MONASH University
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AN INDEX FOR TOTAL SECONDARY SAFETY OF LIGHT PASSENGER VEHICLES ESTIMATED FROM POLICE REPORTED CRASH DATA:

by

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An Index for Total Secondary Safety of Light Passenger Vehicles Estimated From Police Reported Crash Data

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Abstract:
Crashworthiness ratings measure the relative safety of vehicles in preventing severe injury to their own road users in crashes whilst aggressivity ratings measure the serious injury risk vehicles pose to other road users with which they collide. A total secondary safety index was successfully developed which summarises the combined crashworthiness and aggressivity performance of a vehicle, wighted by the relative importance of each component in real world crash circumstances, into a single integrated measure. The index estimates the risk of death or serious injury to light vehicle drivers and unprotected road users in the full range of crash types involving light passenger vehicles

The total secondary safety index developed has been estimated for 1982-2004 model vehicles were based on data from crashes reported to police in Victoria and New South Wales during 1987-2004 and in Queensland, Western Australia and New Zealand during 1991-2004. Total secondary safety was measured by a combination of injury severity (the risk of death or serious injury given an injury was sustained) and injury risk (the risk of injury given crash involvement). The index was adjusted for the sex and age of the person whose injury outcome was being measured, speed limit at the crash location, number of vehicles involved, the jurisdiction in which the crash occurred and the year in which the crash occurred. These factors were strongly related to injury risk and/or severity. In addition to the above factors this rating was also adjusted for the type of crash configuration as this factor was strongly related to injury risk and/or severity. The degree of accuracy of the index is represented by a confidence limit on the index.

Total secondary safety index estimates and their associated confidence limits were obtained for 357 vehicle models classified into 12 market groups. They were sufficiently sensitive that they were able to identify 139 models of passenger cars, four-wheel drive vehicles, passenger vans and light commercial vehicles that have superior or inferior total secondary safety characteristics compared with the average vehicle.

The results of this report are based on a number of assumptions and warrant a number of qualifications that should be noted.

Key Words: (IRRD except when marked*)
Injury, Vehicle Occupant, Collision, Passenger Car Unit, Passive Safety System, Statistics

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EXECUTIVE SUMMARY

This report describes the successful development of a new total secondary safety index for light passenger vehicles. Crashworthiness ratings measure the relative safety of vehicles in preventing severe injury to their own road users in crashes and aggressivity ratings measure the serious injury risk vehicles pose to other road users with which they collide. The total secondary safety index measure integrates into one measure the combined crashworthiness and aggressivity performance of a vehicle in a way most representative of the crash population involving the vehicle fleet being rated. It considers relative injury outcomes in a mix of crashes involving light passenger vehicles including single and multi vehicle crashes, crashes with heavy vehicle and crashes involving unprotected road users. This aim of the measure developed was to represent the total secondary safety performance of the vehicle across the full range of collision partners and crash types.

The total secondary safety index developed measures the average risk of death or serious injury to light passenger vehicle drivers and unprotected road users (pedestrians, cyclists and motorcyclists) when involved in a crash with a light passenger vehicle to a degree of accuracy represented by the confidence limits of the index in each case. The index was measured by a combination of injury severity (the risk of death or serious injury given an injury was sustained) and injury risk (the risk of injury given crash involvement).A far as possible, the index reflects the total secondary safety performance related to vehicle design alone by controlling for a range of non-vehicle related factors known to affect injury outcome.

The total secondary safety index developed was applied to records of light vehicle crashes reported to police in Victoria and New South Wales during 1987-2004 and from Queensland, Western Australia and New Zealand during 1991-2004. Total secondary safety injury severity was based on 426,096 road users injured in crashes in Victoria during 1987-2004, in New South Wales during 1987-1998 and in Queensland, Western Australia and New Zealand during 1991-2004. Injury risk was based on 1,795,564 road users involved in crashes in New South Wales during 1987-2004 and Western Australia and Queensland during 1991-2004 where a vehicle was towed away.

The index was adjusted for the sex and age of the person whose injury outcome was being measured, speed limit at the crash location, number of vehicles involved, the jurisdiction in which the crash occurred and the year in which the crash occurred. These factors were strongly related to injury risk and/or severity. In addition to the above factors this rating was also adjusted for the type of crash and road user combination as this factor was strongly related to injury risk and/or severity. Total secondary safety index estimates and their associated confidence limits were obtained for 357 vehicle models classified into 12 market groups. They were sufficiently sensitive that they were able to identify 139 models of passenger cars, four-wheel drive vehicles, passenger vans and light commercial vehicles that have superior or inferior total secondary safety characteristics compared with the average vehicle.

Estimated total secondary safety was found to have a stronger relationship with ratings of vehicle crashworthiness than with vehicle aggressivity. This reflects that crashworthiness is relevant to the injury outcome of road users in a wider range of crash types than are covered by the aggressivity ratings.

The index developed serves as a valuable summary of overall secondary safety of light passenger vehicles both for consumer information as well as for regulators and vehicle safety advocates in identifying and promoting vehicle safety characteristics that optimise overall secondary safety characteristics.

The results of are based on a number of assumptions and warrant a number of qualifications that should be noted.

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AN INDEX FOR VEHICLE TOTAL SECONDARY SAFETY OF LIGHT PASSENGER VEHICLES ESTIMATED FROM POLICE REPORTED CRASH DATA:

1. INTRODUCTION AND AIMS

For nearly 15 years the Monash University Accident Research Centre (MUARC) has been involved in a program of research examining issues relating to vehicle safety in both Australia and New Zealand through the analysis of mass data records on crashes reported to police. Data on which the research to date is based has come from reports compiled by police in 4 States across Australia and in New Zealand.

To date, the research program has focused on two specific areas of vehicle safety performance: crashworthiness and aggressivity.

1.1 Crashworthiness Ratings

Initially, development of vehicle safety ratings focussed on vehicle crashworthiness. Crashworthiness ratings rate the relative safety of vehicles in protecting their own occupants in the event of a crash. The measure of vehicle crashworthiness defined in the MUARC ratings is a measure of the risk of death or serious injury to the driver in the event of a crash. This risk is estimated from large numbers of records of injury to drivers of that vehicle type involved in real crashes on the road.

Reflecting properties of the available data, the MUARC crashworthiness measure is a product of two components:

1. Rate of injury for drivers involved in crashes where a vehicle is towed away or someone is injured (injury risk)
2. Rate of serious injury (death or hospital admission) for injured drivers (injury severity).

Multiplying these two rates together formed the crashworthiness rating. The result is a measure of the risk of death or serious injury for drivers involved in crashes where a vehicle is towed away or someone is injured. Measuring crashworthiness as a product of two components, reflecting risk and severity of injury respectively, was first developed by Folksam Insurance, which publishes the well-known Swedish ratings (Gustafsson et al 1989).

Initial ratings estimates were published by Cameron et al (1994a) with a full technical description of the analysis methods appearing in Cameron et al (1994b). These ratings use an analysis method that was developed to maximise the reliability and sensitivity of the results from the available data whilst adjusting for the effects on injury outcome of non-vehicle factors that differ between vehicles. In addition to the speed zone and driver sex, the method of analysis adjusts for the effects of driver age and the number of vehicles involved, producing results with all those factors taken into account.

These ratings have been updated a further 9 times with many including enhancements to the statistical methods of estimation. The latest update was released in 2006 with results summarised in Newstead et al (2006) and covering vehicles manufactured over the years 1982 to 2004. The crashworthiness ratings covered individual models of sedans, station wagons, four wheel drives, passenger vans and light commercial vehicles and were given as estimates of risk of severe injury for each model along with statistical confidence limits on each estimate. For each update, the rating figures were widely distributed in the form of a "Used Car Safety Ratings" brochure.

1.2 Aggressivity Ratings

International reviews of MUARC's crashworthiness ratings indicated that the ratings system should be extended to add a measure of the "aggressivity" of individual car models when they crash. Broadly speaking, aggressivity ratings measure the risk of injury that a vehicle poses to occupants of other vehicles it impacts, and also to other unprotected road users such as pedestrians, bicyclists and motorcyclists. It was noted that the addition of aggressivity ratings would provide further consumer advice, which purchasers of cars could take into account when choosing a specific model.

Cameron, Newstead and Le (1998) completed an initial study that reviewed methods of rating vehicle aggressivity developed internationally, such as those by Broughton (1994, 1996) and Hollowell and Gabler (1996). Concepts from this review were then taken to develop a methodology for rating the aggressivity of Australian passenger vehicles making appropriate uses of the real crash data available in Australia. The original study of Cameron et al (1998) investigated the feasibility and methods of providing aggressivity ratings for Australian passenger vehicles in terms of the threat that each subject model represented to:

1. Occupants of other cars colliding with the subject model cars, and
2. Pedestrians, bicyclists and motorcyclists impacted by the subject model cars.

Although the second type of aggressivity rating was considered by Cameron et al (1998), ratings of this type proved problematic and were not further considered in isolation. Estimation of aggressivity towards drivers of other cars was more successful. As in Europe and the United States, the aggressivity rating towards road users of other vehicles defined by Cameron et al (1998) was based on two-car crashes between light vehicles (i.e. heavy vehicle collisions have been excluded). Like the crashworthiness index, the measure of the aggressivity risk of injury (RO) of the other drivers colliding with the subject model was defined as a product of two components.

RO = proportion of other drivers involved in crashes of tow away or greater severity with the car being rated who were injured and
SO = proportion of injured drivers of the other cars who were killed or admitted to hospital.

The aggressivity measure for each subject car model was then calculated as:

$$\textit{Aggressivity to other driver} = AO = RO \times SO$$

The aggressivity metric measures the risk of death or serious injury to drivers of cars when involved in collisions with the model of car being rated. Like the crashworthiness ratings, the aggressivity measure was adjusted for the effects of non-vehicle factors differing between the subject car models which may have affected injury outcome to the driver of the other vehicle. Non-vehicle factors available in the data included: speed limit at the crash location, subject vehicle driver age and gender and other car driver age and gender.

One aspect the research of Cameron et al (1998) did not consider was estimation of an aggressivity rating reflecting the injury outcome to road users of other vehicles as well as to unprotected road users in an integrated measure. In the safety ratings update of Newstead et al (2005) the aggressivity measure was reviewed. The new aggressivity rating measure reflected the injury outcome to both other vehicle drivers and unprotected road user crashes in a single integrated measure. By incorporating unprotected road users, including pedestrians, bicyclists and motorcyclists an aggressivity rating that was more representative of the threat of subject model cars to all road users and not just vehicle drivers was produced. In addition, by expanding the range of crash types and hence data on which the aggressivity rating was based a wider range of vehicle models were able to be rated with increased accuracy. This aggressivity measure was also used in the safety ratings update of Newstead et al (2006).

1.3 A Need for a Combined Index

The current presentation of the crashworthiness and aggressivity ratings for consumer information simply presents the two ratings side by side. This leaves the consumer to decide the relative importance of each rating in making a decision on vehicle safety priority in their purchasing decision. From a consumer information perspective, this might seem a good strategy as it allows the consumer to balance the relative priority they give to their own safety versus the safety of other road users on an individual basis. However, it may not be ideal from the perspective of trying to steer the vehicle fleet as a whole in the direction of optimum safety which should be the overarching priority for safety advocates regulators and, indeed, the community as a whole. If consumers generally based their vehicle choices only on crashworthiness performance and largely ignored aggressivity sub optimal choices on a community wide safety basis may result. Similar sub-optimal choices may result is only aggressivity were considered. A desire to optimise vehicle secondary safety on a whole of community basis highlights the need for an index which combines the crashworthiness and aggressivity performance of a vehicle into a single index. The goal is an index which captures the overall secondary safety of the vehicle on the most meaningful way for the environment in which it is driven and hence crash circumstances to which it is exposed.

The international vehicle safety literature shows a paucity of effort in developing such an index. The only group to have given the concept serious consideration are the University of Oulu transport research group in Finland (Huttula et al, 1997). The Finnish group have measures of vehicle aggressivity and crashworthiness similar in concept to those developed by MUARC. From these they have developed a total passive safety index which is essentially the sum of the crashworthiness and aggressivity measures for each vehicle. Deriving the total passive safety index in this way implicitly assumes that crashworthiness and aggressivity have equal weighting in the overall passive safety performance of a vehicle. Whether this is the most appropriate approach is questionable since the relative balance of importance between crashworthiness and aggressivity will depend on the mix of crash circumstances the vehicle is exposed to.

A more detailed approach to the issue of estimating total vehicle passive or secondary safety has been explored in Newstead et al (2004a) and Newstead et al (2004b). This work, based on analysis of Australian crash data, commenced by identifying the four primary crash types in which light passenger vehicles in were involved and identifying the principal injury outcomes of interest in the crash. The crash types identified were:

1. Crashes between two light passenger vehicles:

2. Single light passenger vehicle crashes.

3. Crashes between a light passenger vehicle and a heavy vehicle (bus, rigid truck or articulated truck).

4. Crashes between a light passenger vehicle and unprotected road user (pedestrian, bicyclist or motorcyclist).

Table 1 summarises the proportionate representation of each of these crash types amongst all light passenger vehicle crashes as well as the injury outcome focus in each crash type. For light passenger to heavy vehicle crashes, only the injury outcome to the light vehicle driver is relevant as the heavy vehicle driver is typically uninjured in the crash. In crashes between unprotected road and light passenger vehicles. The light passenger vehicle driver is usually uninjured. As for the calculation of the individual crashworthiness and aggressivity ratings, occupants of vehicles other

than the driver are not considered since data on uninjured non-drivers in the vehicle is often incomplete.

Table 1: *Crash types, injury outcome focus and percentage representation of major crash types involving light passenger vehicles (based on NSW police reported crash data from 1991 to 1998).*

Crash Types	1) Passenger Vehicle to Passenger Vehicle	2) Single Passenger Vehicle	3) Passenger Vehicle to Heavy Vehicle	4) Passenger Vehicle to Unprotected Road User
Focus injury outcomes	Injury outcome to the driver of each light vehicle	Injury outcome to the light vehicle driver	Injury outcome to the light vehicle driver	Injury outcome to the unprotected road user.
Proportion of all light passenger vehicle crashes	45.33%	28.93%	16.00%	9.74%

The total secondary safety index defined by Newstead et al (2004b) was calculated by broad market group of vehicle and is a weighted average of four individual crashworthiness or aggressivity based measures. They are:

1. The crashworthiness of the light passenger vehicle in crashes between two light vehicles as a function of its impact partner market group (embodying both the crashworthiness of the focus vehicle market group as well as the aggressivity of the impact partner vehicle market group) – Crash type 1.
2. The crashworthiness of the light passenger vehicle in single vehicle crashes – Crash type 2.
3. The crashworthiness of the light passenger vehicle in crashes with heavy vehicles as a function of the heavy vehicle type – Crash type 3
4. The aggressivity of the light passenger vehicle towards unprotected road users – Crash type 4.

The total secondary safety index was defined as the weighted average of each of the four safety measures with the weighting factors used being the proportionate representation of each of the four crash types shown in Table 1 corresponding to the 4 safety measures. As such, it represents the overall secondary safety performance of a vehicle, classified by market group in this case, in protecting all road users involved in the full range of crashes reflecting the relative incidence of each major crash type.

It is evident from examining the form of the total secondary safety index that the traditional measure of overall vehicle crashworthiness performance is embodied in the safety measures relating to crash types 1, 2, and 3 in Table 1. The traditional aggressivity measure is embodied in the safety measures relating to crash types 1 and 4. Constructing the total secondary safety index in this way is similar in basic principle to the approach used by the Oulu researchers. However it differs in the fact that it gives appropriate weighting to each aspect of a vehicle's secondary safety performance by weighting each component according to its relevance in Australian real world circumstances.

The work of Newstead et al (2004a) and Newstead et al (2004b) was useful in, for the first time, defining an overall secondary safety index for light passenger vehicles relevant to Australian circumstances. It was then able to use the index effectively to quantify the broad overall secondary safety effects of changing the mix of vehicles in the fleet. The index did, however, have some limitations related to the manual construction of the index from its components. First, there had to be sufficient data to estimate each of the component safety measures comprising the index. In the demonstration of the methodology this meant results could only be obtained by broad market group of vehicle and not for individual makes and models of vehicle. Second, estimates of statistical

confidence on the index could not be estimated due to its complex nature. Both these difficulties highlighted the need for development of an integrated total secondary safety index that could be estimated by vehicle make and model with associated estimates of statistical confidence.

1.4 Aims of the Current Study

Building on the approach to modelling vehicle total secondary safety demonstrated in Newstead et al (2004a) and Newstead et al (2004b), the current study aimed to develop and integrated single index of total secondary safety for light passenger vehicles in the Australian and New Zealand vehicle fleets. It further aimed to apply the index to the police reported crash data assembled for estimation of the Australasian crashworthiness aggressivity ratings to estimate the total secondary safety index and statistical confidence limits for individual makes and models of light passenger vehicles.

2. CRASH DATA

Police reported crash data from Victoria, NSW, Queensland, Western Australia and New Zealand used to produce the crashworthiness and aggressivity ratings of Newstead et al (2006) covering vehicles manufactured over the period 1982-2004 and crashing during the years 1987-2004 was used in the analysis for this project. Key crash types crash types described in Section 1.3 were identified in the crash data. The method of identifying appropriate cases from each data source for each crash type is detailed here.

2.1 Victorian Crashes

Victorian crash data was used only in the calculation of the injury severity component of the total secondary safety index because records on uninjured drovers in crashes in Victorian data are incomplete since only crashes involving injury are required to be reported in Victoria.

2.1.1 Collisions with Heavy Vehicles

Passenger vehicles involved in crashes with a heavy vehicle were identified by examining the secondary vehicle type involved in the crash. Records were restricted to those where the secondary vehicles were one of semi-trailer, truck (excluding semi), bus/coach, mini bus (9-13 seats). Semi-trailers were categorised as ‘articulated’, trucks as ‘rigid truck’ and bus/coach and mini bus as ‘bus’. Passenger vehicles considered were restricted to those manufactured over the period 1982 to 2004 as market group detail information was required. This process identified 2,134 injured drivers that had been involved in a crash with a rigid truck, 462 with a bus and 1,258 with an articulated truck. Of these injured drivers, 876 were severely injured in a crash with a rigid truck, 161 were severely injured in a crash with a bus and 640 were severely injured in a crash with an articulated truck. In the analysis, because of missing values of associated crash factors these numbers were further reduced to 838 injured drivers involved in a crash with a rigid truck, 330 of whom were severely injured, 198 injured drivers involved in a crash with a bus, 67 of whom were severely injured and 510 injured drivers involved in a crash with an articulated truck, 239 of whom were severely injured.

2.1.2 Collisions Involving Unprotected Road Users

Single vehicles impacting with an unprotected road user were identified from the crashworthiness data file of Newstead et al (2006) using a variable identifying accident type. Casualty records for the years 1987 to 2004 were used to identify unprotected road users injured in a collision with one vehicle. The vehicles were then matched with the unprotected road user casualty records to obtain the injury level. Of the total 11,698 matched unprotected road users in the casualty records for the period 1987 to 2004, 5,403 were pedestrians, 3,324 were bicyclists and 2,971 were motorcyclists.

After removal of records with missing values of associated crash factors these numbers were reduced to 4,375 injured pedestrians, 1,986 of whom were severely injured, 2,721 injured bicyclists, 808 of whom were severely injured and 2,503 injured motorcyclists, 1037 of whom were severely injured.

2.1.3 Single Vehicle Collisions

Calculation of crashworthiness for single vehicle collisions required the selection of crashes involving only one passenger vehicle traffic unit. This identified 22,282 injured drivers, 9,267 of whom were severely injured. Because of missing values of associated crash factors these numbers were reduced to 8,420 injured drivers, 3,257 of whom were severely injured.

2.1.4 Multi Vehicle Collisions

Collisions between two passenger vehicles, other driver injury
Calculation of the total secondary safety index component related to collisions between two light passenger vehicles required selecting vehicles involved in two car crashes. Matching of vehicle and occupant injury details for the two cars involved in the crash for those vehicles manufactured over the period 1982 to 2004 that had the model identified followed this. The data matching process identified 32,246 vehicles that had been involved in a crash with one other vehicle where both vehicles were restricted to those manufactured between 1982 and 2004, had their model identified and the other vehicle driver was injured. Of the 32,246 injured drivers, 7,020 were severely injured. Because of missing values of associated crash factors, these numbers were further reduced to 20,267 injured drivers, 4,141 of whom were severely injured.

Multi vehicle collisions, focus vehicle driver injury
For Victorian data, 80,277 injured drivers of vehicles involved in a collision with two or more vehicles were identified. Of these injured drivers, 17,315 were seriously injured. Because of missing values of associated crash factors, these numbers were further reduced to 37,425 injured drivers, 6,596 of whom were severely injured.

