, and how well the benefits of the reform to the industry are promoted. Three quarters of companies also considered that the current regulations allowed them to help their drivers manage fatigue effectively.

These strongly positive attitudes about the current situation around driver fatigue may mean that there will be resistance to the introduction of further actions and requirements of companies. Furthermore, three quarters of companies also considered that 'sticking to the regulations' could contribute to fatigue, suggesting that while they are beneficial to providing a structure to manage fatigue, they see a need for flexibility in implementing the

regulations. The results suggest that the NTC will need to promote the benefits of the new Reform to convince companies that any new requirements are of importance, particularly the direct benefits to companies. Smaller operations would be a primary target for this type of promotion, as they were less likely to feel that the current regulations are effective for them.

Issues that should be addressed in promoting the new reform would include overcoming resistance to the perceived inflexibility/restrictiveness of requirements around existing driving hours. This resistance was primarily expressed around problems that drivers experienced. It is possible that company managers would also like more flexibility, for example where they consider they need to change schedules to meet customer needs.

Almost all companies recognised 'long driving hours', 'insufficient rest' and 'inadequate sleep' as factors that could contribute to driver fatigue. There was lower recognition of other factors known to be of importance, including 'night driving', 'too much non-driving work' and 'driving in the early afternoon'; but nomination of these factors had increased since the 1998 survey. So while there is scope for further improvement in knowledge in order to encourage companies to take into account all the factors of importance when managing their trips, improvements have already been achieved.

Further positive changes from the 1998 survey were for lower nomination of less helpful strategies such as 'taking stay awake drugs' and 'adjusting the ventilation'. These changes indicate a more sophisticated understanding by companies of the range of factors influencing fatigue and what needs to be done for effective management. This improvement, however, needs to be seen in the context that three quarters of companies considered 'sticking to the working hours regulations' could contribute to fatigue. Companies clearly have concerns about current legislation. Whether or not these concerns are valid in practice, they should be addressed in the way that new legislation is promoted.

4.4 Company Practices

There was a continuation of the pattern observed in the 1998 survey for larger companies to be more likely to implement formal practices to manage fatigue. Comparisons with the 1998 survey, however, showed that substantial improvements had been made in covering subcontractor and independent drivers with formal driver fatigue and medical policies, which was found in the current survey to be at a similar level of coverage as for employee drivers. These changes indicate that companies are becoming more accepting of responsibility for subcontractor and independent drivers.

One area in which non-employee drivers were still treated very differently was in payment for non-driving work. Almost all (90%) companies using employee drivers paid them for non-driving work. Companies were less likely to pay their subcontractors (72%) for non-driving work, and even less likely to pay their independent drivers (59%).

4.5 Trip Profiles

Three quarters of companies reported experiencing late arrivals on at least some of their trips, although very few reported a frequency greater than 'some'. There was a trend for greater delays to be experienced by smaller companies. Smaller companies were shown to be less likely to monitor arrival times or take action with later arrivals. This relationship suggests that smaller operations are less likely to monitor trips because of a lower incidence of late arrivals; but it is also possible that they report fewer later arrivals simply because they are less aware of them.

The regularity of trip times/destinations will help companies and drivers in planning schedules, by taking into account experience of the trips. Half of companies had regular trip times/destinations for most of their work, including a fifth for all of their work. Companies that had a mix of short and long haul trips (1-29% long haul) were the most likely to report irregular work patterns, possibly because the lower frequency long haul trips are the ones that are less planned. Smaller companies also had a lower incidence of regular trips. These types of companies appear more vulnerable to potential problems with scheduling and fatigue.

Companies reported substantial control over their schedules, with the decision maker for estimating arrival times most likely to be either a company manager or the driver. While the customer was only involved in setting arrival times for less than a quarter of companies, customers could have substantial influence on schedules. Overall, two thirds of companies reported having to change schedules to suit customer needs on at least some of their trips, including a fifth on at least most of their trips. There appears, however, to have been some improvement in this area compared with the results from the 1998 survey.