2.2 New South Wales Crashes

The presence of uninjured drivers in the New South Wales data file meant that it was suitable for measuring both the risk and severity of driver injury. However, it is not possible to use the 1999 to 2004 records from the New South Wales data in the injury severity analysis because as a result of coding changes a reliable measure of injury severity was not available for the years 1999 to 2004. Hence in the injury severity analysis the data used was restricted to the period 1982 to 1998 for all crash type and road user injury combinations.

2.2.1 Collisions with Heavy Vehicles

Heavy vehicle identification in two-vehicle crashes was possible because each NSW crash record had variables identifying light truck, rigid truck, articulated truck and bus accidents. Light trucks and rigid trucks were categorised as ‘rigid trucks’. Crash selection was restricted to those involving a passenger vehicle manufactured over the period 1982 to 2004 that had identified market group details. This process identified 96,933 passenger vehicles that had been involved in a crash with a rigid truck, 8,781 passenger vehicles that had been involved in a crash with a bus and 10,835 passenger vehicles that had been involved in a crash with an articulated truck. Of the drivers, 16,585 were injured and 80,286 were uninjured in a crash with a rigid truck, 1,506 were injured and 7,255 were uninjured in a crash with a bus and 2,586 were injured and 8,235 were uninjured in a crash with an articulated truck. The presence of uninjured drivers in the data file meant that it was suitable for measuring the risk of driver injury (in crashes of sufficient severity for a vehicle to be towed from the scene). After removal of records with missing values for any of the associated crash

factors a total of 62,934 involved drivers, 12,459 of who were injured, were used in the injury risk analysis. These were distributed across the heavy collision types as follows: for rigid trucks there were 9,902 injured drivers among 53,141 involved drivers, for buses 4,395 involved drivers, 897 of whom were injured and for articulated truck crashes 5,398 involved drivers with 1,660 injured drivers. For injury severity as described above crash data was limited to the years 1982 to 1998. With this restriction only 6,440 records of driver injury were used for rigid truck collisions, 1,489 of whom were severely injured, 574 injured drivers, 130 of whom were severely injured for bus collisions and 988 injured drives, 390 of whom were severely injured for articulated truck collisions. Because of missing values of associated crash factors these numbers were further reduced to a total of 5,087 injured drivers and 1,186 severely injured for rigid trucks, 472 injured drivers and 110 severely injured for buses and 850 injured drivers and 338 severely injured for articulated trucks.

2.2.2 Collisions Involving Unprotected Road Users

Crashes between a single vehicle and an unprotected road user where the vehicles were restricted to those manufactured between 1982 and 2004 were identified using a variable identifying accident type. Casualty records for the crash years 1987 to 2004 were used to identify unprotected road users injured in a collision with one vehicle. The vehicles were then matched with the unprotected road user casualty records to obtain the pedestrian, cyclist or motorcyclist injury level. Of the unprotected road users involved in all types of crashes and in the casualty records for the period 1987 to 2004, 24,386 pedestrians, 8,758 bicyclists and 10,353 motorcyclists were matched with records of 1982-2004 passenger vehicles with which they collided. After removal of records with missing values of associated crash factors these numbers were reduced to 14,013 injured pedestrians, 5,129 of whom were severely injured, 4,919 injured bicyclists, 980 of whom were severely injured and 6,155 injured motorcyclists, 1,999 of whom were severely injured.

2.2.3 Single Vehicle Collisions

The selection of crashes involving only one passenger vehicle traffic unit identified 135,685 involved drivers, 44,890 of whom were injured in New South Wales in 1982 to 2004 year of manufacture vehicles where the model details were identified. Only 19,284 drivers injured in crashes in the period 1982 to 1998 were used in the calculation of the injury severity component. Of these 6,152 were severely injured. Because of missing values of associated crash factors these numbers were reduced to 86,856 involved drivers, 27,300 of whom were injured. For the injury severity component the numbers were reduced to 16,551 injured drivers of which 5,320 were seriously injured.

2.2.4 Multi Vehicle Collisions

Collisions between two passenger vehicles, other driver injury

For NSW data, a matching process identified 304,510 passenger vehicles that had been involved in a crash with one other passenger vehicle where both vehicles were manufactured between 1982 and 2004 and had model details identified. Of the drivers of these vehicles, 41,968 were injured and 262,542 were uninjured. Missing values of associated crash factors further reduced these numbers to 258,710 involved drivers, 36,768 of who were injured. Again, it was not possible to use the 1999 to 2004 records from the New South Wales data in the injury severity analysis, hence only 19,928 records of driver injury were used for calculation of the injury severity component of the crashworthiness ratings. Of these, 3,375 were severely injured. Missing values of associated crash factors further reduced these numbers to 17,157 injured drivers, 2,905 of whom were severely injured.

Multi vehicle collisions, focus vehicle driver injury

For NSW data, 911,587 vehicles were involved in a collision involving two or more vehicles. Of

these involved drivers, 128,045 were injured. In the period 1982 to 1998 53,394 drivers were injured in crashes, 10,186 of them seriously. Missing values of associated crash factors further reduced these numbers to 39,532 injured drivers, 7,119 of whom were severely injured.

2.3 Queensland Crashes

The presence of uninjured drivers in the Queensland data file meant that it was suitable for measuring both the risk and severity of driver injury.

2.3.1 Collisions with Heavy Vehicles

In order to determine vehicles involved in a collision with a heavy vehicle, it was necessary to use a variable describing unit type to identify heavy vehicles and then match with the opposing vehicle record. This facilitated obtaining vehicle occupant injury levels in the vehicle involved in the crash with the heavy vehicle. Unit types coded as rigid truck, articulated vehicle and bus/coach were coded as 'rigid truck', 'articulated truck' and 'bus' respectively. 4,446 passenger vehicles manufactured in the years 1982 to 2004 were identified as involved in a crash where the colliding vehicle was a rigid truck. Of these drivers 1,731 were injured, 572 severely injured. 1,248 passenger vehicles were identified as involved in a crash where the colliding vehicle was a bus. Of these drivers 414 were injured, 135 severely. 2,440 passenger vehicles were identified as involved in a crash where the colliding vehicle was an articulated truck. Of these drivers 953 were injured, 375 severely. After excluding records with missing values of associated crash factors these numbers were further reduced to 3,091 involved drivers, 1289 injured drivers and 423 severely injured drivers for rigid truck collisions, 859 involved drivers, 307 injured drivers and 91 severely injured drivers for bus collisions and 1,706 involved drivers, 705 injured drivers and 278 severely injured drivers for articulated truck collisions.

2.3.2 Collisions Involving Unprotected Road Users

Records on unprotected road users involved in a crash with one vehicle unit were retrieved and identified using variables classifying unit type and number of units in the crash. Single vehicle collisions were identified from the crashworthiness data file of Newstead et al (2006) using a variable identifying unit type and number of vehicles in crash. These vehicles were then matched with the unprotected road user casualty records to obtain the injury level. A total of 16,687 unprotected road users were matched with records on 1982-2004 year passenger vehicles with model details identified. Of these, 5,798 involved injured pedestrians, 4,926 injured bicyclists and 5,963 injured motorcyclists. After removal of records with missing values of associated crash factors these numbers were reduced to 5,004 injured pedestrians, 2,498 of whom were severely injured, 4,201 injured bicyclists, 1,215 of whom were severely injured and 4,756 injured motorcyclists 2,047 of whom were severely injured.

2.3.3 Single Vehicle Collisions

The selection of crashes involving only one traffic unit identified 19,804 injured drivers, 8,327 of whom were severely injured from 44,410 drivers involved in single vehicle collisions where the vehicle was a passenger vehicle manufactured from 1982 to 2004 with model details identified. Because of missing values of associated crash factors these numbers were reduced to 29,957 involved drivers, 13,816 of whom were injured, 5,710 severely.

2.3.4 Multi Vehicle Collisions

Collisions between two passenger vehicles, other driver injury

Records on 107,401 matched vehicles that had been involved in a crash with one other vehicle where both vehicles were passenger vehicles manufactured between 1982 and 2004 with model details available were identified in the Queensland data. Of the drivers of these vehicles, 27,969

were injured, 6,123 severely and 79,432 were uninjured. Because of missing values of associated crash factors these numbers were further reduced to 85,258 involved drivers, 22,804 of whom were injured, 4,970 severely.

Multi vehicle collisions, focus vehicle driver injury
For Queensland data, 262,061 vehicles were involved in a collision involving two or more vehicles. Of these involved drivers, 57,692 were injured, 13,185 of them seriously. Because of missing values of associated crash factors these numbers were further reduced to 170,626 involved drivers, 39,347 of whom were injured, 8,718 severely.

2.4 Western Australia Crashes

2.4.1 Collisions with Heavy Vehicles

Two-vehicle collisions involving a heavy vehicle were identified in the WA data using a variable describing unit type to identify heavy vehicles and then match with the opposing vehicle record. Unit types truck & 1 trailer, prime mover and one trailer (semi-trailer) and road train (truck/ prime mover & 2+ trailers) were coded as 'articulated vehicle'. Truck and prime mover were coded as 'rigid truck' and bus as 'bus'. 13,077 passenger vehicles manufactured in the years 1982 to 2004 were identified as being involved in a crash with a rigid truck. Of the drivers of the vehicles involved in a collision with a rigid truck, 1,995 were injured and 319 were severely injured. Of the 5,126 identified as colliding with a bus, 628 were injured, 106 seriously. Of the 3,351 identified as colliding with an articulated truck, 742 were injured, 260 seriously. After excluding records with missing values of associated crash factors these numbers were further reduced to 5,506 involved drivers, 865 injured drivers and 123 severely injured drivers for rigid truck collisions, 1,930 involved drivers, 278 injured drivers and 38 severely injured drivers for bus collisions and 1,519 involved drivers, 349 injured drivers and 118 severely injured drivers for articulated truck collisions.

2.4.2 Collisions Involving Unprotected Road Users

Records involved on unprotected road users in a crash with one vehicle unit for the period 1991 to 2004 were retrieved and identified using variables classifying unit type and number of units in the crash. Of the total 16,343 identified unprotected road users in the Western Australia crash records, 5,118 were pedestrians, 4,860 were bicyclists and 6,365 were motorcyclists. Of these, 4,023 pedestrians were injured, 1,940 severely, 3,182 bicyclists were injured, 855 severely and 3,780 motorcyclists were injured, 1,425 severely. After removal of records with missing values of associated crash factors these numbers were reduced to 2,389 injured pedestrians, 1,231 of whom were severely injured, 1,724 injured bicyclists, 514 of whom were severely injured and 2,588 injured motorcyclists, 983 of whom were severely injured.

2.4.3 Single Vehicle Collisions

Records on 102,243 drivers of 1982-2004 year of manufacture passenger vehicles involved in single vehicle collisions in the period 1991 to 2004 were identified in the WA data. Of these drivers, 20,424 were injured, and 6,786 were severely injured. Because of missing values of associated crash factors these numbers were reduced to 42,086 involved drivers, 8,424 of whom were injured, 2,715 severely.

2.4.4 Multi Vehicle Collisions

Collisions between two passenger vehicles, other driver injury
Interrogation of the Western Australia data identified 466,821 vehicles that had been involved in a crash with one other vehicle where both vehicles were passenger vehicles manufactured between

1982 and 2004 with identified model details. Of the drivers of these vehicles, 54,374 were injured, 5,543 seriously and 412,447 were uninjured. Because of missing values of associated crash factors these numbers were further reduced to 214,852 involved drivers, 32,493 of whom were injured, 3,458 severely.

Multi vehicle collisions, focus vehicle driver injury
For Western Australia data, 650,456 vehicles were involved in a collision involving two or more vehicles. Of these involved drivers, 83,120 were injured, 9,383 of them seriously. Because of missing values of associated crash factors these numbers were further reduced to 262,302 involved drivers, 40,643 of whom were injured, 3,978 severely.

2.5 New Zealand Crashes

New Zealand crash data was used only in the calculation of the injury severity component of the total secondary safety index because it was not possible to use the uninjured records from the New Zealand data. This was because non-injury crashes in New Zealand, and hence uninjured drivers involved in these crashes, had insufficient detail for use in the analysis.

2.5.1 Collisions with Heavy Vehicles

Two-vehicle collisions involving a heavy vehicle were identified in the New Zealand data using one variable describing vehicle type and another describing body type to identify heavy vehicles and then matching with the opposing vehicle record. Vehicles with vehicle type coded as truck and body type of either "articulated T" or "articulated truck" were identified as articulated trucks. Trucks with body type of "flat-deck tru", "flat-deck truck" or "other truck" were identified as rigid trucks and vehicles of the type "bus" or "school bus" were classified as bus. 4,100 passenger vehicles manufactured in the years 1982 to 2004 were identified as being involved in a crash with a heavy vehicle. Of the drivers of the vehicles involved in a collision with a heavy vehicle, 3,452 were injured including 1037 severely injured. For passenger vehicle drivers involved in rigid truck collisions 2,449 were injured, 726 seriously. For bus collisions, 549 drivers were injured, 135 seriously and for articulated truck collisions 454 were injured, 176 seriously. After reducing the number of records because of missing values of associated crash factors, a total of 1,149 injured drivers including 419 severely injured drivers were involved in heavy vehicle collisions. These were 1,019 injured drivers including 298 severely injured drivers for rigid truck collisions, 222 injured drivers including 54 severely injured drivers for bus collisions and 178 injured drivers including 67 severely injured drivers for articulated truck collisions. These records were used for calculation of severity for passenger vehicles involved in a heavy vehicle collision.

2.5.2 Collisions Involving Unprotected Road Users

Records on unprotected road users involved in a crash with one light vehicle unit for the period 1991 to 2004 were retrieved and identified 18,444 unprotected road users impacted by a 1982-2004 year of manufacture passenger vehicle with model details identified. Of the 18,272 unprotected road users who were injured, 5,306 were severely injured. Of these, 7,770 were pedestrians, 5,066 were bicyclists and 5,436 were motorcyclists. After removal of records with missing values of associated crash factors these numbers were reduced to 151 injured pedestrians, 45 of whom were severely injured, 74 injured bicyclists, 10 of whom were severely injured and 3,619 injured motorcyclists, 1,236 of whom were severely injured.

2.5.3 Single Vehicle Collisions

Calculation of crashworthiness for single vehicle collisions required the selection of crashes involving only one passenger vehicle traffic unit. This identified 35,247 vehicles involved in a single vehicle crash with 30,189 injured drivers, 6,948 of whom were severely injured. Because of

missing values of associated crash factors these numbers were reduced to 13,369 injured drivers, 3,102 of whom were severely injured.

2.5.4 Multi Vehicle Collisions

Collisions between two passenger vehicles, other driver injury
Vehicles involved in two vehicle crashes were identified. Of the drivers of vehicles colliding with the vehicles identified, 27,964 were injured, 4,629 of them seriously. Because of missing values of associated crash factors, these numbers were further reduced to 21,388 injured drivers, 3,606 of whom were severely injured.

Multi vehicle collisions, focus vehicle driver injury
For New Zealand data, 55,828 injured drivers were identified of vehicles involved in a collision with two or more vehicles. Of these injured drivers, 9,543 were seriously injured. Because of missing values of associated crash factors, these numbers were further reduced to 24,489 injured drivers, 3,930 of whom were severely injured.

2.5 Combined Data from the Five Jurisdictions

2.5.1 Collisions with Heavy Vehicles

The combined data for estimation of crashworthiness ratings of passenger vehicles involved in two-vehicle collisions with heavy vehicles covered 155,355 drivers of 1982-2004 model vehicles crashing in Victoria or NSW during 1987-2004 or in Western Australia and Queensland during 1991-2004. After removal of records with missing values for associated crash factors and excluding data from Victoria and New Zealand 77,545 involved drivers remained, 16,252 of who were injured, for use in the injury risk analysis. 13,167 injured drivers from all five jurisdictions, 3,760 of whom were severely injured, were used in the injury severity analysis. Injured drivers from NSW during 1999 to 2004 without a valid injury severity code were not included in the injury severity analysis.

2.5.2 Collisions Involving Unprotected Road Users

The unprotected road users involved in a collision with a single, 1982-2004 model vehicle in Victoria or NSW during 1987-2004 or in Western Australia and Queensland during 1991-2004 covered 83,995 injured unprotected road users. After removal of records with missing values for associated crash factors this was reduced to 59,192 injured unprotected road users, 21,718 of whom were severely injured.

2.5.3 Single Vehicle Collisions

The combined data for single vehicle collision covered 349,182 drivers of 1982-2004 model vehicles involved in a single vehicle crash in Victoria or NSW during 1987-2004 or in Western Australia and Queensland during 1991-2004. After removal of records with missing values for associated crash factors, this reduced to 158,899 involved drivers, 49,540 of whom were injured for the injury risk analysis and 60,580 injured drivers, 20,104 of them seriously for the injury severity analysis.

2.5.4 Multi Vehicle Collisions

Collisions between two passenger vehicles, other driver injury
The combined data for collisions involving two passenger vehicles covered 986,854 drivers of 1982-2004 model vehicles involved in crashes in Victoria or NSW during 1987-2004 or in Western Australia and Queensland during 1991-2004. After removal of records with missing values for

associated crash factors, this was reduced to 558,820 involved drivers, 92,065 of whom were injured for the injury risk analysis and 114,109 injured drivers, 19,080 of them seriously for the injury severity analysis.

Multi vehicle collisions, focus vehicle driver injury
For all jurisdictions, 2,079,912 vehicles were involved in a collision involving two or more vehicles. Of these involved drivers, 1,966,073 were injured, 349,134 of them seriously. After removal of records with missing values for associated crash factors, this reduced to 1,006,504 involved drivers, 155,134 of whom were injured for the injury risk analysis and 181,436 injured drivers, 30,341 of them seriously for the injury severity analysis.

3 VEHICLE MODEL IDENTIFICATION AND SELECTION

3.1 Homogeneity and Selection of Vehicle Models

It should be noted that some of the vehicle models identified in the Victorian, NSW, Western Australia, Queensland and New Zealand crash data have optional safety equipment, such as air bags, which could significantly alter the total secondary safety index of the vehicle model when fitted. Notable examples in local Australian manufacture include the Holden Commodore VR/VS, Toyota Camry 1993-97 and Mitsubishi Magna TR/TS, and TE/TF/TH, all of which have optional air bag fitment. It is, however, generally not possible to identify which particular vehicles of a model series do and do not have such optional safety equipment installed using the model decoding procedures described above. Consequently, for those vehicle models with optional safety equipment, the estimated total secondary safety index represents an average of the safety performance for vehicles with and without the optional safety equipment weighted by the number of each in the crash data. As only road users were considered, optional or standard safety features for the front or rear seat passengers, such as passenger frontal or side airbag systems, would also not have affected the ratings.

As in previous ratings, models were excluded with fewer than 20 injured drivers and/or fewer than 100 involved drivers appearing in the crash data. These selection criteria were used to ensure stability in fitting the logistic regression models along with suitably small confidence limits on the estimated total secondary safety index.

3.2 Vehicle Model and Market Group Identification Methods

3.2.1 Australian Vehicles

To identify vehicle model details and assign market group membership in NSW, the Vehicle Identification Number (VIN) or chassis number obtained from the register was decoded to determine the models of light passenger vehicles. The decoding identified some light truck and unusual commercial models that were not considered further. Of the vehicles manufactured during 1982-2004, all but around 4% had their model identified. Further details are given by Pappas (1993). The same VIN decoding procedure was used to identify vehicle models in the Queensland data, achieving a similar level of decoding accuracy to NSW.

The Victorian vehicle register provided the make and year of manufacture of the crashed vehicle but not the model. Models were initially derived for cars manufactured during 1982-88 using logic developed and supplied by the Royal Automobile Club of Victoria (RACV) based on the make, year and power-mass units. Power-mass units (PMU) are the sum of RAC horsepower units (PU) and the vehicle mass in units of 50kg (MU). Refined logic was developed by MUARC based on make, year, PMU, PU, MU and body type, and extended to cover 1989-93 models. The MUARC

logic was applied to the combined Victorian data in conjunction with the RACV logic to derive passenger car models for the model years 1982-93.

For vehicles crashing in the years 1994 to 2004, where available, the Victorian vehicle register provided the VIN of each crashed vehicle along with the information described above. VINs are recorded on the Victorian vehicle register for most vehicles from 1989 year of manufacture onwards. Where a VIN was available for a vehicle appearing in the 1994 to 2004 crash data, the model information was decoded from the VIN using the methods of Pappas (1993). Where the VIN was not available, the RACV and MUARC logic, described above, was used to obtain model details.

Attempts were made to obtain VINs from the Western Australian vehicle register, managed by the WA Department of Transport, for vehicles appearing in the Western Australian crash data. Due to an upgrade of the WA registration data system, however, VINs could not be obtained for this update of the vehicle safety ratings although it is possible they may become available for future updates. This meant the VIN decoding system used on data from the other three states to identify vehicle model details could not be used for WA.

Detailed vehicle make and model information along with year of manufacture have been merged onto the WA crash data by Main Roads WA as part of a regular interrogation of the WA vehicle register. The make and model codes proved to be of sufficient detail to be used, along with the year of manufacture, to assign vehicle model groupings to vehicles crashed in WA consistent with the vehicle model groupings that are derived from the VIN decoding system. Only a small number of vehicles, typically in model change-over years, could not be assigned a sufficiently accurate model code for use in the study.

RACV, NRMA and the Australian Transport Safety Bureau (ATSB, formerly FORS) provided advice on the particular models that had experienced substantial changes in design (and hence potential crashworthiness) during model years 1982-2003 and in which years the design was relatively constant. This resulted in certain models being split into ranges of years of manufacture. Where the new model was introduced near the beginning or end of a year (up to two months either way), this process was relatively straightforward (accepting a small mis-classification in some circumstances). However, when the model changed near the middle of the year, the model for that year was kept separate and potentially treated as a "mixed" model (e.g. the Daihatsu Charade 1987 models). In some instances, exact model decoding was possible from the VIN without using year of vehicle manufacture.

VicRoads previously provided advice on vehicle models that could be combined with each other (sometimes only for specific years) because they were essentially the same design or construction but registered as having different manufacturers. This information was used in the analysis to combine some models, otherwise one or both members of each such pair of models would have been excluded and a safety rating would not have been produced. Model sharing in the automotive industry has declined in recent years alleviating this as an ongoing problem to a large degree. Models pooled in this study are the same as in Newstead et al (2006) with the details given there.

3.1.2 New Zealand Vehicles

A process of decoding vehicle model information in the New Zealand crash data was established and applied in Newstead (2003) and updated in Newstead et al (2006).The New Zealand vehicle fleet is comprised fundamentally of two different types of vehicles. They are those sold new in New Zealand and used vehicles imported into New Zealand primarily from Japan. Because of differences in availability and quality of information in the registration data between new and used import vehicles, a different strategy for decoding model information for new and used import vehicles was used. The procedure broadly followed the principles outlined above for the Australian data with

VIN decoding used for new vehicles and a registered make model and year of manufacture based process used for used imported vehicles..

3.2 Vehicle Market Groups

As in the most recent update of the vehicle safety ratings (Newstead et al, 2006) rated vehicles were classified into one of 12 market group classifications broadly consistent with those defined by the VFACTS new vehicle sales monitor in Australia. They comprised 7 classes of regular passenger car, 3 classes of four wheel drive (4WD) vehicle (also known as Sports Utility Vehicles) and 2 classes of light commercial vehicle. The resulting 12 market groups were defined as follows.

Passenger Cars

Light	Passenger car, hatch or sedan < 1100kg tare mass.
Small	Passenger car, hatch, sedan or wagon 1100-1250kg tare mass
Medium	Passenger car, hatch, sedan or wagon, 1250-1400kg tare mass.
Large	Passenger car, hatch, sedan or wagon >1400kg tare mass.
People Movers	Passenger usage seating capacity > 5 people.
Sports	Coupe or convertible
Luxury	Highly specified passenger cars, coupe, convertible, hatch, sedan or wagon.

Four Wheel Drive Vehicles (high ground clearance, off road wagon)

4WD Compact	Index rating < 550 (typically less than 1700kg tare mass)
4WD Medium	Index rating 550 < 700 (typically between 1700kg and 2000kg tare mass)
4WD Large	Index rating > 700 (typically greater than 2000kg tare mass)

Light Commercial Vehicles

Van	Blind & window vans.
Utility	Two and four wheel drive, normal control (bonnet), utility, cab chassis and crew-cabs.

The classification of 4WD vehicles is based on an index developed by VFACTS that considers gross vehicle mass, maximum engine torque and the availability of a dual range transmission. The index typically classifies the vehicles roughly by tare mass as indicated on the classifications above. Some departures from the VFACTS classification have been made in presenting the ratings in this study. VFACTS defines a luxury 4WD category based on vehicle price as well as classifying sports cars priced above the luxury car tax threshold as luxury vehicles. Here, the luxury 4WDs have been distributed amongst the 3 defined 4WD categories based on tare mass, as the information for computing the classification index used by VFACTS was not available at the time of the study. All sports cars have been classified as such, regardless of price.

There have also been some departures from the classification principles defined above for certain vehicle models that have a range of engine sizes and hence fall across two different defined categories. These are typically passenger vehicles and include, for example, cars like the Toyota Camry that come fitted with a large 4 cylinder engine in some variants and a 6 cylinder engine in other variants. In these cases, a value judgement has been made for each vehicle model individually based on the other vehicle models with which each typically competes in the market place.

4. MEASURES AND METHODS

4.1 Defining the Total Secondary Safety Index

The concept of the total secondary safety index developed in Newstead et al (2004b) forms the basis of the integrated single measure of total secondary safety developed here and has some inherent similarities to the crashworthiness and aggressivity metrics developed by MUARC as will become evident. Like the initial index of Newstead et al (2004b), the integrated total secondary safety index is formulated by considering the four major crash types involving light passenger vehicles and the most relevant injury outcomes in those crashes. Table 2 summarises the key elements necessary to calculate the total secondary safety index. The table is categorised by each of the four major crash types considered giving the focus crash participants whose injury outcomes are considered in the index and representations of the key injury counts by injury severity level. The final column of Table 2 gives the proportion of the total crash population represented by each crash type for the crash population being considered.

Table 2: *Light passenger vehicle crash types, injury outcome counts and percentage representation components for formulating the total secondary safety index.*

Crash Type	Focus Crash Participant	Number Involved	Number Injured	Number Killed or Seriously Injured	Proportion of Total Crash Population
1. Passenger Vehicle to Passenger Vehicle	Focus light vehicle driver	E_{1f}	I_{1f}	S_{1f}	p_1
	Other light vehicle driver	E_{1o}	I_{1o}	S_{1o}	
2. Single Passenger Vehicle	Light vehicle driver	E_2	I_2	S_2	p_2
3. Passenger Vehicle to Heavy Vehicle	Light vehicle driver	E_3	I_3	S_3	p_3
4. Passenger Vehicle to Unprotected Road User	Unprotected road user	*N/A*	I_4	S_4	p_4

N/A – Not fully reported in police crash records

As noted in Newstead et al (2004a), heavy vehicle drivers are typically not injured in crashes with light passenger vehicles and are hence not considered in the total secondary safety index. Similarly, drivers of the light passenger vehicle are not injured in crashes with unprotected road users and have not been included in formulating the index. Vehicle occupants other than drivers have not been considered as they are often not recorded by police in their crash reports unless injured. Similarly, crashes involving uninjured unprotected road users are generally not reported to police and hence the total number of unprotected road users involved in crashes is unknown. The 'focus' light vehicle driver in Table 2 refers to the driver of the vehicle being rated whilst the 'other' vehicle is the collision partner.

Like the crashworthiness and aggressivity measure, the total secondary safety index is defined as the product of an injury risk component and an injury severity component. The need to define a two component measure is necessary to be able to make best use of the police reported crash databases in New Zealand and Victoria that record only crashes involving injury. It is not possible to determine the total number of crash involved people in these jurisdictions since records on crashes where no one is injured aren't available. Hence these two data sets are only useful for measuring relative injury severity and not injury risk.

The measure of total secondary safety injury risk, R_T, is defined as follows:

$$R_T = p_1\left(\frac{I_{1f} + I_{1o}}{E_{1f} + E_{1o}}\right) + p_2\frac{I_2}{E_2} + p_3\frac{I_3}{E_3}$$

It measures the average risk of injury across all key participants in a crash involving a light passenger vehicle weighted by the relative exposure of each participant type across the entire crash population. Since unprotected road users are generally injured crashes reported to police, they are not included in the injury risk measure. The corresponding total secondary safety injury severity measure, S_T, is defined as follows:

$$S_T = p_1\left(\frac{S_{1f} + S_{1o}}{I_{1f} + I_{1o}}\right) + p_2\frac{S_2}{I_2} + p_3\frac{S_3}{I_3} + p_4\frac{S_4}{I_4}$$

It measures the average risk of death or serious injury given some injury was sustained across all key participants in a crash weighted again by the relative exposure of each participant type across the entire crash population. The integrated total secondary safety index, T, is defined to be the product of the injury risk and injury severity components:

$$T = R_T \times S_T .$$

It measures the average risk of death or serious injury in crash involving a light passenger vehicle across all key participants in a crash weighted again by the relative exposure of each participant type across the entire crash population. It can be estimated for individual vehicle models, by vehicle market groups or for the fleet as a whole as desired with a table of the form of Table 2 being derived for each entity at the level of disaggregation desired.

The description of the total secondary safety index has defined 5 key focus crash participants whose injury outcome forms the basis of the index. Depending on the available data, it is possible to define a more detailed index that further breaks down the categories of key participants. Further breakdowns considered in this report were:

Unprotected road user into	Bicyclist Pedestrian Cyclist
Heavy vehicle collision partner into	Rigid Truck Articulated Truck Bus

This made a total of 9 key participant categories considered in the total secondary safety index. The final number of categories that were able to be sustained in practical application of the index depended on the amount of crash data available from each category and the level of vehicle aggregation at which the index was being calculated (e.g. make and model of vehicle vs market group).

4.2 Adjustment of the Index for Non-Vehicle Related Factors

Like the crashworthiness and aggressivity indices developed by MUARC, the aim for the integrated total secondary safety index was that it reflect only the influence of the vehicle on injury outcome and not factors external to the vehicle such as key participant or crash characteristics. Consequently, there was a need to compensate for differences in these key non vehicle related factors that existed form vehicle model to vehicle model or by market group. Logistic regression analysis was utilised

to produce total secondary safety ratings appropriately adjusted for the influence on non-vehicle related factors on injury outcome.

The Logistic Model

The general logistic model of a probability, P, used for adjusting the total secondary safety index is of the form:

$$\log it(P) = \ln\left(\frac{P}{1-P}\right) = \beta_o + \beta_1 X_1 + \ldots + \beta_k X_k = f(X).$$

That is, the log of the odds ratio is expressed as a linear function of k associated variables or their interactions, $X_i, i = 1,\ldots,k$. Estimates of the parameter coefficients of the logit function, i.e. the $\hat{\beta}_i$ can be obtained by maximum likelihood estimation (Hosmer & Lemeshow, 1989). For estimation of the total secondary safety ratings, factors in the logistic model included the available non-vehicle factors influencing injury outcome, such as driver or unprotected road user age and gender, year and jurisdiction of crash and crash configuration, as well as the variable indicating vehicle model or market group.

In practice, each record in the data used for logistic modelling represented a driver or unprotected road user involved in a collision with a light passenger vehicle. A dichotomous injury outcome variable was coded for each case with coding dependent on whether injury risk or severity was being estimated as was the focus vehicle model or market group associated with the person. For each case a profile of covariates giving the non-vehicle factors associated with the person were also included in the data. Separate logistic models were estimated for the total secondary safety injury risk and injury severity component measures.

Since the analysis potentially included 2 drivers from the same crash in a light vehicle to light vehicle crash, an assumption implicit in the logistic modelling process was that, given the level of impact severity of the crash represented by non-vehicle factors in the logistic model, it was assumed that the injury outcome of the two drivers was independent. This assumption was considered reasonable since the estimated crashworthiness and aggressivity of vehicles rated by Newstead et al (2006) appear to be essentially independent and each of these measure focuses heavily on the injury outcome of each driver in a two vehicle crash.

Logistic Confidence Limits for the Vehicle Model or Market Group Effect

Whilst it is possible to calculate the variance of $\hat{f}(X)$, the estimated value of the logistic regression linear form, in the context of the total secondary safety rating, only the component of variance due to one factor in $\hat{f}(X)$ is of interest. In practice, the component of variance due to the factor representing the vehicle model or year of manufacture is of interest, whilst the variance due to the remaining factors such as road user age and sex is common to all vehicle models and hence of no interest.

To isolate the component of variance in the logistic model due to only one factor, say factor X_i, the remaining factors were fixed at a predetermined level, in this case their mean value. The variance of $\hat{f}(X)$, considering all factors apart from X_i to be fixed, is then given by

$$Var\left(\hat{f}(X_i)\right) = X_i^2 Var\left(\hat{\beta}_i\right)$$

In the logistic models of injury risk or injury severity, X_i was a [0,1] indicator function of either a

particular vehicle model or market group, depending on the analysis being performed. Hence the variance function given above equalled the variance of the coefficient $\hat{\beta}_i$.

A 95% confidence interval for the logit function with respect to component X_i is given by

$$\hat{f}(X) \pm 1.96\sqrt{Var\left(\hat{f}(X_i)\right)} .$$

Point estimates and confidence limits in the logistic space were transformed into probability estimates using the inverse logistic transform given by

$$\hat{P} = \frac{e^{\hat{f}(X)}}{1+e^{\hat{f}(X)}} .$$

4.2.1 Logistic Models for Each Component

Obtaining the Covariate Models

Before adjusted total secondary safety ratings could be obtained it was necessary to consider logistic models of each of the total secondary safety components separately to identify possible factors, other than vehicle design, that might have influenced the crash outcomes in terms of driver or unprotected road user injury outcome. A stepwise procedure was used to identify which factors had an important influence. This was done without considering the model or market group of car in the model, as the aim was to determine which other factors were most likely to have had an influence across crashes. Furthermore, the car model variable had to be excluded from the logistic modelling process at this stage because it was also not considered appropriate to allow interaction between vehicle model and other factors in the logistic model as this would give relative vehicle total secondary safety estimates between models that were dependent on the crash circumstance and occupant characteristics. Only the average total secondary safety across a standardised set of crash circumstances and occupant characteristics was of interest.

Logistic models were obtained separately for injury risk and injury severity because it was likely that the various factors would have different levels of influence on these two probabilities.

The factors considered during this stage of the analysis for both injury risk and injury severity were

- **sex:** driver or unprotected road user sex (male, female)
- **age:** driver or unprotected road user age (≤25 years; 26-59 years; ≥60 years)
- **speedzone:** speed limit at the crash location (≤75 km/h; ≥80 km/h)
- **nveh:** the number of vehicles involved (one vehicle; >1 vehicle)
- **state:** jurisdiction of crash (Victoria, NSW, QLD, WA, NZ)
- **year:** year of crash (1987, 1988, … ,2004)

These variables were chosen for consideration because they were part of the Victorian, Queensland, New South Wales, Western Australia and New Zealand databases. Other variables were only available from one source and their inclusion would have drastically reduced the number of cases that could have been included in the analysis.

Jurisdiction of crash was a necessary inclusion in the logistic model because each jurisdiction has its own level of general road safety performance that affects injury outcome. Including the jurisdiction factor in the covariate model is necessary to adjust for rating bias towards those vehicle models that are sold and driven more in one jurisdiction than another. There is also some indication

of reporting bias by crash severity in some jurisdictions that is also controlled by including the state variable in the regression models. Inclusion of a year of crash indicator in the model is necessary to adjust for the different trends in crash severity noted between each of the jurisdictions contributing data (Newstead et al (2006)).

A further critical factor that is likely to vary between vehicle models is the mix of collisions between light passenger vehicles and both other vehicles of various types and unprotected road users. The injury severity (S_T) and injury risk (R_T) components of the new total secondary safety measure (T) is an average of injury severity or injury risk outcomes respectively across the mix of crash types involving the focus vehicle. Since injury outcomes will vary considerably across the mix of crash types it is necessary to adjust the new total secondary safety injury severity measure and injury risk measure to account for differences in the proportion of crash type combinations between vehicle models. To adjust for potential differences a further factor was included in the logistic regression models for both total secondary safety injury risk and injury severity. The factor used was:

- **crashtyp** crash combination type,

For the injury risk analysis the crash combination types consisted of:

- two vehicle – focus vehicle driver
- two vehicle – other vehicle driver
- single vehicle
- heavy vehicle collisions (including collisions with articulated trucks, rigid trucks or buses)

For the injury severity analysis an additional collision combination type was included being collisions between a light passenger vehicle and unprotected road users (pedestrians, bicyclists or motorcyclists). This additional collision combination type was excluded from the injury risk analysis because in general crashes involving pedestrians, bicyclists and motorcyclists are seldom reported to the Police unless someone is killed or injured which is usually the unprotected road user. This means that an estimate of the risk of injury cannot be calculated for the unprotected road user.

Although heavy collisions could be further categorised into rigid truck, articulated truck or bus collisions and unprotected road users could be further categorised into pedestrians, bicyclists and motorcyclists it was important to ensure that the logistic model adequately described the data and did not yield coefficients that were imprecise or unstable. For this reason, for both heavy vehicle collisions and unprotected road user collisions, the sub type classifications were pooled to ensure sufficient data for precise and stable results.

All data were analysed using the Logistic Regression procedure of the SAS statistical package (SAS, 1989). Estimates of the coefficients of the logit function, $\hat{\beta}_i, i = 1,\ldots,k$, together with their associated standard errors, were obtained by maximum likelihood estimation. In the modelling process, design variables for the various factors were chosen in such a way that the estimated coefficients represented deviations of each of the variable levels from the mean. Each factor in the model, including year of crash, was treated as categorical to allow maximum flexibility in the relationship between each factor and the outcome measure.

For both injury risk and injury severity, a stepwise procedure was used to identify which factors and their interactions made a significant contribution to these probabilities. All possible first and higher order interactions were considered between all factors in the model. A hierarchical structure was imposed so that interaction between two variables was included in the model only when the corresponding main effects were also included. The resultant logistic regression models were referred to as the "covariate" models or equations.

The average value of the injury risk or injury severity was obtained directly from the outcome variable of interest averaging across all cases in the analysis.

Assessing Car Model Differences

Injury risk and injury severity for individual cars were estimated after adding a variable representing car model or market group to the respective logistic "covariate" models. That is, a car model or market group variable was included in the logistic model along with those factors and their interactions that were found to be statistically significantly related to the outcome variable in the stepwise modelling procedure and the model re-estimated in a single step process. Coefficients for individual car models were computed to represent deviations of that car from the average.

It was important to ensure that the logistic model adequately described the data and did not yield individual car model or market group coefficients that were imprecise or unstable. For this reason, individual car models with small frequencies were pooled with similar car models in the rare cases where this was appropriate or, more typically, they were excluded from the analysis. Car models were excluded if, after pooling models, there were either:

i) less than 100 involved drivers; or
ii) less than 20 injured drivers.

Some further model exclusions were made for vehicle model classifications that had no practical interpretation. This included models in a particular year where there was a change from one series to the next and year of manufacture was necessary to determine the series break (such as Mitsubishi Pajero 1991). It also included some groups of highly aggregated models that would be of no intrinsic interest to consumers using the ratings (such as Jeep Others or Mazda Commercials). No exclusions were necessary for the market group analysis.

After exclusion, the regression analyses were performed on 385 individual car models (or pooled similar models). A list of all vehicle models considered, with those with sufficient data for analysis indicated, is given in Appendix 1. The variable representing car model was therefore categorical with 385 nominal levels. The choice of the design for the logistic model allowed the injury risk and injury severity estimates for each individual car model to be compared with the overall (average) rating for all cars. The market group variable was also categorical with 12 nominal levels.

For each car model or market group a 95% confidence interval for the logit functions of injury risk and injury severity was obtained after first adjusting for the average value in the data and then allowing for the deviation from average for that particular car model or market group.

Estimates of injury risk and injury severity were obtained by de-transforming the logit functions as described above. A 95% confidence interval was determined after adjusting for the average values of the significant factors and their interactions. The precision of the estimates of injury risk and injury severity is measured by the width of these 95% confidence intervals.

4.2.2 Combining the Injury Risk and Injury Severity Components

The final combined ratings of vehicle total secondary safety, T_j, for a given model or market group of car, *j*, was then calculated as:

$$T_j = R_{Tj} \times S_{Tj}$$

where

R_{Tj} denotes the injury risk for car model j, and

S_{Tj} denotes the injury severity for car model j.

Noting the form of the logistic inverse transformation in section 4.1 above, we have

$$R_j = \frac{e^{\alpha_j}}{1+e^{\alpha_j}}, \qquad S_j = \frac{e^{\beta_j}}{1+e^{\beta_j}}$$

where α_j and β_j are the values of the logistic regression function $\hat{f}(X)$ for injury risk and injury severity respectively for vehicle model or market group *j*.

Taking the natural log of the total secondary safety index and using asymptotic statistical theory, the asymptotic variance of the log of the index is

$$Var(\log_e T_j) \approx \frac{Var(\alpha_j)}{(1+e^{\alpha_j})^2} + \frac{Var(\beta_j)}{(1+e^{\beta_j})^2}$$

where the variances of α_j and β_j are as given in section 4.1 and the estimates of α_j and β_j are considered independent.