Pressures from schedules and arrival times are a potential problem for drivers who are trying to manage their working hours within a regulated framework. A fifth of companies did not monitor arrival time on any of their trips, and there had been no change in this incidence compared with the 1998 survey. Furthermore, about half of companies overall did nothing about arrival times, either not monitoring or not taking action for late arrival. There was a trend for this to be greater among companies only using 'employee drivers', among companies operating fewer than 30 trucks, and among the main long haul group. This pattern leads to the following observations:

- Companies are tougher in monitoring/taking action on late arrivals where subcontractor and independent drivers are involved in their operations, suggesting that these drivers are seen to have more responsibility to be on time (although this may also be related to the way in which the drivers are paid).
- Larger companies are tougher in monitoring/taking action on late arrivals, suggesting that they have a greater reputation to uphold, to remain competitive in their industry. Larger companies were also found to be more likely to schedule trips to take into account delays resulting from queuing.
- The mainly-long haul companies are not as tough about monitoring/taking action on late arrivals, possibly because delays are accepted as more likely to happen on long trips. This group of companies was also found to be more likely to schedule trips to take into account delays resulting from queuing.

5. CONCLUSIONS

The results of the study provide a baseline for measures of awareness, attitudes and behaviour of companies in the context of driver fatigue. Changes in these measures at some later stage can be used to assess the effectiveness of the reform in meeting its objectives. The difficulties experienced in accessing ancillary operators, and the need to introduce a less random approach to maintain a cost-efficient method, should be noted for future studies. Furthermore, the survey was conducted during the Heavy Vehicle Driver Fatigue reform public consultation period, which may have influenced awareness and perceptions.

The survey results already show some important improvements in knowledge and practices compared with the survey conducted in 1998:

- An improvement in the attitude that fatigue is well managed in the industry. (In comparison, the parallel survey of drivers showed that there had been no improvement among drivers.)
- An improvement in the attitude that the current regulations help companies to help drivers to manage fatigue effectively.
- Substantial improvement in the implementation of formal driver fatigue and medical policies to subcontractor and independent drivers. A reduction in the implementation of a medical policy for employee drivers may reflect a growing implementation of fatigue management schemes as part of accreditation requirements.
- A substantial increase in the incidence of restrictions for subcontractor and independent drivers on all types except 'nights worked per week'; a reduction in the incidence of the restriction on 'nights worked per week' for employee drivers; and a reduction in the average number of hours worked per week, for all driver types.
- Perceptions of an increase in awareness of driver fatigue both within the company and more broadly in the industry were lower in the current survey. This may simply reflect the level of awareness that has already been achieved over the years, and provides a good baseline on which to measure the impact of promotion of the new reform.
- Increases in nomination of several factors as contributors to fatigue, including 'driving in early afternoon', 'driving at night', and 'too much non-driving work'. These increases are encouraging as these are factors known to contribute to fatigue.
- Reductions in rating 'taking stay awake drugs' and 'adjusting the ventilation' as helpful strategies in managing fatigue are also encouraging, as these strategies are not recommended for effective avoidance of driver fatigue.
- Trends were apparent for an increase in nominating 'management and driver in consultation' as a method used for determining trip times; and for a decrease in the incidence of changing trip schedules to suit customer demands on 'most/all' trips.

6. REFERENCES

House of Representatives, Standing Committee on Communication, Transport and the Arts. (2000). *Beyond the Midnight Oil. An inquiry into managing fatigue in transport.* Canberra. Available:

<http://www.aph.gov.au/house/committee/cita/manfatigue/mfcontents.htm>

Motor Accidents Authority, NSW. (2001). *Report of Inquiry into Safety in the Long Haul Trucking Industry.* Quinlan, M. ISBN 1 876958 06 5. Available:

<http://www.maa.nsw.gov.au/default.aspx?MenuID=189#171>

National Transport Commission. (2001) *Fatigue Expert Group: Options for Regulatory Approach to Fatigue in Drivers of Heavy Vehicles in Australia and New Zealand.* ISBN: 0 642 54478 6. Available:

<http://www.ntc.gov.au/DocView.aspx?page=A02302215401080020>

National Transport Commission. (2002) *Compliance and Enforcement Bill Fact Sheet.* Available:

<http://www.ntc.gov.au/DocView.aspx?page=A02106705308680020>

National Transport Commission. (2003) *Revised Road Transport Reform (Compliance and Enforcement) Bill. Absolute liability and the reasonable steps defence.* Available:

<http://www.ntc.gov.au/DocView.aspx?page=A02200608408520020>

National Transport Commission. (2004a). *Heavy Vehicle Driver Fatigue Policy Proposal.* ISBN: 1 877093 16 5. Available:

<http://www.ntc.gov.au/DocView.aspx?page=A02209503300850020>

National Transport Commission (2004b). *Improved National Approaches to Heavy Vehicle Driver Health and Fatigue.* Bulletin Available:

<http://www.ntc.gov.au/ViewPage.aspx?page=A02401112501200020>

National Road Transport Commission and Ken Smith – Smithworks Consulting. (2001). *Heavy Vehicle Driver Fatigue: Review of Regulatory Approach.* Discussion Paper. ISBN: 0 642 54491 3. Available:

<http://www.ntc.gov.au/DocView.aspx?page=A02302214401090020>

Williamson, A., Feyer, A-M, Friswell, R., and Sadural, S. (2001). *Driver Fatigue: A Survey of Long Distance Transport Companies in Australia.* ISBN: 1 877093 092 2. Information Paper / ATSB CR 209. Available:

<http://www.ntc.gov.au/DocView.aspx?page=A02402111501110020>

7. APPENDICES

7.1 Appendix A – Additional Detail on Method

7.1.1 Recruitment of Companies

Companies were divided into three main groups for the purposes of sampling:

- freight operators;
- freight forwarders; and
- consignors.

Developing a representative sampling pool for the first two categories was relatively straightforward, using the business categories *transport* and *transport and forwarding agents* in the online Yellow Pages. These lists of companies were used for both the survey of operators for the Fatigue survey and for the parallel survey of operators for the Compliance and Enforcement survey. A total pool of 2329 companies was developed for the two surveys, and these lists proved efficient for sampling operators.

The sampling pool of consignors in the agriculture, manufacturing, construction, wholesale and retail industries operating their own trucks (i.e. ancillary operators) was developed initially from two main sources:

- Lists of companies on the business website on the business website *IBISworld* (<http://www.ibisworld.com.au/enterprise/home.aspx>), IBISworld is a company that specialises in research and information on Australian business—given the nature of its operation and the breadth of coverage, it was considered a better source of information on major consignors than through purchasing business lists. The names of companies were searched on the Internet to identify head office contact telephone numbers. More than one contact in a company was recorded if there were operations in different states or if there different types of operations.
- Since a significant number of ancillary operators involved in road freight transport are farmers, the ancillary operator pool was boosted through selecting a random sample of farmers from the Yellow Pages.
- The pool of companies from these two sources for use in the two surveys is summarised in Table 31.

Table 31. Summary Sampling Pool of Consignors

Industry	Pool
<i>IBISworld</i>	
Manufacturing	424
Wholesale	349
Retail	154
Building and Construction	86
<i>Yellow Pages</i>	
Farmers	300

It was anticipated that recruitment of consignors might prove more difficult, influenced by the incidence of ancillary operations, and this proved to be the case. A sample of 31 ancillary operators was recruited from the lists. It was then decided to boost the sample by recruiting additional ancillary operators through a specialist market research recruitment company using its recruitment networks, which were then screened to qualify for the survey.

7.1.2 Interview Procedure

Companies were interviewed by telephone during business hours. Interviewers initially asked to speak to the operations manager, freight manager or human resources manager to obtain an interview. Interviews with the specially recruited companies were all completed by telephone. These company respondents were given an incentive to take part in the research.

Companies were randomly selected from the pool of three main categories of operators (freight, freight forwarders and consignors). Unanswered numbers were recalled up to five times to obtain an interview.

7.1.3 Interview Outcomes

A total of 314 surveys were conducted. This total included 284 from the original sampling pool developed from companies from the Yellow Pages and IBISworld. A total of 611 surveys were completed from these two sources across the Fatigue and Compliance and Enforcement. An additional 852 companies refused to participate in the survey, and there were language problems for a further 8. The response rate, based on completed interviews and refusals, was therefore 41.5% (611 out of 1471).

7.1.4 Statistical Analysis

The main statistical analysis was conducted using chi-square tests in a spreadsheet set up in Microsoft Excel⁴. This test is suitable for looking at differences between groups measured on categorical variables or scales with few points.

Differences were assessed separately for each grouping variable (e.g. differences between the three 'types of operator'). Differences have been reported at a statistical significance level of $p < .05$.

In general, the chi-square tests were conducted separately on each response, to give more information about where differences occurred. The test was not applied on response categories where expected cell sizes were less than 5. In such cases, percentage results for all groups were typically very low or very high.

⁴ The output from the formulas set up in Excel was checked against the output from SPSS to ensure that the calculations were accurate.