The 95% confidence interval for the natural log of the total secondary safety index is then

$$\log_e(T_j) \pm 1.96 \cdot \sqrt{Var\left(\log_e(T_j)\right)}.$$

The 95% confidence limit for the total secondary safety index is obtained by taking the exponent of the confidence limit of the logged total secondary safety index shown above. 90% confidence limits were calculated in a similar way.

Because each of the two estimated total secondary safety components has been adjusted for the effect of other factors by logistic regression prior to their incorporation into the combined ratings, the resultant total secondary safety index is also adjusted for the influence of these factors. It should be noted that the confidence interval for the combined rate reflects the variability in the car model only and not the variability in the other factors included in the logistic models.

5. RESULTS

5.1 Vehicle total secondary safety index

5.1.1 Injury Risk

Total secondary safety injury risk was estimated from the data on 3,209,062 road users involved in tow-away crashes in New South Wales, Queensland and Western Australia during 1987-2004 (as described in Section 2). This data set is referred to as the "involved road users". Because of missing values in one or more of the covariates road user sex and age, speed zone and number of vehicles involved in the crash amongst the 3,209,062 involved road users and vehicle models of interest, the final file used for analysis consisted of the 1,795,564 road users for which all the covariate data was complete. Of these road users 311,987 were injured. The "covariate" model for injury risk was determined from the variables described in Section 4.1.1.

The following terms were significantly associated with injury risk and were included in the logistic model:

Base effect terms	First order interactions	Second order interactions
Sex	Speedzone*Crashtyp	Age*Speedzone*Nveh
Speedzone	Sex*Age	Sex*Year*Nveh
Age	State*Year	Speedzone*State*Crashtyp
Nveh	Year*Nveh	Age*State*Crashtyp
State	Age*State	Sex*State*Year
Year (of crash)	Age*Crashtyp	Sex*State*Crashtyp
Crashtyp	Speedzone*State	State*Year*Nveh
	Sex*Crashtyp	Age*State*Year
	State*Crashtyp	Speedzone*State*Year
	Age*Speedzone	Age*Sex*Crashtyp
	Sex*State	Speedzone*Year*Nveh
	Age*Year	
	Sex*Year	
	Speedzone*Year	
	State*Nveh	

No other term significantly improved the fit of the logistic model.

The overall (average) injury risk for involved light vehicle drivers or unprotected rod users in tow-away crashes in NSW, Western Australia and Queensland was 17.38 per 100 involved. In other words, the average probability that a light vehicle driver or unprotected road user was injured in a tow-away crash involving a light passenger vehicle in NSW, Western Australia or Queensland was 17.38%.

Appendix 2 gives the estimates of total secondary safety injury risk derived by logistic regression for 357 individual car models that had a sufficiently accurate rating after post analysis exclusions for wide confidence limits or high coefficient of variation (see below). Injury risk ranged from 6.38% for the 1986-1994 Citroen BX to 33.96% for the 1982-1990 Daihatsu Hi Jet.

An estimate of the variability in the injury risk estimates was calculated from the width of the corresponding 95% confidence intervals. Individual confidence interval widths ranged from 0.68% for both the 1982-1988 Falcon XE-XF and 1989-1993 Holden Commodore VN/VP and Toyota Lexcen to 13.52% for the 1999-2004 Jeep Grand Cherokee. The small variability for the Falcon X series and Commodore/Toyota VN/VP/Lexcen sedans is not surprising since there were more cars

of these models than any others in the data set and precision is known to improve with increasing sample size.

The estimated injury risk for each market group is also given in Appendix 2. The luxury vehicles had the lowest injury risk (15.23%) and the light car market group had the highest (19.35%).

5.1.2 Injury Severity

The data on "injured road users" covered 576,610 road users of 1982-2004 model vehicles who were injured in crashes in Victoria, NSW, Western Australia, Queensland or New Zealand during 1987-2004 (as described in Section 2). Because of missing values in one or more of the covariates amongst the 576,610 injured road users, the final file used for analysis consisted of the 426,096 road users for which all the covariate data was complete. Of these road users 94,500 were seriously injured. The "covariate" model for injury severity was determined from the variables described in Section 4.1.1.

The following terms were significantly associated with injury severity and were included in the logistic model:

Base effect terms	First order interactions	Second order interaction
Sex	Age*Sex	Speedzone*State*Year
Speedzone	Age*Crashtype	Age*Sex*State
Age	State*Nveh	Age*State*Nveh
State	Speedzone*State	
Year	Age*State	
Crashtype	Age*Nveh	
Nveh	State*Year	
	Speedzone*Year	
	Speedzone*Crashtype	
	Sex*State	

No other term significantly improved the fit of the logistic model.

The overall (average) injury severity for injured light vehicle drivers or unprotected rod users in the data analysed was 22.18 per 100 involved. In other words, the probability that a road user injured in a crash was severely injured was 22.18%. Appendix 3 gives the estimates of injury severity derived by logistic regression for 357 individual car models, or sets of combined models. Of the cars analysed, injury severity ranged from 6.70% for the 2003-2004 Mazda 3 to 54.19% for the 1982-1984 Alfa Romeo GTV.

An estimate of the variability in the estimates of injury severity was calculated from the width of the corresponding 95% confidence intervals. Individual confidence interval widths ranged from 1.50% for the 1982-88 Ford Laser and Mazda 323 / Familia to 35.91% for the 2003-2004 Mitsubishi Lancer CH.

The estimated injury severity for each market group is also given in Appendix 3. Compact four wheel drive vehicles performed best with respect to injury severity, having the lowest average injury severity of 19.97%. The large four wheel drive car market group had the highest average injury severity of 25.38%.

5.1.3 Total secondary safety index

The total secondary safety index for each car model and market group was obtained by multiplying the individual injury risk and injury severity estimates. Because each of the two components had

been adjusted for the confounding factors, the resultant total secondary safety index was also adjusted for the influence of these factors.

Total secondary safety indices were obtained for each individual model and market group after adjusting for the confounding factors.

Appendix 4 gives the total secondary safety secondary index and the associated 95% confidence intervals for each of the 357 car models included in the analyses. Appendix 4 also gives the total secondary safety secondary index with 90% confidence limits for each of the 357 vehicle models. Each rating is expressed as a percentage, representing the number of road users killed or admitted to hospital per 100 light vehicle drivers or unprotected road users involved in a tow-away focus crash. Overall ratings for the market groups are also given.

Each total secondary safety rating is an *estimate* of the true risk of a light vehicle driver or unprotected road user being killed or admitted to hospital in a tow-away crash and, as such, each estimate has a level of uncertainty about it. This uncertainty is indicated by the confidence limits in Appendix 4. There is 95% probability that the confidence interval will cover the true risk of serious injury (death or hospital admission) to the light vehicle driver or unprotected road user involved in a crash with the particular model of vehicle.

The ratings in Appendix 4 exclude those models where:

- the width of the confidence interval exceeded 7 and the comparison average crashworthiness rating was within the 90% confidence interval (see section 5.1.4 for the definition of the comparison average total secondary safety), or

- the ratio of the confidence interval width to the rating score (coefficient of variation) exceeded 1.6 and the comparison average total secondary safety index was within the 90% confidence interval.

As in the safety ratings produced in Newstead et al (2006) the criteria will include vehicles which have a rating significantly different to the average total secondary safety index although the confidence interval exceeds 7 or the coefficient of variation exceeds 1.6. Those vehicles whose confidence limit does not overlap the average can be classified statistically as either better or worse than average which was considered useful for consumer information. The criteria now exclude only those vehicles that are not statistically significantly different from average due to excessive variation in the estimated rating.

Table 2 gives a summary of the estimated ratings for each of the 12 defined vehicle market groups. It shows the estimated injury risk and severity components, and the resulting total secondary safety index with upper and lower 95% confidence limits, and the width of the 95% confidence limit. The relative ranking of the total secondary safety index on each market group is also given in Table 2 although this should be interpreted with care as there is not necessarily a statistically significant difference between the average total secondary safety of vehicle market groups with different rankings. Statistical significance in average total secondary safety between market groups at the 5% level is only achieved when the 95% confidence limits do not overlap. Similar comments apply to interpreting results in Appendix 4.

Table 2: *Estimated Vehicle Total Secondary Safety by Market Grouping*

Market Group	Injury risk (%)	Injury severity (%)	Total Secondary Safety Index*	Overall rank order	Lower 95% Confidence limit	Upper 95% Confidence limit	Width of Confidence interval
Overall Average	**17.38**	**22.18**	**3.85**				
COMPACT FOUR WHEEL DRIVE	17.97	20.99	3.77	6	3.56	3.99	0.43
MEDIUM FOUR WHEEL DRIVE	16.46	21.95	3.61	3	3.39	3.85	0.46
LARGE FOUR WHEEL DRIVE	16.35	25.38	4.15	10	3.99	4.32	0.32
COMMERCIAL - VAN	18.97	22.40	4.25	11	4.07	4.44	0.38
COMMERCIAL - UTE	16.80	23.37	3.92	7	3.82	4.03	0.21
LARGE	16.48	21.74	3.58	2	3.53	3.64	0.12
LUXURY	15.23	21.20	3.23	1	3.13	3.33	0.20
MEDIUM	17.38	21.32	3.71	4	3.63	3.78	0.16
PEOPLE MOVERS	18.56	22.28	4.14	9	3.94	4.34	0.40
LIGHT	19.35	22.05	4.27	12	4.17	4.36	0.19
SMALL	17.73	21.27	3.77	5	3.70	3.84	0.14
SPORTS	17.59	22.42	3.94	8	3.79	4.11	0.32

- Serious injury rate per 100 road users involved

Table 2 shows luxury cars to have the highest total secondary safety with an average of 3.23 light vehicle drivers or unprotected road users being killed or seriously injured for every 100 tow-away crashes. Similarly, light cars have the lowest total secondary safety with an average total secondary safety index of 4.27.

5.1.4 Comparisons with the All Model Average Rating

Based on the average injury risk and injury severity values in the data used to compute the index, the average total secondary safety of all vehicles appearing in the data was 3.85% (3.85 serious road user injuries per 100 crash involvements). Computing the all model average in this way gives more weight to vehicles with greater representation in the crash data. Another way of computing the all model average rating is to simply take an un-weighted numerical average of the 357 vehicles with a sufficiently accurate total secondary safety index to be published. This method gives equal weight to each vehicle in the average. For the 357 vehicles rated in this study, the un-weighted numerical average total secondary safety is 3.99 (3.99 serious injuries per 100 crash involvements).

Ultimately the point against which indices for individual vehicles are compared is arbitrary, whether it is either of the averages described above or some other point. For the purpose of comparing the total secondary safety index to an average value in this study, the un-weighted numerical average of all vehicles included in the analysis (3.99) was used. This was chosen as it gave better distribution of the vehicles into the five rating categories used for presentation of the index for consumer information (see Section 5.3). Any other comparison value could be used with equal legitimacy. However, it should be noted that the criteria for exclusion of the index for a particular vehicle from presentation are dependent on the average chosen so a change in the comparison average total secondary safety will potentially change the selection of vehicles for which ratings are presented.

90% confidence limits were used to judge whether the true risk of death or hospitalisation associated with a specific model car involved in a tow-away crash is really different from the defined average for all models, i.e. 3.99 per 100 involved road users. An upper limit below the average is indicative of superior performance, whereas a lower limit above the average suggests inferior performance. Other models also have total secondary safety indices at the low or high end of the scale, but their confidence limits overlap the all model average. Although such models may also have superior or inferior total secondary safety characteristics, the database did not contain sufficient numbers of these models for the data to represent scientific evidence that this is the case.

In terms of statistical significance, it should be noted that classifying vehicles as having inferior or superior total secondary safety compared to the defined average means only that vehicle models with 'superior' total secondary safety have statistically significantly better total secondary safety than vehicles in the defined 'inferior' group. It is possible that vehicles within the inferior and superior categories also had statistically significant differences in total secondary safety. This could be assessed by examining overlap in the statistical confidence limits for any pair wise comparison of two vehicles. One of the main points in defining groups of vehicles with inferior and superior performance is to show that the analysis can differentiate with statistical precision total secondary safety between groups of vehicles within the rated vehicle population.

Sixty-four models had an index representing evidence of superior total secondary safety because their upper 90% confidence limits were less than the average rating. These were distributed across market group classifications as follows:

Compact Four Wheel Drives	3
Medium Four Wheel Drives	3
Commercial – Ute	1
Commercial – Vans	1
Large cars	9
Luxury cars	18
Medium cars	6
People Movers	3
Light cars	1
Small cars	15
Sports cars	4

The specific models were (in order of estimated risk of serious injury in a crash, from lowest to highest):

- Citroen BX (1986-1994)
- Mazda 3 (2003-2004)
- Mitsubishi Nimbus (1999-2003)
- Toyota Landcruiser Prado (2003-2004)
- Mercedes Benz S-Class C140 (1993-1998)
- Ford Transit (2001-2004)
- Peugeot 307 (2001-2004)
- Peugeot 406 (1996-2004)
- Ford / Mazda Escape / Tribute (2001-2004)
- Mazda MX5 / Eunos Roadster (1998-2004)
- Subaru Forester (1997-2002)
- Chrysler Neon (1996-1999)
- BMW 5 Series E39 (1996-2003)
- Kia Carnival (1999-2004)
- Peugeot 306 (1994-2001)
- Saab 9000 (1986-1997)
- Mitsubishi Challenger (1998-2004)
- Mitsubishi Pajero NM / NP (2000-2004)
- Honda CR-V (1997-2001)
- Subaru Impreza (2001-2004)
- Volkswagen Golf / Bora (1999-2004)
- Mercedes Benz C-Class W202 (1995-2000)
- Ford Escort (1982-1982)
- Holden Rodeo (2003-2004)
- Renault Feugo (1982-1987)

- Holden Statesman/C04ice WH (1999-2003)
- Honda Prelude (1997-2002)
- Honda Accord (1991-1993)
- Peugeot 505 (1982-1993)
- Saab (19900/9-3 (1994-2002)
- Toyota Camry (2002-2004)
- Subaru Liberty / Legacy / Outback (1999-2003)
- BMW 3 Series E46 (1999-2004)
- Honda Integra (1993-2001)
- Nissan Bluebird (1993-1997)
- Ford Mondeo (1995-2001)
- Holden Vectra (1997-2003)
- Holden Astra TS (1998-2004)
- Toyota Cressida / Mark II (1989-1993)
- Nissan Maxima / Cefiro (1995-1999)
- Holden Astra TR (1996-1998)
- Volvo 700/900 Series (1984-1992)
- Suzuki Baleno / Cultus Crescent (1995-2002)
- Volvo 200 Series (1982-1993)
- Honda Civic (1996-2000)
- Mazda 121 Metro / Demio (1997-2002)
- Toyota Tarago / Previa / Estima (1991-1999)
- Toyota Corolla (1998-2001)
- Honda Accord (1994-1998)
- Ford / Mazda Telstar / 626 / MX6 / Capella / Cronos (1992-1997)
- Holden Commodore VY/VZ (2002-2004)
- Ford / Mazda Laser / 323 (1999-2003)
- Ford Fairlane N & LTD D (1988-1994)
- BMW 3 Series E36 (1992-1998)
- Mitsubishi Magna TE/TF/TH/TJ / Verada KE/KF/KH/KJ / Diamante (1996-2003)
- Ford Falcon AU (1998-2002)
- Holden / Toyota Commodore VR/VS / Lexcen (1993-1997)
- Mazda 323 / Familia / Lantis (1990-1993)
- Holden Commodore VT/VX (1997-2002)
- Subaru Liberty / Legacy (1989-1993)
- Ford Falcon EF/EL (1994-1998)
- Mitsubishi Magna TR/TS / Verada KR/KS / V3000 / Diamante (1991-1996)
- Toyota / Holden Corolla / Nova (1994-1997)
- Ford Falcon EB Series II / Falcon ED (2004 (1992-1994)

Seventy-five models had indices representing evidence of inferior total secondary safety because their lower confidence limits were greater than the average rating. These were distributed across market group classifications as follows:

Compact Four Wheel Drives	4
Medium Four Wheel drives	1
Large Four Wheel Drives	3
Commercial – Vans	6
Commercial – Utes	7
Large cars	3
Luxury cars	4
Medium cars	6
People Movers	3
Light cars	19

Small cars	9
Sports cars	10

The specific models were (in order of estimated risk of serious road user injury in a crash, from highest to lowest):

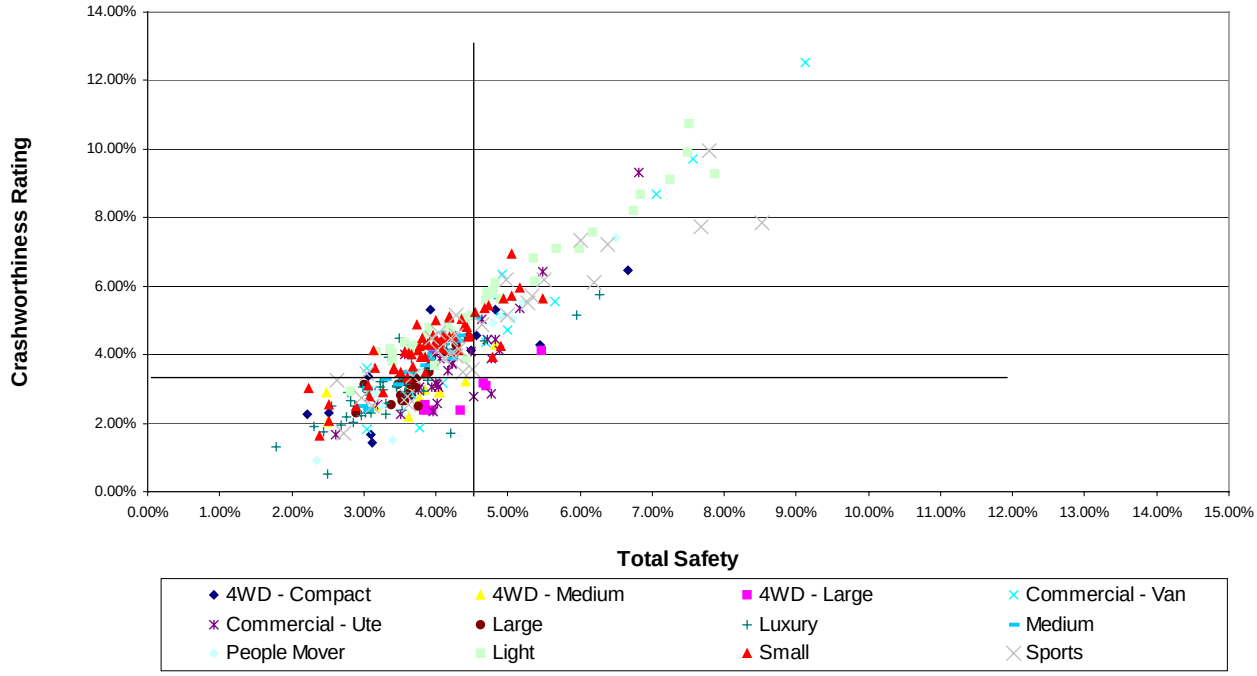
- Daihatsu Hi-Jet (1982-1990)
- Alfa Romeo GTV (1982-1984)
- Suzuki Hatch / Alto (1982-1984)
- Mitsubishi Starion (1982-1987)
- Holden Monaro (2001-2004)
- Nissan Exa (1983-1986)
- Holden / Suzuki Scurry / Carry (1982-2000)
- Suzuki Alto (1985-2000)
- Daihatsu Mira (1990-1996)
- Hyundai Getz (2002-2004)
- Daihatsu Handivan (1982-1990)
- Mitsubishi Lancer CH (2003-2004)
- Subaru Sherpa / Fiori / 700 / Rex (1989-1992)
- Suzuki Mighty Boy (1985-1988)
- Suzuki Swift (1982-1985)
- Landrover Freelander (1998-2004)
- Daihatsu Rocky / Rugger (1985-1998)
- Mitsubishi Starwagon / L300 (1983-1986)
- Nissan NX/NX-R (1991-1996)
- Holden Statesman/C04ice WB (1982-1985)
- Toyota Supra (1982-1990)
- Daihatsu Charade (1982-1986)
- Toyota MR2 (1987-1990)
- Honda City (1983-1986)
- Jaguar XJ6 (1982-1986)
- Holden / Suzuki Barina / Swift / Cultus (1986-1988)
- Toyota Hiace/Liteace (1982-1986)
- Honda CRX (1987-1991)
- Mitsubishi Cordia (1983-1987)
- Subaru Brumby (1982-1992)
- Toyota Landcruiser (1982-1989)
- Hyundai Excel (1986-1990)
- Nissan Micra (1995-1997)
- Nissan Gazelle / Silvia (1984-1986)
- Mazda RX7 (1982-1985)
- Toyota Tarago (1983-1989)
- Holden WB Series (1982-1985)
- Honda Civic / Ballade / Shuttle (1984-1987)
- Holden / Nissan Astra / Pulsar / Langley (1984-1986)
- Toyota Hiace/Liteace (1987-1989)
- Holden Gemini RB (1986-1987)
- Mitsubishi Starwagon / Delica Starwagon (1987-1993)
- Holden Camira (1982-1989)
- Mitsubishi Mirage / Colt (1982-1988)
- Holden / Isuzu Rodeo / Pickup (1989-1995)
- Mitsubishi Pajero (1982-1990)
- Holden / Suzuki Drover / Sierra / Samurai / SJ410 / SJ413 (1982-1999)
- Daihatsu Charade (1988-1992)