7.2 Appendix B – Questionnaire

SAMPLE

State

- 1 NSW
- 2 Victoria
- 3 Queensland
- 4 OTHER

Industry

- Transport Companies
- 1 Trucking companies
 - 2 Freight Forwarding

- Consignors
- 5 Agriculture
 - 6 Manufacturing
 - 7 Wholesaling
 - 8 Retail
 - 9 Building and Construction

LOCATIONS

- | | | |
|-------|-------------|-----------|
| NSW | – Transport | Consignor |
| Vic | – Transport | Consignor |
| Qld | – Transport | Consignor |
| Other | – Transport | Consignor |

QUOTAS

for a total of 300 interviews
[COMBINATION OF Industry code and Q2b]

<u>TRUCKING (Q2b=1)</u>	<u>CONSIGNORS (Q2b=1)</u>
1 Trucking companies	5 Agriculture
2 Freight Forwarding/ Stevedores/ Logistics	6 Manufacturing
	7 Wholesaling
	8 Retail
	9 Building and Const'n

PREAMBLE

TO RECEPTION: Can I please speak to your operations manager, or freight manager.
IF POSSIBLE, ASCERTAIN THAT THEY OPERATE HEAVY VEHICLES TO
TRANSPORT FREIGHT - OF AT LEAST 12 TONNES GROSS VEHICLE MASS

TO MANAGER: We are conducting research for the National Transport Commission on road freight transport. We are talking to companies that transport freight by heavy vehicles; or have freight transported for them by heavy vehicles. By heavy vehicles we mean at least 12 tonnes gross vehicle mass.

The research is on day to day issues faced by businesses in transporting freight. We are talking to a range of businesses, including transport companies, consignors, wholesalers and retailers.

ASCERTAIN WILLINGNESS TO CONTINUE - ARRANGE AN ALTERNATIVE TIME IF POSSIBLE

COMPANY PROFILE

Q1. Firstly, what is your position in within your company?
RECORD VERBATIM

Q2a. Do your company operate its own trucks or trailers?

- 1 Yes
- 2 No

IF Q2A=1, ASK Q2B

Q2b. Would any of these vehicles be of at least 12 tonnes gross vehicle mass?

- 1 Yes
- 2 No

IF Q2a=1 ASK Q3/Q4, OTHERS GO TO Q5

Q3. How many trucks does your company operate of at least 12 tonnes gross vehicle mass?

RECORD NUMBER (IF DON'T KNOW EXACT NUMBER, THEN ASK FOR APPROXIMATE NUMBER)

Q4. Does your company...

READ OUT - MULTIPLE RESPONSE (1/3)

- 1 Employ its own drivers
- 2 Subcontractor drivers, who you pay directly
- 3 Have Independent owner drivers, who you pay directly
- 4 DO NOT READ OUT: Does not employ drivers

IF Q4=1/3 ASK Q5 - OTHERS GO TO Q6

Q5. How many drivers does your company employ as...

RECORD NUMBER

ASK FOR EACH OF 1,2,3 ANSWERED IN Q4 - DESCRIBED AS BELOW

- 1 Employee drivers
- 2 Sub contractors
- 3 Independent owner drivers

Q6. What are the main types of freight that your company is involved in transporting?

READ OUT - MULTIPLE RESPONSE

- 1 Livestock
- 2 Refrigerated or temperature controlled
- 3 Dangerous goods
- 4 Farm produce
- 5 Other bulk (specify)
- 6 Machinery
- 7 Building materials
- 8 Groceries
- 9 Manufactured goods (specify)
- 10 General or mixed freight
- 11 Car carrying
- 12 Express freight
- 13 Any other freight (specify)

Q7. What percentage of transport trips conducted by your company, or for your company, are... READ OUT

GET % IN EACH CATEGORY TO ADD UP TO 100%
IF UNSURE, GET AN APPROXIMATE DISTRIBUTION, OR THINK ABOUT IN THE LAST WEEK,
999=DON'T KNOW

- 1 Within a capital city metropolitan area
- 2 Interstate trips between metropolitan centres
- 3 Within a regional centre
- 4 Between regional centres, less than 100 km apart
- 5 Between regional centres, more than 100 km apart
- 6 Between a metropolitan and regional area

PAY RATES

IF Q4=4 (DOESN'T EMPLOY DRIVERS) GO TO Q14

Q9. The next couple of questions are about how your drivers are paid.

How do your [driver group] get paid, would it be... READ OUT
IF MORE THAN ONE OF 1/3 IN Q4 ADD: **And what about your [driver group]**

READ OUT A PAY SYSTEM - AND RECORD ALL THAT APPLY

- 1 By hourly rate
- 2 Flat day rate
- 3 Day rate with overtime
- 4 Weekly rate
- 5 Weekly rate with overtime
- 6 Flat rate for every truck load carried
- 8 Or would it be some other way? [SPECIFY]
- 9 DO NOT READ OUT: Don't know

RECORD FOR EACH DRIVER TYPE FROM Q4

- 1 Employee drivers
- 2 Sub contractors
- 3 Independent owner drivers

Q10. Are your [driver group] drivers paid less than the award rate, at the award rate or more than the award rate.

IF MORE THAN ONE OF 1/3 IN Q4 ADD: **And what about for your [driver group]**

ANSWER FOR EACH TYPE OF DRIVER

PAY RATE

- 1 Less than the award rate
- 2 At the award rate
- 3 More than the award rate
- 9 DO NOT READ OUT: Don't know

RECORD FOR EACH DRIVER TYPE FROM Q4

- 1 Employee drivers
- 2 Sub contracted drivers
- 3 Independent owner drivers

Q11. Do your [driver group] get paid for non-driving work? By this we mean work such as loading and unloading?

IF YES, PROBE FURTHER: **Is it as the same rate as driving work?**

ASK FOR EACH TYPE OF DRIVER FROM Q4

RECORD FOR EACH DRIVER TYPE FROM Q4

- 1 Employee drivers
- 2 Sub contractors
- 3 Independent owner drivers

RESPONSE

- 1 Yes - at same rate
- 2 Yes - not at same rate
- 3 Yes - don't know if at same rate
- 4 No
- 9 Don't know

FATIGUE MANAGEMENT

Q12. The next few questions are about how your company manages driver fatigue.

Does your company operate under any of the following?

READ OUT - CODE ALL THAT APPLY

- 1 Standard working hours for drivers (where the driver fills out a log book)
- 2 Transitional Fatigue Management Scheme
- 3 Fatigue Management Scheme
- 4 A formal driver fatigue management policy for drivers
- 5 A formal medical policy for drivers
- 6 DO NOT READ OUT: None of these

IF Q12= 1,4 or 5, AND MORE THAN ONE ANSWERED 1/3 AT Q4, ASK Q13

**Q13. Would the [scheme] apply to your [driver group]
FOR EACH SCHEME, ASK ABOUT EACH DRIVER GROUP**

SCHEME

- 1 Standard working hours for drivers, where the driver fills out a log book
- 4 A formal driver fatigue management policy for drivers
- 5 A formal medical policy for drivers

READ OUT EACH DRIVER GROUP AND RECORD

- 1 Employee drivers
- 2 Sub contractors
- 3 Independent owner drivers

- 1 Yes
- 2 No
- 9 Don't know

Q14. Does your company do any of the following to manage driver fatigue?

ACTIONS - RANDOMISE

- Monitor the levels of fatigue of drivers
- Provide education about fatigue
- Provide education about health
- Monitor the working hours that drivers do
- Restrict working hours for drivers
- Allow flexible schedules - allowing drivers to rest when needed
- Make drivers take rest breaks when they are driving
- Schedule trips so that drivers can have adequate breaks
- Allow enough time between trips for sleep
- Minimise night driving
- Use workers other than drivers for loading and unloading

RESPONSE

- 1 Yes
- 2 No
- 9 Don't know

IF Q4=4, GO TO Q18

IF Q14 STATEMENT 1 = YES ASK Q15

Q15. In which of the following ways does your company monitor driver fatigue

ACTIONS - RANDOMISE 1/6

- 1 Ask drivers how they felt
- 2 Use monitoring devices
- 3 Review drivers' log books
- 4 Review truck computer records
- 5 Review any incidents or accident
- 6 Is there any other way you monitor levels of fatigue (specify)

RESPONSE

- 1 Yes
- 2 No
- 9 Don't know

Q16. The next few questions are about how your company manages driving and working hours. In your company, are hours for any of your [driver group] managed according to the working hours regulations?

IF MORE THAN ONE DRIVER GROUP AT Q4: **And what about [driver group]**

READ OUT EACH DRIVER GROUP AND RECORD

- 1 Employee drivers
- 2 Sub contractors
- 3 Independent owner drivers

RESPONSE

- 1 Yes
- 2 No
- 9 Don't know

Q17. When managing drivers' working hours, does your company put a restriction on any of the following?