- Ford / Mazda Festiva WA / 121 (1987-1990)
- Daihatsu Charade (1993-2000)
- Toyota 4Runner/Hilux (1982-1985)
- Ford Festiva WD/WH/WF (1994-2001)
- Toyota Landcruiser (1990-1997)
- Toyota Hiace/Liteace (1990-1995)
- Holden / Suzuki Barina / Swift / Cultus (1989-1999)
- Toyota Crown / Cressida / Mark II (1982-1985)
- Ford / Mazda Laser / 323 / Familia (1982-1988)
- Nissan Patrol / Safari (1982-1987)
- Ford Cortina (1982-1982)
- Suzuki Vitara / Escudo (1988-1998)
- Nissan Bluebird (1982-1986)
- Holden Gemini (1982-1984)
- Hyundai Excel (1990-1994)
- Toyota 4Runner/Hilux (1986-1988)
- Holden Commodore VB-VL (1982-1988)
- Honda Accord (1982-1985)
- Holden / Nissan Astra / Pulsar / Vector / Sentra (1988-1990)
- Hyundai Excel / Accent (1995-2000)
- Toyota Corolla (1986-1988)
- Toyota Corona (1982-1988)
- Nissan / Ford Pintara / Corsair / Bluebird (1989-1992)
- Mitsubishi Magna TM/TN/TP / Sigma / V3000 (1985-1990)
- Mitsubishi Sigma / Galant / Sapporo / Lambda (1982-1984)
- Toyota 4Runner/Hilux (1989-1997)
- Ford Falcon XE/XF (1982-1988)

5.1.5 Comparison of Crashworthiness, Aggressivity and the Total Secondary Safety index

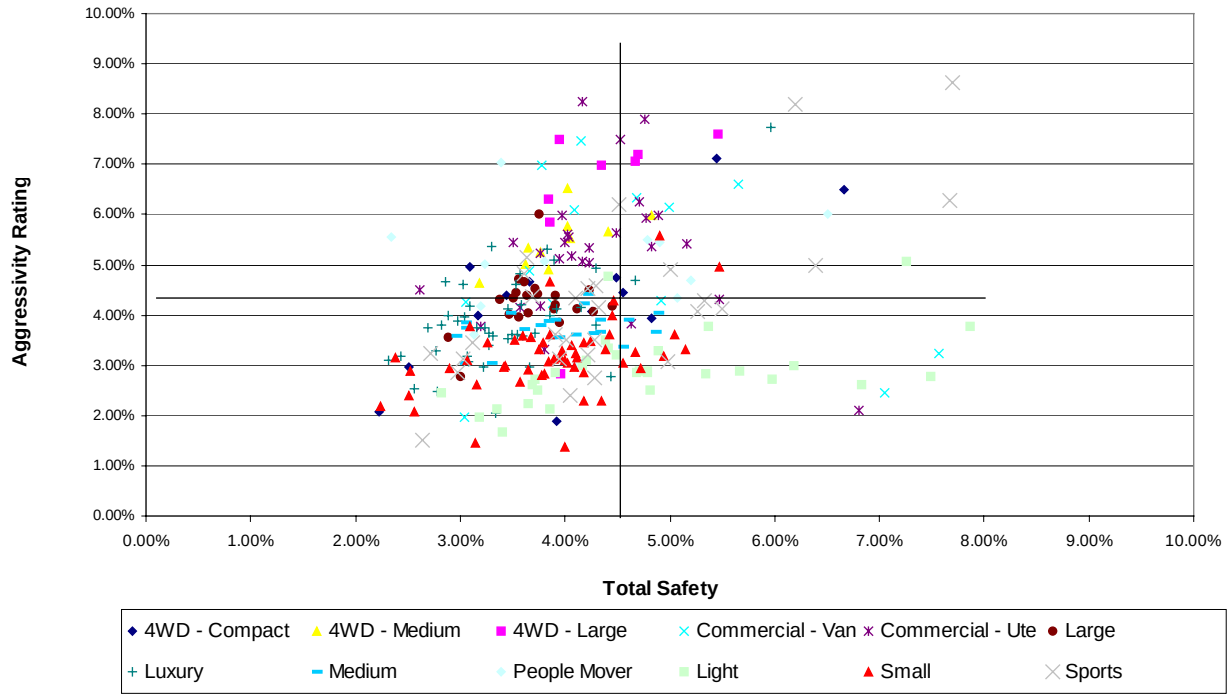
Figure 1 plots vehicle models crashworthiness ratings against their total secondary safety index. The solid lines on the chart are the average value for each index. Figure 1 shows a strong relationship exists between crashworthiness and total secondary safety reflecting that crashworthiness is relevant to injury outcome in all types of crashes involving light vehicles excluding those with unprotected road users.

Figure 1: *Crashworthiness vs. Total Secondary Safety*



In contrast, Figure 2 shows a much weaker relationship between aggressivity and total secondary safety reflecting that aggressivity is only relevant to injury outcome in crashes between 2 light vehicles and involving unprotected road users.

Figure 2: *Aggressivity vs. Total Secondary Safety*



Comparison by Market Groups

Tables 3 and 4 give summaries of the estimated crashworthiness and aggressivity ratings from the safety ratings of Newstead et al (2006) for each of the 12 defined vehicle market groups. They show the estimated injury risk and severity components, and the resulting crashworthiness and

aggressivity rating with upper and lower 95% confidence limits, and the width of the 95% confidence limit. The relative ranking of the crashworthiness or aggressivity rating on each market group is also given.

Table 3 shows large four wheel drive vehicles to be the most crashworthy with an average of 2.92 drivers being killed or seriously injured for every 100 tow-away crashes. Similarly, light cars are the least crashworthy with an average crashworthiness rating of 5.19.

Table 3: *Estimated Vehicle Crashworthiness by Market Grouping*

Market Group	Injury Risk (%)	Injury Severity (%)	Crashworthiness Rating*	Overall rank order	Lower 95% Confidence limit	Upper 95% Confidence limit	Width of Confidence interval
Overall Average	**17.79**	**21.23**	**3.78**				
COMPACT FOUR WHEEL DRIVE	19.53	19.87	3.88	7	3.60	4.18	0.57
MEDIUM FOUR WHEEL DRIVE	14.85	20.08	2.98	2	2.71	3.28	0.56
LARGE FOUR WHEEL DRIVE	13.39	21.81	2.92	1	2.75	3.10	0.35
COMMERCIAL - VAN	19.45	21.43	4.17	9	3.92	4.44	0.52
COMMERCIAL - UTE	16.46	21.74	3.58	5	3.45	3.71	0.27
LARGE	16.46	20.81	3.43	4	3.35	3.50	0.15
LUXURY	15.17	20.23	3.07	3	2.94	3.20	0.26
MEDIUM	18.48	20.91	3.86	6	3.76	3.97	0.22
PEOPLE MOVERS	19.80	22.13	4.38	11	4.11	4.68	0.57
LIGHT	22.93	22.62	5.19	12	5.04	5.33	0.29
SMALL	20.11	21.21	4.27	10	4.17	4.37	0.20
SPORTS	18.70	22.05	4.12	8	3.91	4.34	0.43

* Serious injury rate per 100 drivers involved

Table 4 summarises the estimated injury risk, injury severity and aggressivity ratings by the 12 broad market groups along with the estimated 95% confidence limits on the aggressivity ratings.

Table 4: *Estimated Vehicle Aggressivity towards Other Drivers and Unprotected Road Users by Market Grouping*

Market Group	Other Driver Injury Risk (%)	Other Driver Injury Severity (%)	Aggressivity Rating *	Overall rank order	Lower 95% Confidence limit	Upper 95% Confidence limit	Width of Confidence interval
Overall Average	**16.47**	**23.71**	**3.91**				
COMPACT FOUR WHEEL DRIVE	15.21	23.64	3.60	6	3.28	3.94	0.66
MEDIUM FOUR WHEEL DRIVE	19.46	24.24	4.72	9	4.31	5.16	0.85
LARGE FOUR WHEEL DRIVE	20.98	29.03	6.09	12	5.78	6.42	0.63
COMMERCIAL - VAN	20.17	24.89	5.02	11	4.72	5.34	0.63
COMMERCIAL - UTE	18.36	25.85	4.75	10	4.56	4.94	0.37
LARGE	16.15	23.19	3.74	7	3.65	3.84	0.18
LUXURY	15.20	22.25	3.38	4	3.22	3.55	0.32
MEDIUM	14.95	21.95	3.28	3	3.17	3.39	0.22
PEOPLE MOVERS	18.25	24.24	4.42	8	4.11	4.76	0.64
LIGHT	12.50	21.30	2.66	1	2.56	2.77	0.22
SMALL	13.03	21.87	2.85	2	2.77	2.93	0.17
SPORTS	15.45	22.72	3.51	5	3.28	3.76	0.48

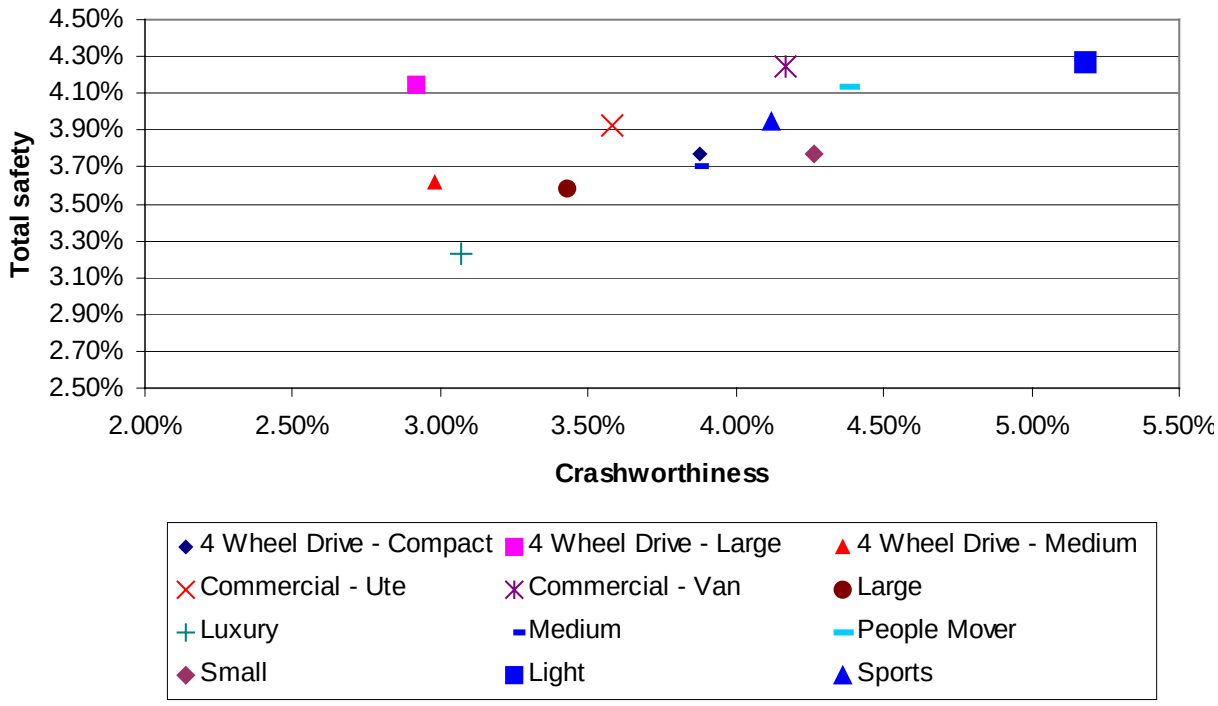
* Serious injury rate per 100 drivers of other vehicles and unprotected road users involved in collisions with vehicles from the given market group

Table 4 shows large four wheel drive vehicles to be the most aggressive towards other road users, with an average of 6.09 other road users being killed or seriously injured for every 100 tow-away crashes with a large four wheel drive. Similarly, Table 4 shows light cars to be the least aggressive

towards unprotected road users or road users of other vehicles, with an average aggressivity rating of 2.66.

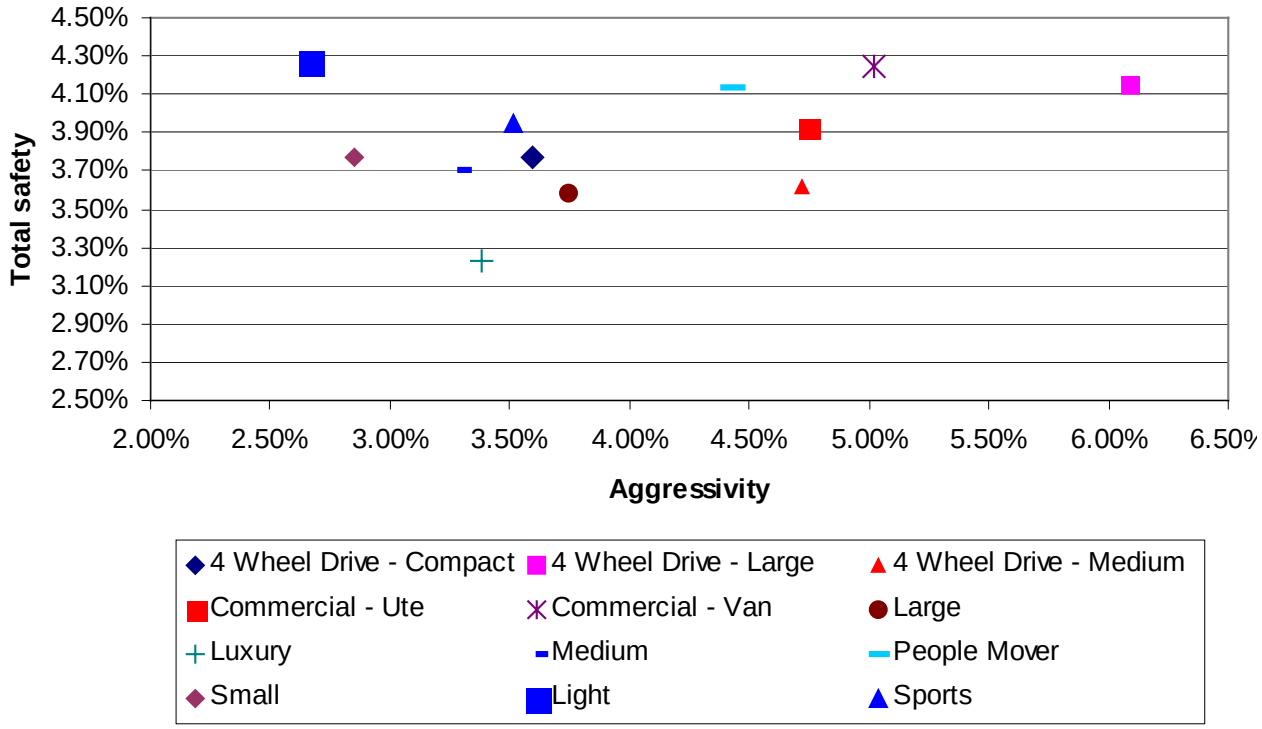
Total secondary safety estimates by market group are plotted against corresponding crashworthiness estimates in Figure 3 and against corresponding aggressivity estimates in Figure 4.

Figure 3: *Total Secondary Safety vs. Crashworthiness by Vehicle Market Group*



Figures 1, 2, 3 and 4 together with Tables 2, 3 and 4 show that essentially the rank order of the market groups within the new total secondary safety index are consistent with the rankings within the crashworthiness measure but with a moderation effect on the total secondary safety index dependent on the aggressivity of the vehicle. In other words vehicles with high aggressivity display a shift in ranking for total secondary safety towards higher or worse total secondary safety. For example, large four-wheel drives have shifted notably in their ranking from a 1 in the crashworthiness market group rankings to a ranking of 10 across the market groups for total secondary safety.

Figure 4: *Total Secondary Safety vs. Aggressivity by Market Group*



5.3 Presentation of the Total Secondary Safety Index for Consumer Information

Discussion in Cameron et al (1998) noted, for simplicity of presentation and interpretation, particularly in the area of consumer safety advice, effort needed to be made to find a method of simultaneously using the information on vehicle crashworthiness and aggressivity. Possible solutions discussed included development of a single measure of total vehicle safety which has been done in this report or, alternatively, development of some other cohesive method of summary presentation that reflects overall vehicle safety. As part of developing the crashworthiness ratings, a method of presentation of the estimated crashworthiness ratings for Australian vehicles was devised that is similar in philosophy to the presentation method devised by Folksam Insurance for presentation of Swedish ratings. The method takes into account both the rating point estimate and confidence limits, but removes the emphasis from the point estimate.

A similar approach to presenting the total secondary safety ratings to that used for presenting the crashworthiness and aggressivity ratings has been developed here. Rated vehicles have been classified into five categories based on the range in which the confidence limits on the estimated ratings lie. The five categories are defined as follows.

- Total secondary safety at least 15% better than average: if the upper confidence limit on the estimated rating is less than 0.85 times the average total secondary safety index for the light vehicle fleet.
- Total secondary safety at least better than average: if the upper confidence limit on the estimated rating is less than the average total secondary safety index for the light vehicle fleet.
- Average total secondary safety: if the confidence interval on the estimated rating overlaps the average total secondary safety index for the light vehicle fleet.
- Total secondary safety at least worse than average: if the lower confidence limit on the estimated rating is greater than the average total secondary safety index for the light vehicle fleet.
- Total secondary safety at least 15% worse than average: if the lower confidence limit on the estimated rating is greater than 1.15 times the average total secondary safety index for the light

vehicle fleet.

Presentation of the estimated total secondary safety index in this way is shown in Appendix 5. As in presenting the crashworthiness and aggressivity ratings, this presentation style has the advantage that it combines information about both the rating point estimate and confidence limit to classify the safety performance of the vehicle. This method of presentation takes the potential emphasis of the consumer off comparison of only the point estimate ratings, an emphasis that can be potentially misleading from the point of view of statistical confidence. Rather, the presentation method categorises vehicles according to the statistical significance of the difference of their estimated safety rating from defined points. Colour coding of the categories has previously been used with green depicting the safest category through blue, yellow and brown to red depicting the least safe category. 90% two-sided confidence limits have been used to categorise the total secondary safety index in Appendix 5. These are equivalent to 95% one-sided confidence limits if a directional hypothesis of total secondary safety greater or less than the average is being assumed.

For comparison, the final two columns of Appendix 5 also show the corresponding crashworthiness and aggressivity rating category for each vehicle model. Both these ratings are classified into five categories with each represented by a symbol in the final column of the table. These are:

- ++: Much safer than average – if the upper confidence limit on the estimated rating is less than 0.85 times the average rating for the vehicle fleet.
- +: Safer than average - if the upper confidence limit on the estimated rating is less than the average rating for the vehicle fleet.
- **o**: Average - if the confidence interval on the estimated rating overlaps the average rating for the vehicle fleet.
- x: Less safe than average - if the lower confidence limit on the estimated rating is greater than the average rating for the vehicle fleet.
    - xx: Much less safe than average – if the lower confidence limit on the estimated rating is greater than 1.15 times the average rating for the vehicle fleet.

6. DISCUSSION

The motivation for developing an index of total secondary safety for light passenger vehicles stemmed from an identified need to find an appropriate summary measure of the crashworthiness and aggressivity ratings that had been developed previously. Past presentation of the crashworthiness and aggressivity ratings has simply presented the ratings for each vehicle side by side and allowed consumers to balance the relative weight they give each in their vehicle purchasing decision. The general aim of the total secondary safety index was to summarise the combined crashworthiness and aggressivity measures in a way that best reflected the relative importance of each component in real world crash circumstances. By constructing the total secondary safety index as a weighted average of injury outcome probabilities in a range of relevant major crash types involving light passenger vehicles and weighting each component by the relative incidence of that crash type, it is hoped the index developed represents the most objective and relevant summary possible.

By having a single index estimated in a single integrated analysis, it has allowed total secondary safety to be considered on a vehicle by vehicle basis with statistical confidence limits placed in the estimates. This is in contrast to the original total secondary safety index developed by Newstead et al (2004b). Although constructed on the same premise, that index was estimated in a piece-wise fashion meaning it could only be considered by broad vehicle market group and was difficult to estimate statistical confidence limits for. One key advantage of the original index though was that it enabled the relative performance of each vehicle market group in each major crash type to be seen

explicitly, something not possible with the integrated single measure. This might offer some disadvantage in the newly developed index when trying to optimise fleet safety through targeting individual crash types.

One key advantage of the integrated total secondary safety measure is that it makes maximum use of the available crash data to assess vehicle secondary safety performance. Applied to the available police reported crash data it was possible to estimate statistically reliable ratings for 357 distinct makes and models of vehicles. This compares to the separate crashworthiness and aggressivity measures calculated in Newstead et al (2006) from the same data where only 305 and 284 vehicles respectively were rated. Clearly the new total secondary safety measure was able to rate a larger number of vehicle models with statistical reliability. The estimates and their associated confidence limits were also sufficiently sensitive that they are able to identify 139 models of passenger cars, four-wheel drive vehicles, passenger vans and light commercial vehicles that have superior or inferior total secondary safety characteristics compared with the average vehicle.

Comparison of the total secondary safety index with the crashworthiness and aggressivity estimates gives insight into the relative importance of the two separate measures in determining overall vehicle secondary safety performance. Comparison of Figures 1 with 2 and 3 with 4 shows the total vehicle secondary safety index is much more strongly associated with the crashworthiness measure than the aggressivity measure. This is as expected given that a vehicle's crashworthiness performance is relevant in a wider range of crash types than is its aggressivity. Specifically, crashworthiness is relevant in all crashes except crashes involving unprotected road users. In comparison, aggressivity is only relevant in crashes involving other light passenger vehicle or unprotected road users. This comparison highlights how the total safety index weights the crashworthiness and aggressivity performance in a way most appropriate to the crash types represented in the total crash population. However, this means the total secondary safety index will to a large degree be dependent on the distribution of crash types in the jurisdiction where the rated vehicle set is exposed. Consequently, the total safety index most relevant to one country might not be the most relevant to another if their crash type distributions are fundamentally different. For example, aggressivity migh weight more highly in the total secondary safety index in the UK where they have more multi-vehicle and unprotected road user crashes compared to Australia and New Zealand where single vehicle crashes and hence crashworthiness weight more highly.

When considering market group based results, Table 2 shows luxury and large cars to have the best (lowest) total safety index of the 12 market groups considered. In contrast, light vehicles and commercial vans have the poorest overall secondary safety performance (highest index). It is interesting to note that the difference in between the best and worst market grops for total secondary safety differ by only a factor of 1.32. In contrast, the crashworthiness and aggressivity rating differ between best and worst market groups by a factor of 1.78 and 2.29 respectively. Both the crashworthiness and aggressivity indexes are dependent on vehicle mass which tends to highten the spread of ratings between market groups. Since the mass relationship is opposite between the crashworthiness and aggressivity ratings, combining them in the total secondary safety index will to at least some degree cancel out the mass effect explaining the lower range of total secondary safety values estimated.

The development of a third index of vehicle secondary safety in addition to the established crashworthiness and aggressivity ratings raises questions about what is the most appropriate and valuable information for consumers, regulators and vehicle safety advocates. For vehicle regulators and safety advocates, the total secondary safety index possibly represents the most relevant measure of vehicle secondary safety performance as it encapsulates the total performance of the vehicle in preventing seious injury outcome. The total secondary safety index is the most relevant to developing policy to optimise the safety of the light vehicle fleet. Optimising on crashworthiness or aggressivity alone will not necessarily produce the safest vehicle fleet. However, the crashworthiness and aggressivity components are still important separately to identify those

characteristics of a vehicle leading to good performance in each dimension. Furthermore, the results of this study identify that optimising crashworthiness performance, in the Austalasian setting at least, will lead to faster and wider spread gains than optimising aggressivity.

Presenting all three indices now available for consumer information might create some confusion amongst consumers as to which one is most relevant. The presentation format of Appendix 5 would be most appropriate if total secondary safety was considered the most important measure of secondary safety. However, some would advocate that the consumer should be given each dimesion of safety performance independently and be allowed to choose the most appropriate balance of crashworthiness and aggressivity themselves based on their personal circumstances and opinions. From a whole of society perspective, this may not lead to the best overall outcomes. Advocating use of the total secondary safety index as the primary consumer focus is much more likely to lead to better vehicle safety choices for society as a whole. Further careful consideration needs to be given to the most appropriate and effective way to present and market the three safety indices for consumer information.

7. CONCLUSIONS

This study has been able to successfully develop a single integrated measure of total secondary safety of the light passenger vehicle fleet. The index measures the average risk of death or serious injury to light passenger vehicle drivers and unprotected road users (pedestrians, cyclists and motorcyclists) when involved in a crash with a light passenger vehicle to a degree of accuracy represented by the confidence limits of the index in each case. It provides and overall summary of the combined crashworthiness and aggressivity performance of a vehicle. The index was measured by a combination of injury severity (the risk of death or serious injury given an injury was sustained) and injury risk (the risk of injury given crash involvement).A far as possible, the index reflects the total secondary safety performance related to vehicle design alone by controlling for a range of non-vehicle related factors known to affect injury outcome.

The total secondary safety index developed was applied to records of light vehicle crashes reported to the police in four Australian states and New Zealand from 1987 to 2004. The index was adjusted for the sex and age of the person whose injury outcome was being measured, speed limit at the crash location, number of vehicles involved, the jurisdiction in which the crash occurred and the year in which the crash occurred. These factors were strongly related to injury risk and/or severity. In addition to the above factors this rating was also adjusted for the type of crash and road user combination as this factor was strongly related to injury risk and/or severity. Total secondary safety index estimates and their associated confidence limits were obtained for 357 vehicle models classified into 12 market groups. They were sufficiently sensitive that they were able to identify 139 models of passenger cars, four-wheel drive vehicles, passenger vans and light commercial vehicles that have superior or inferior total secondary safety characteristics compared with the average vehicle.

The index developed serves as a valuable summary of overall secondary safety of light passenger vehicles both for consumer information as well as for regulators and vehicle safety advocates in identifying and promoting vehicle safety characteristics that optimise overall secondary safety characteristics.

8. ASSUMPTIONS AND QUALIFICATIONS

The results and conclusions presented in this report are based on a number of assumptions and warrant a number of qualifications that the reader should note. These are listed in the following sections.

8.1 Assumptions

It has been assumed that:

- TAC claims records and, Victorian, NSW, Western Australian, Queensland and New Zealand Police crash reports accurately recorded road user injury, hospitalisation and death.

- There was no bias in the merging of TAC claims and Victorian Police crash reports related to the model of car and factors affecting the severity of the crash.

- Crashed vehicle registration numbers were recorded accurately on Police crash reports and that they correctly identified the crashed vehicles in the Victorian, NSW, Queensland, Western Australian and New Zealand vehicle registers.

- The adjustments for road user sex, age, speed zone, the number of vehicles involved and the state and year in which the crash occurred and the crash type removed the influences of the other main factors available in the data that affected crash severity and injury susceptibility.

- The form of the logistic models used to relate injury risk and injury severity with the available factors influencing these outcomes (including the car model or market group) was correct.

- Given crash impact severity, injury outcomes of all drivers and unprotected road users involved in a crash are independent.

- For the purpose of calculating total secondary safety index, information contained in the Police crash records allowed accurate determination of crash type including matching of both vehicles involved in crashes between two passenger cars, passenger vehicles impacting with heavy vehicles and vehicles impacting unprotected road users.

8.2 Qualifications

The results and conclusions warrant at least the following qualifications:

- Only driver or unprotected road user crash involvements and injuries have been considered. Vehicle occupants other than drivers occupying the same model cars may have had different injury outcomes.

- Some models with the same name through the 1982-2003 years of manufacture may have varied substantially in their construction, specification and mass. Although there should be few such models in these updated results, the rating score calculated for these models may give a misleading impression and should be interpreted with caution.

- Other factors not collected in the data (e.g. crash impact severity) may differ between the models and may affect the results. However, earlier analysis has suggested that the different rating scores are predominantly due to vehicle factors alone.

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APPENDIX 1

MAKES AND MODELS OF CARS INVOLVED IN VICTORIAN AND NSW CRASHES DURING 1987-2004 AND WESTERN AUSTRALIA, QUEENSLAND AND NEW ZEALAND CRASHES DURING 1991-2004 INCORPORATING SINGLE VEHICLE AND MULTI VEHICLE PASSENGER VEHICLE CRASHES, HEAVY VEHICLE AND UNPROTECTED ROAD USER CRASHES

FREQUENCY FOR EACH MODEL FOR ALL TYPES OF CRASHES (NSW/VIC/QLD/WA/NZ)

Note: Only those models with a Market Group displayed were used in the total vehicle safety analysis

MAKE/MODEL			MODEL CODE	No. of uninjured drivers in NSW (87-2004) and QLD, WA (91-2004)	No. of injured drivers in NSW (87-2004) and QLD, WA (91-2004)	No. of involved drivers in NSW (87-2004) and QLD,WA (91-2004)	No. of injured (but not severely) drivers in NSW and Victoria (87-2004) and QLD,WA, NZ (91-2004)	No. of severely injured drivers in NSW and Victoria (87-2004) and QLD, WA, NZ (91-2004)	No. of injured drivers in NSW, Victoria (87-2004) and QLD, WA, NZ (91-2004)	ANALYSIS INCLUSION CRITERIA INV=100 INJ=20	MARKET GROUP
Alfa Romeo	164	89-92	AL01Z	79	16	95	12	6	18	0	
Alfa Romeo	33	83-92	AL02Z	702	134	836	137	46	183	1	Small
Alfa Romeo	75	86-92	AL03Z	208	35	243	28	8	36	1	Luxury
Alfa Romeo	90	85-88	AL04Z	93	11	104	8	6	14	0	
Alfa Romeo	GTV	82-84	AL05Z	179	32	211	15	19	34	1	Sports
Alfa Romeo	Sprint	82-88	AL06Z	144	28	172	42	7	49	1	Sports
Alfa Romeo	Alfasud	82-84	AL07Z	127	32	159	27	9	36	1	Small
Alfa Romeo	Alfetta	82-88	AL08Z	61	19	80	9	8	17	0	
Alfa Romeo	Guilietta	82-86	AL09Z	78	11	89	12	2	14	0	
Alfa Romeo	156	99-04	AL13Z	244	50	294	24	5	29	1	Luxury
Alfa Romeo	166	99-04	AL14Z	13	5	18	1	2	3	0	
Alfa Romeo	GTV / Spider	98-04	AL15Z	73	14	87	12	2	14	0	
Alfa Romeo	147	01-04	AL16Z	58	11	69	6	4	10	0	
Audi	Cabriolet	02-04	AU10Z	7	0	7	1	0	1	0	
Audi	A6/S6/AllRoad	95-04	AUD1Z	40	4	44	7	0	7	0	
Audi	A8	95-03	AUD2Z	4	0	4	0	0	0	0	
Audi	A4	95-01	AUD3Z	422	92	514	84	26	110	1	Luxury
Audi	A3/S3	97-04	AUD5Z	211	48	259	32	6	38	1	Luxury
Audi	TT	99-03	AUD6Z	48	5	53	5	3	8	0	
Audi	A4	01-04	AUD7Z	288	74	362	43	11	54	1	Luxury
BMW	Z3 E36	97-03	BM10Z	156	44	200	32	15	47	1	Sports
Mini	Mini Cooper	02-04	BM11Z	43	15	58	16	4	20	0	
BMW	Z4	03-04	BM12Z	9	1	10	1	1	2	0	
BMW	5 Series E60	03-04	BM13Z	7	3	10	1	2	3	0	
BMW	X5	01-04	BM14Z	33	7	40	7	2	9	0	
BMW	1 Series E87	04-04	BM17Z	1	0	1	0	0	0	0	

MAKE/MODEL			MODEL CODE	No. of uninjured drivers in NSW (87-2004) and QLD, WA (91-2004)	No. of injured drivers in NSW (87-2004) and QLD, WA (91-2004)	No. of involved drivers in NSW (87-2004) and QLD,WA (91-2004)	No. of injured (but not severely) drivers in NSW and Victoria (87-2004) and QLD,WA, NZ (91-2004)	No. of severely injured drivers in NSW and Victoria (87-2004) and QLD, WA, NZ (91-2004)	No. of injured drivers in NSW, Victoria (87-2004) and QLD, WA, NZ (91-2004)	ANALYSIS INCLUSION CRITERIA INV=100 INJ=20	MARKET GROUP
BMW	3 Series E30	82-91	BM3 A	3704	760	4464	761	198	959	1	Luxury
BMW	3 Series E36	92-98	BM3 B	4329	957	5286	771	201	972	1	Luxury
BMW	3 Series E46	99-04	BM3 C	1253	333	1586	250	54	304	1	Luxury
BMW	5 Series E28	82-88	BM5 A	997	185	1182	162	49	211	1	Luxury
BMW	5 Series E34	89-95	BM5 B	779	153	932	174	59	233	1	Luxury
BMW	5 Series E39	96-03	BM5 C	603	114	717	108	24	132	1	Luxury
BMW	6 Series E24	86-89	BM6 Z	6	0	6	6	1	7	0	
BMW	7 Series E23	82-88	BM7 A	288	48	336	51	11	62	1	Luxury
BMW	7 Series E32	89-94	BM7 B	201	41	242	52	17	69	1	Luxury
BMW	7 Series E38	95-01	BM7 C	164	34	198	28	6	34	1	Luxury
BMW	7 Series E65/66	02-04	BM7 D	15	2	17	4	1	5	0	
BMW	8 Series E31	90-99	BM8 Z	19	5	24	6	1	7	0	
Chrysler	Voyager	97-04	CHR1Z	355	100	455	68	15	83	1	People Mover
Chrysler	Neon	96-99	CHR2Z	499	124	623	102	16	118	1	Small
Chrysler	Neon	00-02	CHR3Z	68	15	83	13	5	18	0	
Chrysler	PT Cruiser	00-04	CHR4Z	32	10	42	11	4	15	0	
Citroen	BX	86-94	CI1 Z	107	13	120	56	11	67	1	Luxury
Citroen	AX	91-93	CI3 Z	5	1	6	18	5	23	0	
Citroen	Xanitia	94-00	CI4 Z	60	13	73	21	7	28	0	
Citroen	Berlingo	99-04	CI5 Z	70	13	83	5	2	7	0	
Citroen	Xsara	00-04	CI6 Z	53	15	68	12	3	15	0	
Citroen	XM	91-00	CI7 Z	7	1	8	2	2	4	0	
Citroen	C5	01-04	CI8 Z	30	11	41	2	1	3	0	
Citroen	C3	02-04	CI9 Z	11	1	12	0	0	0	0	
Daihatsu	Charade	82-86	D1 A	2454	790	3244	840	249	1089	1	Light
Daihatsu	Charade	88-92	D1 C	8167	2269	10436	1592	458	2050	1	Light
Daihatsu	Charade	93-00	D1 D	6688	1861	8549	1084	308	1392	1	Light
Daihatsu	Feroza / Rocky	89-97	D11 Z	1022	273	1295	240	67	307	1	4WD - Compact
Daihatsu	Handivan	82-90	D12 Z	804	313	1117	245	75	320	1	Commercial - Van
Daihatsu	Hi-Jet	82-90	D13 Z	179	90	269	82	29	111	1	Commercial - Van
Daihatsu	Rocky / Rugger	85-98	D14 Z	572	187	759	135	70	205	1	4WD - Compact

MAKE/MODEL			MODEL CODE	No. of uninjured drivers in NSW (87-2004) and QLD, WA (91-2004)	No. of injured drivers in NSW (87-2004) and QLD, WA (91-2004)	No. of involved drivers in NSW (87-2004) and QLD,WA (91-2004)	No. of injured (but not severely) drivers in NSW and Victoria (87-2004) and QLD,WA, NZ (91-2004)	No. of severely injured drivers in NSW and Victoria (87-2004) and QLD, WA, NZ (91-2004)	No. of injured drivers in NSW, Victoria (87-2004) and QLD, WA, NZ (91-2004)	ANALYSIS INCLUSION CRITERIA INV=100 INJ=20	MARKET GROUP
Daihatsu	Pyzar	97-01	D15 Z	294	75	369	52	14	66	1	Light
Daihatsu	Move	97-99	D16 Z	75	28	103	22	6	28	1	Light
Daihatsu	Sirion / Storia	98-04	D17 Z	976	322	1298	182	48	230	1	Light
Daihatsu	Terios	97-04	D18 Z	339	144	483	136	33	169	1	4WD - Compact
Daihatsu	Handivan / Cuore	99-03	D19 Z	131	51	182	36	9	45	1	Commercial - Van
Daihatsu	Applause	89-99	D2 Z	3323	944	4267	638	166	804	1	Small
Daihatsu	YRV	01-04	D20 Z	8	3	11	4	1	5	0	
Daihatsu	Charade	03-04	D21 Z	7	2	9	2	0	2	0	
Daihatsu	Copen	03-04	D22 Z	5	0	5	1	0	1	0	
Daihatsu	Mira	90-96	D3 Z	749	345	1094	279	104	383	1	Light
Daewoo	105i	94-95	DA01Z	587	144	731	130	14	144	1	Light
Daewoo	Cielo	95-97	DA03Z	2917	1010	3927	717	180	897	1	Light
Daewoo	Espero	95-97	DA05Z	658	223	881	166	50	216	1	Medium
Daewoo	Nubira	97-03	DA06Z	1947	550	2497	436	108	544	1	Small
Daewoo	Lanos	97-03	DA07Z	3209	1092	4301	786	224	1010	1	Light
Daewoo	Leganza	97-04	DA08Z	491	147	638	105	29	134	1	Medium
Daewoo / Ssango	Musso	98-02	DA09Z	143	23	166	34	14	48	1	4WD - Medium
Daewoo	Matiz	99-04	DA10Z	477	209	686	164	29	193	1	Light
Daewoo	Tacuma	00-04	DA11Z	53	16	69	6	4	10	0	
Daewoo	Lacetti	03-04	DA12Z	20	12	32	7	1	8	0	
Daewoo	Kalos	03-04	DA13Z	95	27	122	16	6	22	1	Light
Ssangyong	Rexton	03-04	DA14Z	1	0	1	0	0	0	0	
Ford	Laser	91-94	F01 C	14300	3737	18037	3490	914	4404	1	Small
Ford	Laser	95-97	F01 D	3731	998	4729	848	237	1085	1	Small
Ford	Cortina	82-82	F02 Z	1574	305	1879	740	159	899	1	Medium
Ford	Escort	82-82	F05 Z	1138	194	1332	182	13	195	1	Small
Ford	Falcon XE/XF	82-88	F06 Z	75680	17335	93015	14719	4797	19516	1	Large
Ford	Fairlane Z & LTD F	82-87	F07 Z	8995	1846	10841	1621	478	2099	1	Luxury
Ford	Falcon EA / Falcon EB Series I	88-Mar 92	F08 C	52202	11822	64024	10047	3027	13074	1	Large
Ford	Falcon EB Series II / Falcon ED	Apr 92-94	F08 D	21851	4917	26768	4153	1247	5400	1	Large
Ford	Fairlane N & LTD D	88-94	F09 A	4046	915	4961	836	307	1143	1	Luxury