IF MORE THAN ONE DRIVER GROUP AT Q4: **Please answer separately for your [READ OUT DRIVER GROUPS] if there are any differences in the way each group is managed.**

ACTIONS - RANDOMISE

- On the number of hours worked per day [IF YES: How many]
- On the number of hours worked per week [IF YES: How many]
- On the number of continuous days worked [IF YES: How many]
- On the number of nights drivers can work in a week [IF YES: How many]

DRIVER GROUPS

- 1 Employee drivers
- 2 Sub contractors
- 3 Independent owner drivers

RESPONSE

- 1 Yes
- 2 No
- 9 Don't know

WORK PRACTICES

Q18. Now thinking about schedules, departure times and arrival times for your trips

How much of your company's road freight work would have regular trip times and trip destinations? Would it be... READ OUT

- 1 All of your work
- 2 Most of your work
- 3 Some of your work
- 4 None of your work
- 9 DO NOT READ OUT: Don't know

**Q19. And on how many trips is the time of arrival estimated?
Would it be... READ OUT**

- 1 All of your trips
- 2 Most of your trips
- 3 Some of your trips
- 4 None of your trips

9 DO NOT READ OUT: Don't know

IF Q19<>4 ASK Q20

Q20. Who typically decides the estimate times of arrival? Would it be...

READ OUT - ACCEPT MULTIPLES

- 1 A manager in your company
- 2 The driver
- 3 The consignor of the goods
- 4 The receiver of the goods
- 5 Someone else (specify)
- 9 DO NOT READ OUT: Don't know

Q21a. On how many trips would drivers be delayed waiting in queues to unload? Would it be...

READ OUT

- 1 All of your trips
- 2 Most of your trips
- 3 Some of your trips
- 4 None of your trips
- 9 DO NOT READ OUT: Don't know

IF Q21A=4/9 GO TO Q22

Q21b. Would you take into account delays for queuing when putting together drivers' work schedules? READ OUT

- 1 All of the time
- 2 Most of the time
- 3 Some of the time
- 4 None of the time
- 9 DO NOT READ OUT: Don't know

Q22. On what percentage of your road freight trips would the driver's arrival time be monitored?

RECORD %

IF UNSURE, GET AN APPROXIMATE %, 999=DON'T KNOW

IF Q22>0, ASK Q23

Q23. Which of the following would happen if a driver was late?

READ OUT 1/5 - RECORD ALL THAT APPLY

- 1 You would impose a penalty on the driver
- 2 The driver would be given a warning
- 3 The schedule would be revised next time
- 4 The driver would not be used again
- 5 Or would there be some other response (specify)
- 6 DO NOT READ OUT: No action
- 9 DO NOT READ OUT: Don't know

Q24. How often do late arrivals happen? Would it be on... READ OUT

- 1 All of your trips
- 2 Most of your trips

- 3 Some of your trips
- 4 None of your trips
- 9 DO NOT READ OUT: Don't know

Q25. Does your company offer a bonus for a driver being early or on-time?

- 1 Yes
- 2 No
- 9 Don't know

Q26. Which of the following methods does your company use to determine trip times?
Please answer all that apply.

METHODS - RANDOMISE 1/5

- 1 Estimates by the driver alone
- 2 Estimates by management alone
- 3 Estimated by management and the driver in consultation
- 4 Based on the number of kilometres travelled in a day
- 5 Based on a trial trip
- 6 Other way (specify)
- 9 Don't know

Q27. When trip times are worked out in your company, what percentage of the trip is usually built in for sleep, rest breaks, and breakdown?

RECORD % - GET AN ESTIMATE IF NECESSARY 999=DON'T KNOW

Q28. How often do you change trip schedules to suit customer demands? Would it be...

- 1 All of your trips
- 2 Most of your trips
- 3 Some of your trips
- 4 None of your trips
- 9 DO NOT READ OUT: Don't know

Q29. How often do you delay a load because of driver fatigue? Would it be...

- 1 All of your trips
- 2 Most of your trips
- 3 Some of your trips
- 4 None of your trips
- 9 DO NOT READ OUT: Don't know

PERCEPTIONS

Q30. Do you think that awareness of driver fatigue has changed over the last year in the industry you work in? Do you think it has ... READ OUT

- 1 Increased a lot
- 2 Increased
- 3 Not changed
- 4 Decreased
- 5 Decreased a lot
- 9 DO NOT READ OUT: Don't know

Q31. Do you think that your company's awareness of driver fatigue has changed over the last year? Do you think it has ... READ OUT

- 1 Increased a lot
- 2 Increased

- 3 Not changed
- 4 Decreased
- 5 Decreased a lot
- 9 DO NOT READ OUT: Don't know