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Ford	Fairlane N & LTD D	95-98	F09 B	1169	333	1502	294	102	396	1	Luxury
Ford	Fairlane & LTD AU	99-02	F09 C	686	158	844	104	29	133	1	Luxury
Ford	Fairlane & LTD BA	03-04	F09 D	34	3	37	2	3	5	0	
Ford	Mondeo	95-01	F10 Z	1739	413	2152	486	107	593	1	Medium
Ford	C04i	89-94	F43 Z	1652	475	2127	421	97	518	1	Sports
Ford	Festiva WD/WH/WF	94-01	F44 B	10996	3741	14737	2600	735	3335	1	Light
Ford	Falcon Panel Van	82-95	F45 A	5376	974	6350	805	216	1021	1	Commercial - Van
Ford	Falcon Panel Van	96-99	F45 B	676	105	781	113	23	136	1	Commercial - Van
Ford / Nissan	Falcon Ute / XFN Ute	82-95	F46 A	12535	2784	15319	2010	684	2694	1	Commercial - Ute
Ford	Falcon Ute	96-99	F46 B	2111	515	2626	390	122	512	1	Commercial - Ute
Ford	Falcon Ute AU	00-02	F46 D	1491	396	1887	339	95	434	1	Commercial - Ute
Ford	Falcon Ute BA	03-04	F46 E	334	76	410	74	24	98	1	Commercial - Ute
Ford	Ford F-Series	82-92	F47 Z	1078	265	1343	194	68	262	1	Commercial - Ute
Ford	Spectron	86-90	F52 Z	130	32	162	43	8	51	1	People Mover
Ford	Bronco	82-87	F56 Z	170	44	214	44	15	59	1	4WD - Large
Ford	Probe	94-98	F61 Z	190	50	240	44	14	58	1	Sports
Ford	Falcon EF/EL	94-98	F62 Z	41183	10425	51608	8136	2365	10501	1	Large
Ford	Transit	95-00	F64 A	871	203	1074	173	44	217	1	Commercial - Van
Ford	Transit	01-04	F64 B	176	34	210	44	8	52	1	Commercial - Van
Ford	Explorer	00-01	F65 Z	304	75	379	102	29	131	1	4WD - Large
Ford	Falcon AU	98-02	F66 Z	15045	4317	19362	3310	931	4241	1	Large
Ford	Taurus	96-98	F67 Z	420	104	524	92	28	120	1	Large
Ford	Ka	99-04	F68 Z	234	90	324	79	20	99	1	Light
Ford	Cougar	99-03	F69 Z	102	29	131	20	6	26	1	Sports
Ford	Mustang	01-03	F71 Z	45	6	51	7	4	11	0	
Ford	Explorer	01-04	F72 Z	60	14	74	36	5	41	0	
Ford	Falcon BA	02-04	F73 Z	1851	502	2353	402	120	522	1	Large
Ford	Focus	02-04	F75 Z	253	77	330	74	19	93	1	Small
Ford	F-Series	01-04	F76 Z	36	6	42	6	1	7	0	
Ford	Territory SX	04-04	F77 Z	18	6	24	8	1	9	0	
Ford	Fiesta WP/WQ	04-04	F78 Z	4	0	4	0	0	0	0	

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Fiat	Argenta	83-85	FI01Z	9	4	13	4	1	5	0	
Fiat	Croma	88-89	FI02Z	25	7	32	16	1	17	0	
Fiat	Regata	84-88	FI03Z	310	62	372	45	18	63	1	Small
Fiat	Superbrava	82-85	FI04Z	61	22	83	15	7	22	0	
Fiat	X-1/9	82-85	FI11Z	5	0	5	1	0	1	0	
Holden / Toyota	Commodore VN/VP / Lexcen	89-93	H1 Z	59681	14074	73755	11599	3811	15410	1	Large
Holden	Calibra	94-97	H12 Z	384	81	465	125	34	159	1	Sports
Holden	Statesman/Caprice WB	82-85	H14 A	288	52	340	54	26	80	1	Luxury
Holden	Stateman/Caprice VQ	90-93	H14 B	1113	215	1328	180	76	256	1	Luxury
Holden	Stateman/Caprice VR/VS	94-98	H14 C	2787	637	3424	538	182	720	1	Luxury
Holden	Commodore Ute VG/VP	90-93	H18 Z	1807	434	2241	309	110	419	1	Commercial - Ute
Holden	Camira	82-89	H2 Z	20934	5460	26394	5267	1426	6693	1	Medium
Holden / Isuzu	Jackaroo / Bighorn	82-91	H21 A	866	261	1127	350	73	423	1	4WD - Medium
Holden / Isuzu	Jackaroo / Bighorn	92-97	H21 B	617	148	765	191	59	250	1	4WD - Medium
Holden / Isuzu	Jackaroo / Bighorn	98-02	H21 C	393	111	504	98	29	127	1	4WD - Medium
Holden / Isuzu	Piazza	86-88	H23 Z	73	14	87	27	5	32	0	
Holden / Isuzu	Rodeo / Pickup	82-85	H24 A	938	216	1154	187	70	257	1	Commercial - Ute
Holden / Isuzu	Rodeo / Pickup	86-88	H24 B	562	124	686	106	20	126	1	Commercial - Ute
Holden / Isuzu	Rodeo / Pickup	89-95	H24 C	7197	1787	8984	1267	514	1781	1	Commercial - Ute
Holden	Rodeo	96-98	H24 D	2535	713	3248	532	178	710	1	Commercial - Ute
Holden	Rodeo	99-02	H24 E	1949	565	2514	418	139	557	1	Commercial - Ute
Holden	Shuttle / WFR Van	82-87	H26 Z	663	182	845	143	42	185	1	Commercial - Van
Holden	WB Series	82-85	H27 Z	2131	481	2612	318	142	460	1	Commercial - Ute
Holden	Gemini	82-84	H3 A	8531	2055	10586	2011	530	2541	1	Small
Holden	Gemini RB	86-87	H3 C	1131	351	1482	336	83	419	1	Small
Holden / Toyota	Commodore VR/VS / Lexcen	93-97	H33 Z	45112	10762	55874	8509	2505	11014	1	Large
Holden	Commodore Ute VR/VS	94-00	H34 Z	6742	1640	8382	1114	431	1545	1	Commercial - Ute
Holden	Frontera / Mu	95-03	H35 Z	162	52	214	54	14	68	1	4WD - Medium
Holden	Vectra	97-03	H36 Z	2299	603	2902	607	132	739	1	Medium
Holden	Commodore VT/VX	97-02	H37 Z	25083	6957	32040	5379	1455	6834	1	Large
Holden	Suburban	98-00	H38 Z	6	3	9	5	1	6	0	

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Holden	Statesman/Caprice WH	99-03	H39 Z	537	134	671	114	30	144	1	Luxury
Holden	Astra TR	96-98	H4 D	960	238	1198	256	54	310	1	Small
Holden	Astra TS	98-04	H4 E	4153	1092	5245	821	204	1025	1	Small
Holden	Commodore VU Ute	00-02	H41 Z	1118	249	1367	187	83	270	1	Commercial - Ute
Holden	Commodore VY/VZ	02-04	H42 Z	2407	680	3087	530	133	663	1	Large
Holden	Commodore VY/VZ Ute	02-04	H43 Z	579	157	736	99	46	145	1	Commercial - Ute
Holden	Monaro	01-04	H44 Z	229	81	310	56	25	81	1	Sports
Holden	Cruze	02-04	H45 Z	117	36	153	28	12	40	1	4WD - Compact
Holden	Barina XC	01-04	H46 Z	602	208	810	157	39	196	1	Light
Holden	Zafira TT	01-04	H47 Z	85	22	107	16	5	21	1	People Mover
Holden	Statesman/Caprice WK/WL	03-04	H48 Z	59	22	81	9	5	14	0	
Holden	Adventra	03-04	H49 Z	11	3	14	5	0	5	0	
Holden	Barina SB	95-00	H5 D	5854	1816	7670	1191	310	1501	1	Light
Holden	Rodeo	03-04	H50 Z	326	84	410	61	20	81	1	Commercial - Ute
Holden	Vectra ZC	03-04	H51 Z	24	7	31	11	2	13	0	
Holden	Astra AH	04-04	H55 Z	1	1	2	1	0	1	0	
Holden	Commodore VB-VL	82-88	H6 Z	66370	14893	81263	13063	4115	17178	1	Large
Hyundai	Excel	86-90	HY1 A	3884	1176	5060	1203	313	1516	1	Light
Hyundai	Excel	90-94	HY1 B	11994	3289	15283	2631	648	3279	1	Light
Hyundai	Excel / Accent	95-00	HY1 C	22135	6950	29085	4833	1242	6075	1	Light
Hyundai	Excel Others		HY1 Z	1663	393	2056	342	53	395	0	
Hyundai	Trajet	00-04	HY10Z	18	4	22	4	2	6	0	
Hyundai	Elantra	00-04	HY11Z	785	211	996	128	36	164	1	Small
Hyundai	Santa Fe	00-04	HY12Z	144	44	188	42	11	53	1	4WD - Medium
Hyundai	Getz	02-04	HY13Z	388	117	505	58	32	90	1	Light
Hyundai	Sonata	98-01	HY15A	735	184	919	142	29	171	1	Large
Hyundai	Sonata	02-04	HY15B	93	16	109	8	4	12	0	
Hyundai	Tiburon	02-04	HY16Z	21	6	27	4	2	6	0	
Hyundai	Terracan	01-04	HY17Z	37	3	40	3	1	4	0	
Hyundai	Elantra Lavita	01-04	HY18Z	25	3	28	13	1	14	0	
Hyundai	Sonata	89-97	HY2 Z	3712	939	4651	769	201	970	1	Large

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Hyundai	S Coupe	90-96	HY4 Z	1261	351	1612	290	67	357	1	Small
Hyundai	Lantra	91-95	HY5 A	2430	637	3067	454	117	571	1	Small
Hyundai	Lantra	96-00	HY5 B	4053	1072	5125	838	193	1031	1	Small
Hyundai	Coupe	96-00	HY7 Z	705	200	905	153	50	203	1	Sports
Hyundai	Grandeaur / XG	99-00	HY8 Z	230	62	292	34	8	42	1	Large
Hyundai	Accent	00-04	HY9 Z	2720	822	3542	569	135	704	1	Light
Mitsubishi	Mirage / Colt	82-88	I01 Z	15632	4270	19902	3924	1023	4947	1	Light
Mitsubishi	Sigma / Galant / Sapporo / Lambda	82-84	I02 Z	18900	3826	22726	4475	1124	5599	1	Medium
Mitsubishi	Magna TM/TN/TP / Sigma / V3000	85-90	I04 Z	33194	7512	40706	6652	1970	8622	1	Large
Mitsubishi	Magna TE/TF/TH/TJ / Verada KE/KF/KH/KJ / Diamante	96-03	I06 A	11865	3101	14966	2537	666	3203	1	Large
Mitsubishi	Starion	82-87	I07 Z	185	48	233	82	33	115	1	Sports
Mitsubishi	Lancer / Mirage CA	89-90	I09 A	5028	1252	6280	1486	386	1872	1	Small
Mitsubishi	Lancer / Mirage CB	91-92	I09 B	2727	536	3263	670	104	774	1	Small
Mitsubishi	Lancer / Mirage CC	93-95	I09 C	5988	1537	7525	1445	390	1835	1	Small
Mitsubishi	Lancer / Mirage CE	96-03	I09 D	13697	3755	17452	2700	651	3351	1	Small
Mitsubishi	Nimbus / Chariot / Spacewagon	85-91	I10 A	734	166	900	305	64	369	1	People Mover
Mitsubishi	Nimbus / Chariot	92-98	I10 B	785	172	957	198	37	235	1	People Mover
Mitsubishi	Nimbus	99-03	I10 C	231	41	272	24	4	28	1	People Mover
Mitsubishi	Cordia	83-87	I12 Z	2135	524	2659	834	240	1074	1	Small
Mitsubishi	Magna TR/TS / Verada KR/KS / V3000 / Diamante	91-96	I15 Z	24908	5845	30753	5347	1348	6695	1	Large
Mitsubishi	Galant	89-93	I16 A	14	2	16	712	146	858	0	
Mitsubishi	Galant	95-96	I16 B	1494	376	1870	451	117	568	1	Medium
Mitsubishi	Starwagon / L300	83-86	I23 A	3690	1161	4851	941	339	1280	1	People Mover
Mitsubishi	Starwagon / Delica Starwagon	87-93	I23 B	5069	1578	6647	1241	428	1669	1	People Mover
Mitsubishi	Starwagon / Delica Spacegear	95-98	I23 C	1580	439	2019	332	82	414	1	People Mover
Mitsubishi	Starwagon / Delica Spacegear	98-04	I23 D	510	155	665	110	39	149	1	People Mover
Mitsubishi	Pajero	82-90	I25 A	2143	541	2684	657	211	868	1	4WD - Medium
Mitsubishi	Pajero	92-99	I25 C	3149	693	3842	689	203	892	1	4WD - Medium
Mitsubishi	Pajero NM / NP	00-04	I25 D	354	63	417	69	15	84	1	4WD - Medium

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Mitsubishi	3000GT	92-97	I26 Z	4	2	6	3	1	4	0	
Mitsubishi	Challenger	98-04	I30 Z	237	53	290	78	14	92	1	4WD - Medium
Mitsubishi	Pajero iO	99-03	I34 Z	22	9	31	10	2	12	0	
Mitsubishi	Lancer CG	02-03	I37 Z	208	66	274	57	9	66	1	Small
Mitsubishi	Magna TL/KL / Verada KL/KW	03-04	I38 Z	83	19	102	11	3	14	0	
Mitsubishi	Outlander	03-04	I39 Z	20	8	28	3	2	5	0	
Mitsubishi	Lancer CH	03-04	I40 Z	143	39	182	18	11	29	1	Small
Jaguar	XJ6	82-86	J01 A	336	75	411	67	28	95	1	Luxury
Jaguar	XJ6	87-94	J01 B	435	89	524	79	20	99	1	Luxury
Jaguar	XJ6	95-97	J01 C	95	17	112	9	5	14	0	
Jaguar	XJ8	98-03	J01 D	10	1	11	1	2	3	0	
Jaguar	XJS	82-96	J04 Z	87	19	106	14	3	17	0	
Jaguar	XJR	95-03	J05 Z	5	0	5	1	0	1	0	
Jaguar	XK8 / XKR	96-04	J07 Z	31	9	40	7	2	9	0	
Jaguar	S-Type	99-02	J08 Z	87	10	97	13	1	14	0	
Jaguar	X-Type	02-04	J09 Z	40	9	49	7	0	7	0	
Jaguar	XJ	03-04	J10 Z	7	5	12	2	0	2	0	
Jeep	Cherokee XJ	96-00	JE01Z	1075	241	1316	287	74	361	1	4WD - Medium
Jeep	Grand Cherokee	96-99	JE02Z	141	34	175	61	20	81	1	4WD - Large
Jeep	Wrangler	96-04	JE03Z	161	47	208	69	20	89	1	4WD - Medium
Jeep	Grand Cherokee	99-04	JE04Z	82	19	101	48	16	64	1	4WD - Large
Jeep	Cherokee KJ	01-04	JE05Z	38	8	46	16	2	18	0	
Kia	Sportage	98-03	K01 Z	308	85	393	105	20	125	1	4WD - Compact
Kia	Ceres	92-00	K02 Z	665	194	859	151	44	195	1	Commercial - Ute
Kia	Mentor	97-00	K03 Z	13	5	18	4	1	5	0	
Kia	Credos	98-01	K04 Z	31	16	47	10	8	18	0	
Kia	Rio	00-04	K05 Z	816	293	1109	186	58	244	1	Light
Kia	Carens	00-02	K06 Z	37	14	51	7	0	7	0	
Kia	Carnival	99-04	K07 Z	335	89	424	65	16	81	1	People Mover
Kia	Spectra	01-04	K08 Z	97	42	139	24	10	34	1	Small
Kia	Optima	01-04	K09 Z	6	0	6	0	0	0	0	

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Kia	K2700	02-04	K10 Z	4	1	5	3	1	4	0	
Kia	Pregio	02-04	K11 Z	95	31	126	26	8	34	1	Commercial - Van
Kia	Sorento	03-04	K12 Z	18	4	22	5	1	6	0	
Kia	Cerato	04-04	K13 Z	3	1	4	1	0	1	0	
Land Rover	Defender	92-04	LRO1Z	284	81	365	76	27	103	1	4WD - Medium
Land Rover	Discovery	91-02	LRO2A	338	114	452	189	51	240	1	4WD - Medium
Land Rover	Discovery	02-04	LRO2B	5	2	7	1	1	2	0	
Ford / Mazda	Laser / 323 / Familia	82-88	M01 A	54852	14868	69720	16714	4196	20910	1	Small
Mazda	323 / Familia / Lantis	90-93	M01 C	3889	942	4831	1745	368	2113	1	Small
Mazda	323 / Familia / Lantis	95-98	M01 E	3939	991	4930	787	193	980	1	Small
Ford / Mazda	Laser / 323	99-03	M01 F	3079	932	4011	665	171	836	1	Small
Ford / Mazda	Telstar / 626 / MX6 / Capella	83-86	M02 B	10980	2584	13564	3663	938	4601	1	Medium
Ford / Mazda	Telstar / 626 / MX6 / Capella	88-91	M02 D	5214	1277	6491	1970	524	2494	1	Medium
Ford / Mazda	Telstar / 626 / MX6 / Capella / Cronos	92-97	M02 E	5584	1127	6711	1481	400	1881	1	Medium
Mazda	626	98-02	M02 F	1069	279	1348	269	90	359	1	Medium
Mazda	929 / Luce	82-90	M03 A	3934	937	4871	980	264	1244	1	Luxury
Mazda	929 / Sentia / Efini MS-9	92-96	M03 C	208	45	253	43	17	60	1	Luxury
Ford / Mazda	Festiva WA / 121	87-90	M09 A	6786	2126	8912	1636	450	2086	1	Light
Mazda	121 / Autozam Review	94-96	M09 B	3143	937	4080	641	157	798	1	Light
Mazda	121 Metro / Demio	97-02	M09 C	1968	580	2548	436	96	532	1	Light
Mazda	RX7	82-85	M10 A	645	151	796	139	57	196	1	Sports
Mazda	RX7	86-91	M10 B	348	66	414	126	31	157	1	Sports
Mazda	RX7	92-98	M10 C	79	15	94	20	6	26	0	
Mazda	MX5 / Eunos Roadster	89-97	M11 A	644	160	804	132	31	163	1	Sports
Mazda	MX5 / Eunos Roadster	98-04	M11 B	265	66	331	41	5	46	1	Sports
Mazda	MPV	94-99	M15 A	311	65	376	44	9	53	1	People Mover
Mazda	MPV	00-04	M15 B	109	21	130	13	6	19	0	
Mazda	Eunos 30X / Presso / MX-3 / Autozam AZ-3	90-97	M16 Z	384	104	488	77	17	94	1	Sports
Mazda	Eunos 500	93-99	M17 Z	205	58	263	54	13	67	1	Luxury
Mazda	Eunos 800	94-00	M18 Z	63	16	79	17	10	27	0	

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Ford / Mazda	Escape / Tribute	01-04	M21 Z	222	50	272	77	12	89	1	4WD - Compact
Ford / Mazda	Courier / B-Series / Bounty	98-02	M22 A	1066	233	1299	218	67	285	1	Commercial - Ute
Ford / Mazda	Courier / Bravo / Bounty	03-04	M22 B	81	19	100	20	8	28	1	Commercial - Ute
Mazda	Bravo / Ford Courier Others		M22 Z	621	86	707	93	17	110	0	
Mazda	Premacy	01-03	M23 Z	9	1	10	2	0	2	0	
Mazda	2	02-04	M24 Z	36	6	42	6	2	8	0	
Mazda	6	02-04	M25 Z	85	8	93	5	3	8	0	
Mazda	RX8	03-04	M26 Z	18	1	19	2	2	4	0	
Mazda	3	03-04	M27 Z	127	35	162	26	2	28	1	Small
Mercedes Benz	C-Class W201	87-93	ME11Z	577	141	718	139	45	184	1	Luxury
Mercedes Benz	C-Class W202	95-00	ME12Z	1093	220	1313	182	48	230	1	Luxury
Mercedes Benz	CLK C208	97-03	ME13Z	157	32	189	29	8	37	1	Luxury
Mercedes Benz	E-Class W123	82-85	ME14Z	369	84	453	59	18	77	1	Luxury
Mercedes Benz	E-Class W124	86-94	ME15Z	1142	237	1379	210	60	270	1	Luxury
Mercedes Benz	E-Class W210	96-02	ME16Z	595	139	734	113	32	145	1	Luxury
Mercedes Benz	S-Class W126	82-92	ME18Z	840	172	1012	124	37	161	1	Luxury
Mercedes Benz	S-Class R129	93-02	ME19Z	115	18	133	20	4	24	1	Luxury
Mercedes Benz	S-Class C140	93-98	ME20Z	190	31	221	28	8	36	1	Luxury
Mercedes Benz	SLK R170	97-04	ME21Z	120	44	164	22	4	26	1	Sports
Mercedes Benz	A-Class W168	98-04	ME22Z	178	46	224	29	8	37	1	Luxury
Mercedes Benz	MB100 / MB140	99-04	ME24Z	162	48	210	38	7	45	1	Commercial - Van
Mercedes Benz	S-Class W220	99-04	ME25Z	54	11	65	5	1	6	0	
Mercedes Benz	Vito	99-04	ME26Z	278	70	348	42	16	58	1	Commercial - Van
Mercedes Benz	M-Class W163	98-04	ME27Z	157	49	206	63	11	74	1	4WD - Large
Mercedes Benz	CL500/600 C215	98-00	ME28Z	5	2	7	0	0	0	0	
Mercedes Benz	C-Class W203	00-04	ME29Z	89	14	103	13	1	14	0	
Mercedes Benz	Sprinter	98-04	ME30Z	199	59	258	45	13	58	1	Commercial - Van
Mercedes Benz	G-Class	83-88	ME31Z	1	1	2	1	0	1	0	
Mercedes Benz	CLK C209	03-04	ME32Z	24	7	31	6	2	8	0	
Mercedes Benz	E-Class W211	02-04	ME33Z	54	22	76	6	3	9	0	
Mercedes Benz	S-Class R230	02-04	ME34Z	4	3	7	1	0	1	0	