Q32. How well do you feel that driver fatigue is managed in your industry now? Do you think it is managed... READ OUT

- 1 Very badly
- 2 Quite badly
- 3 Quite well
- 4 Very well
- 9 DO NOT READ OUT: Don't know/Don't have an opinion

Q33. I am going to read out a list of things that might contribute to driver fatigue. Please tell me which you think could contribute to driver fatigue.
Please use a scale of... READ OUT SCALE

CONTRIBUTORS - RANDOMISE 1/10

- 1 Long driving hours
- 2 Insufficient rest break
- 3 Irregular or inadequate sleep during trips
- 4 Not enough night time sleep
- 5 Driving at night
- 6 Having to stick to the working hours regulations
- 7 Too much non driving work
- 8 Heavy traffic
- 9 Poor diet
- 10 Driving in early afternoon
- 99 NONE OF THESE

SCALE

- 1 Would be a major contributor
- 2 Would be a minor contributor
- 3 Would not be a contributor
- 9 DO NOT READ OUT: Don't know

Q34. I am now going to read out a list of strategies that drivers might use to manage fatigue. Please rate how helpful you think each of them is for managing fatigue.

Please use a scale of... READ OUT SCALE

CONTRIBUTORS - RANDOMISE

- 1 Stopping to sleep
- 2 Stopping to rest
- 3 Stopping for a meal
- 4 Eating while driving
- 5 Having a drink containing caffeine
- 6 Taking stay awake drugs
- 7 Listening to the radio or music
- 8 Adjusting the ventilation, such as windows, heater, air conditioning
- 9 Ignoring driving hours regulations to finish a trip when close to home
- 10 Smoking

SCALE

- 1 Very helpful
- 2 Helpful
- 3 Unhelpful
- 4 Very unhelpful
- 9 DO NOT READ OUT: Don't know

Q35. Do you think that the current regulations allow you to help your drivers manage fatigue effectively?

- 1 Yes
- 2 No
- 9 Don't know

IF Q35=NO, ASK Q36

Q36. In what ways do the regulations not allow you to manage fatigue effectively?
RECORD VERBATIM

That's the end of the interview. Thank you for your time. As this is market research, it is carried out in compliance with the Privacy Act and the information you provided will be used only for research purposes.

As part of quality control procedures, someone from our project team may wish to re-contact you to ask a couple of questions, verifying some of the information we just collected. In case we do need to recontact you, can I please get your name?

NAME _____

NUMBER _____

Once our validation period has finished, please be assured that your name and contact details will be removed from your responses to this survey. After that time we will no longer be able to identify the responses provided by you.

7.3 Appendix C – Comparing the Parallel Surveys of Drivers and Companies

7.3.1 The Surveys

Surveys with a number of common questions were conducted of a sample of companies and a sample of drivers. The following discussion compares results between the two surveys on key attitudinal questions.

Profiling of the companies/drivers in the surveys does reveal differences between the samples, reflecting the sampling methods for the two surveys (Table 32). The Driver Survey, with respondents recruited primarily from truck stops, included a large proportion of long haul drivers (62% with 90+% of their trips as long haul). The Company Survey, with random sampling of transport companies supplemented by a sample of consignors, included about half (47%) as exclusively short haul, or mainly short haul, companies.

About half of drivers covered in the Company Survey (i.e. weighted by drivers) were paid ‘hourly’, which appeared consistent regardless of long haul trip profile. In contrast, the incidence of an hourly rate in the Driver Survey decreased substantially with the amount of long haul trips, and the overall distribution included over half paid a rate based on the trip.

The distribution by company size also differed between the surveys, with those in the Driver Survey more likely to come from smaller companies, compared with the drivers covered in the Company Survey.

Interviewing at truck stops clearly had an impact on the overall profile of the Driver survey, both in terms of the incidence of long haul drivers, but also possibly on the type of long haul driver (e.g. those specifically using truck stops).

Table 32. Profile of the Companies and Drivers in the Two Surveys

MEASURE	COMPANY SURVEY		DRIVER SURVEY
	<i>Companies</i>	<i>Drivers [weighted]</i>	<i>Drivers [working for a company]</i>
	%	%	%
% Long haul trips (>100 km away from base)			
0-29% [mainly short haul]	47	51	21
30-89%	27	33	17
90-100% [mainly long haul]	26	16	62
Size of company			
1-4	39	4	26
5-10	26	10	23
11-50	27	41	32
>50	11	45	19
Payment rate (drivers working for a company)			
Hourly		47	20
Weekly/salary		4	19
Flat km/load		36	58
Mixed/Other		13	3

Bolded: Main differences between the surveys indicated by bolding the higher results.

While it was still possible to make comparisons between the different short/long haul groups of drivers in the Driver Survey, to look at the impact of trip type, direct comparison between the Driver Survey and Company Survey needs to be qualified.

7.3.2 Perception of How Well Fatigue is Managed in the Industry

Drivers were much less likely than companies to consider that driver fatigue is ‘well managed’ in the industry (Table 33).

Table 33. Perception of How Well Fatigue is Managed in the Industry

How well is fatigue managed	COMPANY SURVEY		DRIVER SURVEY
	Companies	Drivers [weighted]	Drivers
	%	%	%
Very well	18	20	8
Quite well	50	54	33
Quite badly	15	10	33
Extremely badly	6	4	23
Don't know	11	12	3

Bolded: Main differences between the surveys indicated by bolding the higher results.

7.3.3 Contributors to Fatigue

Companies were asked about how each of a set of factors might contribute to fatigue, while drivers were asked whether each factor directly contributed to their fatigue. In this context, companies were more likely than drivers to nominate all but one factor as a major contributor (Table 34).

Table 34. Rating of Contributors to Fatigue

NOTE: Companies asked in the context of potential contributors to fatigue
Drivers asked in the context of actual contributors to their fatigue

Contributors	COMPANY SURVEY Major Contributors		DRIVER SURVEY	
	Companies	Drivers [weighted]	Minor Contributor	Minor/Major Contributor
	%	%	%	%
Long driving hours	76	70	38	69
Insufficient rest break	77	68	29	57
Irregular/inadequate sleep during trips	79	73	32	61
Not enough night time sleep	68	54	30	54
Driving at night	41	35	14	39
Too much non driving work	37	39	25	51
Having to stick to the working hours regulations	29	19	36	58
Poor diet	55	60	25	52
Heavy traffic	43	38	31	67
Driving in early afternoon	11	9	13	44

Bolded: Main differences between the surveys indicated by bolding the higher results.

Using the drivers’ total major/minor rating of contributors as an index highlights issues with four of the contributors, where companies appear to underestimate the importance:

- heavy traffic
- having to stick to the working hours regulations
- too much non driving work
- driving in early afternoon.

7.3.4 Helpfulness of Strategies

Drivers were more likely than companies to nominate all strategies as ‘very helpful’. Considering all nominations of ‘helpful’ highlights several of the ‘non stopping’ strategies that were rated higher by drivers (Table 35):

- ignoring driving hours regulations to finish a trip when close to home
- smoking
- eating while driving
- having a drink containing caffeine.

Table 35. Driver Strategies Rated as ‘Helpful’ to Manage Fatigue

Strategies	COMPANY SURVEY		DRIVER SURVEY
	<i>Companies</i>	<i>Drivers [weighted]</i>	<i>Drivers</i>
	%	%	%
Sleep/rest			
Stopping to sleep	98	94	98
Stopping to rest	98	100	98
Stopping for a meal	95	97	85
Eating/ingesting (not stopping)			
Having a drink containing caffeine	55	49	65
Eating while driving	30	29	55
Smoking	16	15	37
Taking stay awake drugs	12	9	18
Other activities			
Listening to the radio or music	75	78	85
Adjusting the ventilation	75	71	84
Ignoring driving hours regulations to finish a trip when close to home	17	15	43

***Bolded:** Main differences between the surveys indicated by bolding the higher results.*

The overall conclusion is that drivers were more optimistic than companies about managing their own fatigue. A more conservative attitude by companies is encouraging in this regard. There is concern, however, about the high nomination of helpfulness of temporary strategies such as ‘listening to the radio or music’ and ‘adjusting ventilation’, and the small percentage of both companies and drivers nominating ‘taking stay awake drugs’.

Furthermore, while drivers might be more optimistic about managing their own fatigue, they are clearly more negative about the way that fatigue is managed in the industry. These perceptions—a stronger internalised sense of control and a poorer perception of external support—are likely to be related. The direction of the relationship, however, is unclear: does a perception of poor management in the industry lead to drivers relying on their own strategies; or do at least some drivers want to control their own work situation, including ‘bending the rules’, so disregard the controls in the industry as being ineffective or even inappropriate (e.g. the value of the driving/working hour regulations).