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Holden / Nissan	Astra / Pulsar / Langley	84-86	N01 A	12813	3298	16111	3411	950	4361	1	Small
Holden / Nissan	Astra / Pulsar / Vector / Sentra	88-90	N01 C	15602	3875	19477	3474	952	4426	1	Small
Nissan	Pulsar / Vector / Sentra	92-95	N01 E	6571	1621	8192	1733	433	2166	1	Small
Nissan	Pulsar / Vector / Sentra	96-99	N01 F	6810	2058	8868	1467	370	1837	1	Small
Nissan	Pintara	86-88	N02 A	5871	1424	7295	1173	362	1535	1	Medium
Nissan / Ford	Pintara / Corsair / Bluebird	89-92	N02 B	10106	2462	12568	2347	670	3017	1	Medium
Nissan	Bluebird	82-86	N03 Z	16170	3808	19978	3723	1108	4831	1	Medium
Nissan	Skyline	83-88	N04 Z	6230	1401	7631	1592	426	2018	1	Large
Nissan	300ZX / Fairlady Z	90-95	N09 Z	544	131	675	133	44	177	1	Sports
Nissan	Stanza	82-83	N10 Z	691	160	851	130	40	170	1	Small
Nissan	280C / Laurel	82-84	N11 Z	74	15	89	14	4	18	0	
Nissan	Gazelle / Silvia	84-86	N12 Z	501	109	610	416	155	571	1	Sports
Nissan	280ZX	82-84	N13 Z	104	25	129	25	11	36	1	Sports
Nissan	Prairie	84-86	N14 Z	460	123	583	146	42	188	1	People Mover
Nissan	Maxima	90-94	N15 A	801	181	982	323	80	403	1	Luxury
Nissan	Maxima / Cefiro	95-99	N15 B	922	253	1175	292	67	359	1	Luxury
Nissan	Maxima	00-02	N15 C	232	62	294	72	18	90	1	Luxury
Nissan	Exa	83-86	N16 A	548	171	719	154	55	209	1	Sports
Nissan	Exa	87-91	N16 B	349	66	415	84	28	112	1	Sports
Nissan	NX/NX-R	91-96	N17 Z	673	213	886	163	64	227	1	Sports
Nissan	300C / Laurel	85-87	N20 Z	120	27	147	20	6	26	1	Luxury
Nissan	720 Ute	82-85	N21 Z	1808	462	2270	373	113	486	1	Commercial - Ute
Nissan	Navara	86-91	N24 A	4458	1011	5469	960	335	1295	1	Commercial - Ute
Nissan	Navara	92-96	N24 B	1749	444	2193	433	143	576	1	Commercial - Ute
Nissan	Navara	97-04	N24 C	833	212	1045	228	73	301	1	Commercial - Ute
Nissan	Patrol / Safari	82-87	N26 A	1852	397	2249	382	134	516	1	4WD - Large
Nissan / Ford	Patrol / Maverick / Safari	88-97	N26 B	7506	1631	9137	1551	499	2050	1	4WD - Large
Nissan	Patrol / Safari	98-04	N26 C	1635	396	2031	456	164	620	1	4WD - Large
Nissan	Pathfinder / Terrano	88-94	N27 Z	524	135	659	415	111	526	1	4WD - Medium
Nissan	Serena	92-95	N30 Z	138	26	164	74	15	89	1	People Mover
Nissan	Infiniti	93-97	N31 Z	7	1	8	2	1	3	0	

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Nissan	Bluebird	93-97	N32 Z	1490	318	1808	584	137	721	1	Medium
Nissan	200SX / Silvia	94-02	N33 Z	760	182	942	112	45	157	1	Sports
Nissan	Micra	95-97	N34 Z	785	243	1028	163	57	220	1	Light
Nissan	Pathfinder / Terrano	95-02	N36 Z	490	109	599	166	50	216	1	4WD - Medium
Nissan	Terrano II	97-00	N38 Z	10	5	15	4	1	5	0	
Nissan	Pulsar	00-04	N39 Z	2905	861	3766	505	159	664	1	Small
Nissan	X-Trail	01-04	N40 Z	247	63	310	59	19	78	1	4WD - Compact
Nissan	350Z	03-04	N41 Z	26	11	37	10	3	13	0	
Nissan	Maxima	03-04	N42 Z	13	8	21	6	3	9	0	
Lada	Niva	84-99	NIVAZ	470	113	583	128	36	164	1	4WD - Compact
Honda	Civic	82-83	O1 A	927	213	1140	561	135	696	1	Small
Honda	Civic / Ballade / Shuttle	84-87	O1 B	3349	840	4189	1471	367	1838	1	Small
Honda	Civic / Shuttle	88-91	O1 C	4948	1208	6156	1592	391	1983	1	Small
Honda	Civic	92-95	O1 D	5066	1193	6259	1323	319	1642	1	Small
Honda	Civic	96-00	O1 E	4384	1110	5494	866	166	1032	1	Small
Honda	CRX	87-91	O10 A	400	99	499	344	100	444	1	Sports
Honda	CRX	92-98	O10 B	194	41	235	59	23	82	1	Sports
Honda	Odyssey	95-00	O17 A	514	115	629	95	20	115	1	People Mover
Honda	Odyssey	00-02	O17 B	108	32	140	15	8	23	1	People Mover
Honda	CR-V	97-01	O18 A	1150	249	1399	359	61	420	1	4WD - Compact
Honda	CR-V	02-04	O18 B	374	94	468	75	20	95	1	4WD - Compact
Honda	HR-V	99-02	O19 Z	309	82	391	58	27	85	1	4WD - Compact
Honda	Legend	86-95	O2 B	904	184	1088	238	60	298	1	Luxury
Honda	Legend	96-98	O2 C	81	10	91	13	3	16	0	
Honda	Legend	99-04	O2 D	38	8	46	7	4	11	0	
Honda	S2000	99-04	O20 Z	110	13	123	9	0	9	0	
Honda	Civic	01-04	O21 Z	513	110	623	105	26	131	1	Small
Honda	Jazz	02-04	O22 Z	89	22	111	30	6	36	1	Light
Honda	MDX	03-04	O24 Z	19	0	19	1	0	1	0	
Honda	Accord Euro	03-04	O25 Z	61	22	83	24	5	29	0	
Honda	Accord	03-04	O26 Z	73	14	87	10	3	13	0	

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Honda	Odyssey	04-04	O27 Z	3	1	4	0	0	0	0	
Honda	Accord	82-85	O3 A	2603	627	3230	1426	326	1752	1	Luxury
Honda	Accord	86-90	O3 B	2582	512	3094	1240	285	1525	1	Luxury
Honda	Accord	91-93	O3 C	1522	263	1785	443	93	536	1	Luxury
Honda	Accord	94-98	O3 D	2817	587	3404	633	142	775	1	Luxury
Honda	Accord	99-02	O3 E	440	117	557	106	20	126	1	Luxury
Honda	Prelude	82-82	O4 A	276	59	335	49	10	59	1	Sports
Honda	Prelude	83-91	O4 B	3875	807	4682	1717	409	2126	1	Sports
Honda	Prelude	92-96	O4 C	1420	281	1701	331	98	429	1	Sports
Honda	Prelude	97-02	O4 D	480	119	599	98	21	119	1	Sports
Honda	Integra	86-88	O5 A	785	166	951	491	103	594	1	Sports
Honda	Integra	90-92	O5 C	690	159	849	254	60	314	1	Sports
Honda	Integra	93-01	O5 E	892	195	1087	224	50	274	1	Sports
Honda	Integra	02-04	O5 F	71	22	93	16	2	18	0	
Honda	Concerto	89-93	O6 Z	551	131	682	214	68	282	1	Small
Honda	NSX	91-02	O7 Z	14	1	15	2	3	5	0	
Honda	Acty	83-86	O8 Z	364	96	460	73	23	96	1	Commercial - Van
Honda	City	83-86	O9 Z	410	154	564	681	143	824	1	Light
Peugoet	205	87-94	PE1 Z	239	53	292	63	16	79	1	Light
Peugeot	607	01-04	PE10Z	5	0	5	1	0	1	0	
Peugeot	405	89-97	PE2 Z	525	119	644	191	58	249	1	Luxury
Peugeot	505	82-93	PE3 Z	797	144	941	140	45	185	1	Luxury
Peugeot	306	94-01	PE4 Z	1015	219	1234	220	48	268	1	Small
Peugeot	605	94-96	PE5 Z	50	6	56	11	2	13	0	
Peugeot	406	96-04	PE7 Z	194	22	216	36	15	51	1	Luxury
Peugeot	206	99-04	PE8 Z	267	77	344	36	16	52	1	Light
Peugeot	307	01-04	PE9 Z	136	33	169	30	5	35	1	Small
Porsche	944	82-91	PO1 Z	118	19	137	20	7	27	1	Sports
Porsche	911	82-04	PO2 Z	34	2	36	10	4	14	0	
Porsche	968	92-95	PO4 Z	1	0	1	0	0	0	0	
Porsche	Cayenne	03-04	PO6 Z	2	0	2	1	0	1	0	

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Proton	Wira	95-96	PRO1Z	864	330	1194	197	68	265	1	Small
Proton	Satria	97-04	PRO2Z	106	32	138	9	6	15	0	
Proton	Waja	01-04	PRO3Z	6	3	9	1	2	3	0	
Proton	Jumbuck	03-04	PRO4Z	16	4	20	3	0	3	0	
Renault	20	82-83	RE1 Z	20	6	26	13	5	18	0	
Renault	Megane Cabriolet	01-04	RE10Z	24	3	27	3	1	4	0	
Renault	Clio	02-04	RE11Z	62	24	86	16	4	20	0	
Renault	Megane II	03-04	RE12Z	3	2	5	0	0	0	0	
Renault	Feugo	82-87	RE2 Z	401	72	473	92	20	112	1	Sports
Renault	21	87-91	RE3 Z	21	5	26	8	2	10	0	
Renault	25	85-91	RE4 Z	50	15	65	31	8	39	0	
Renault	19	91-96	RE5 Z	226	67	293	64	13	77	1	Small
Renault	Laguna	95-96	RE7 Z	32	10	42	12	4	16	0	
Renault	Laguna	02-04	RE8 Z	5	1	6	4	0	4	0	
Renault	Scenic	01-04	RE9 Z	46	17	63	10	3	13	0	
Rover	3500	82-87	RO Z	187	42	229	49	9	58	1	Luxury
Rover	Quintet	82-86	RO2 Z	270	76	346	84	20	104	1	Small
Rover	825	87-88	RO3 Z	34	9	43	18	2	20	0	
MG	MGF / MG TF	99-04	RO4 Z	151	29	180	24	4	28	1	Sports
Landrover	Freelander	98-04	RO5 Z	131	34	165	38	14	52	1	4WD - Compact
MG	ZT	02-04	RO6 Z	5	3	8	0	0	0	0	
Rover	75	01-04	RO7 Z	19	3	22	2	1	3	0	
Land Rover	Range Rover	82-94	RROV1	1079	208	1287	236	73	309	1	4WD - Large
Land Rover	Range Rover	95-02	RROV2	122	25	147	50	13	63	1	4WD - Large
Land Rover	Range Rover	02-04	RROV3	7	3	10	2	0	2	0	
Saab	900 Series	82-92	SA1 A	1024	223	1247	202	51	253	1	Luxury
Saab	900/9-3	94-02	SA1 B	1013	215	1228	154	42	196	1	Luxury
Saab	9000	86-97	SA2 Z	968	217	1185	193	32	225	1	Luxury
Saab	9-5	98-02	SA3 Z	158	42	200	38	4	42	1	Luxury
Saab	9-5	03-04	SA4 Z	22	4	26	3	2	5	0	
Lada	Samara	88-90	SAMAZ	98	21	119	19	7	26	1	Light

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Seat	Ibiza	95-99	SE01Z	8	3	11	5	1	6	0	
Seat	Cordoba	95-99	SE02Z	9	4	13	4	1	5	0	
Smart	Roadster	03-04	SM02Z	2	0	2	0	0	0	0	
Subaru	1800 / Leone / Omega / 4WD Wagon	82-93	SU1 Z	6825	1983	8808	1721	561	2282	1	Medium
Subaru	Liberty / Legacy	89-93	SU2 A	4841	1129	5970	1481	395	1876	1	Medium
Subaru	Liberty / Legacy / Outback	94-98	SU2 B	2071	507	2578	455	130	585	1	Medium
Subaru	Liberty / Legacy / Outback	99-03	SU2 C	1572	367	1939	265	73	338	1	Medium
Subaru	Liberty / Legacy / Outback	03-04	SU2 D	41	6	47	6	3	9	0	
Subaru	Vortex	85-89	SU3 Z	73	23	96	38	8	46	0	
Subaru	Sherpa / Fiori / 700 / Rex	89-92	SU4 Z	836	376	1212	353	89	442	1	Light
Subaru	SVX / Alcyone	92-95	SU5 Z	23	6	29	4	2	6	0	
Subaru	Brumby	82-92	SU6 Z	1707	586	2293	369	194	563	1	Commercial - Ute
Subaru	Impreza	93-00	SU7 A	3652	887	4539	720	235	955	1	Small
Subaru	Impreza	01-04	SU7 B	598	144	742	101	20	121	1	Small
Subaru	Forester	97-02	SU8 Z	900	219	1119	258	51	309	1	4WD - Compact
Subaru	Forester	02-04	SU9 Z	188	52	240	45	14	59	1	4WD - Compact
Suzuki	Swift	82-85	SZ01A	251	87	338	63	24	87	1	Light
Holden / Suzuki	Barina / Swift / Cultus	86-88	SZ01B	4835	1498	6333	1500	385	1885	1	Light
Holden / Suzuki	Barina / Swift / Cultus	89-99	SZ01C	17359	4899	22258	3583	955	4538	1	Light
Suzuki	Vitara / Escudo	88-98	SZ02A	3496	936	4432	837	224	1061	1	4WD - Compact
Suzuki	Grand Vitara	99-04	SZ02B	131	39	170	62	13	75	1	4WD - Compact
Suzuki	Hatch / Alto	82-84	SZ03Z	1031	462	1493	323	112	435	1	Light
Holden / Suzuki	Scurry / Carry	82-00	SZ04Z	552	224	776	181	64	245	1	Commercial - Van
Suzuki	Alto	85-00	SZ05Z	189	80	269	178	49	227	1	Light
Suzuki	Mighty Boy	85-88	SZ06Z	557	216	773	155	48	203	1	Commercial - Ute
Holden / Suzuki	Drover / Sierra / Samurai / SJ410 / SJ413	82-99	SZ07Z	4646	1485	6131	1103	312	1415	1	4WD - Compact
Suzuki	Baleno / Cultus Crescent	95-02	SZ08Z	1359	387	1746	267	49	316	1	Small
Suzuki	Carry	99-04	SZ09Z	64	21	85	18	4	22	0	
Suzuki	Ignis	00-02	SZ10Z	162	59	221	55	11	66	1	Light
Suzuki	Jimny	98-04	SZ11Z	60	30	90	30	10	40	0	
Suzuki	Liana	01-04	SZ12Z	62	10	72	9	7	16	0	

MAKE/MODEL			MODEL CODE	No. of uninjured drivers in NSW (87-2004) and QLD, WA (91-2004)	No. of injured drivers in NSW (87-2004) and QLD, WA (91-2004)	No. of involved drivers in NSW (87-2004) and QLD,WA (91-2004)	No. of injured (but not severely) drivers in NSW and Victoria (87-2004) and QLD,WA, NZ (91-2004)	No. of severely injured drivers in NSW and Victoria (87-2004) and QLD, WA, NZ (91-2004)	No. of injured drivers in NSW, Victoria (87-2004) and QLD, WA, NZ (91-2004)	ANALYSIS INCLUSION CRITERIA INV=100 INJ=20	MARKET GROUP
Toyota	Corolla	82-84	T01 A	13793	3420	17213	3992	911	4903	1	Small
Toyota	Corolla	86-88	T01 C	20611	5429	26040	4718	1270	5988	1	Small
Toyota / Holden	Corolla / Nova	89-93	T01 E	26589	7083	33672	6165	1735	7900	1	Small
Toyota / Holden	Corolla / Nova	94-97	T01 F	16534	4274	20808	3338	862	4200	1	Small
Toyota	Corolla	98-01	T01 G	4858	1346	6204	988	228	1216	1	Small
Toyota	Corolla	02-04	T01 H	2075	592	2667	421	110	531	1	Small
Toyota	Corona	82-88	T03 Z	25631	6028	31659	4830	1322	6152	1	Medium
Toyota	Camry	83-86	T04 Z	5671	1252	6923	1030	271	1301	1	Medium
Holden / Toyota	Apollo JK/JL / Camry / Vista	88-92	T05 A	34848	8524	43372	6668	1850	8518	1	Medium
Holden / Toyota	Apollo JM/JP / Camry / Sceptor	93-97	T05 B	25973	6574	32547	4544	1317	5861	1	Large
Toyota	Camry	98-02	T05 C	11390	3040	14430	2036	570	2606	1	Large
Toyota	Celica	81-85	T06 A	3295	800	4095	850	194	1044	1	Sports
Toyota	Celica	86-89	T06 B	2689	611	3300	526	150	676	1	Sports
Toyota	Celica	90-93	T06 C	2345	518	2863	527	146	673	1	Sports
Toyota	Celica	94-99	T06 D	1177	316	1493	257	66	323	1	Sports
Toyota	Celica	00-04	T06 E	805	149	954	118	23	141	1	Sports
Toyota	Crown / Cressida / Mark II	82-85	T07 A	2720	622	3342	638	211	849	1	Luxury
Toyota	Crown / Cressida / Mark II	86-88	T07 B	1229	224	1453	164	64	228	1	Luxury
Toyota	Cressida / Mark II	89-93	T07 C	2588	496	3084	394	112	506	1	Luxury
Toyota	Tercel	83-88	T09 Z	582	140	722	134	36	170	1	Small
Toyota	Supra	82-90	T11 Z	535	153	688	135	46	181	1	Sports
Toyota	MR2	87-90	T12 A	216	63	279	140	44	184	1	Sports
Toyota	MR2	91-00	T12 B	185	38	223	77	24	101	1	Sports
Toyota	Paseo / Cynos	91-99	T13 Z	1398	364	1762	296	86	382	1	Sports
Toyota	Hiace/Liteace	82-86	T15 A	5391	1491	6882	1524	513	2037	1	Commercial - Van
Toyota	Hiace/Liteace	87-89	T15 B	2862	756	3618	947	274	1221	1	Commercial - Van
Toyota	Hiace/Liteace	90-95	T15 C	5223	1437	6660	1383	420	1803	1	Commercial - Van
Toyota	Hiace/Liteace	96-04	T15 D	3540	918	4458	660	186	846	1	Commercial - Van
Toyota	4Runner/Hilux	82-85	T16 A	5949	1580	7529	1134	486	1620	1	Commercial - Ute
Toyota	4Runner/Hilux	86-88	T16 B	4975	1229	6204	1257	463	1720	1	Commercial - Ute
Toyota	4Runner/Hilux	89-97	T16 C	17376	4587	21963	4115	1568	5683	1	Commercial - Ute

MAKE/MODEL			MODEL CODE	No. of uninjured drivers in NSW (87-2004) and QLD, WA (91-2004)	No. of injured drivers in NSW (87-2004) and QLD, WA (91-2004)	No. of involved drivers in NSW (87-2004) and QLD,WA (91-2004)	No. of injured (but not severely) drivers in NSW and Victoria (87-2004) and QLD,WA, NZ (91-2004)	No. of severely injured drivers in NSW and Victoria (87-2004) and QLD, WA, NZ (91-2004)	No. of injured drivers in NSW, Victoria (87-2004) and QLD, WA, NZ (91-2004)	ANALYSIS INCLUSION CRITERIA INV=100 INJ=20	MARKET GROUP
Toyota	Hilux	98-02	T16 D	3471	1044	4515	777	283	1060	1	Commercial - Ute
Toyota	Hilux	03-04	T16 E	246	64	310	51	19	70	1	Commercial - Ute
Lexus	ES300 / Windom	92-01	T17 Z	497	111	608	130	33	163	1	Luxury
Toyota	Tarago	83-89	T18 A	5889	1736	7625	1145	380	1525	1	People Mover
Toyota	Tarago / Previa / Estima	91-99	T18 C	3125	708	3833	529	143	672	1	People Mover
Toyota	Tarago / Previa / Estima	00-04	T18 D	306	75	381	43	13	56	1	People Mover
Toyota	Landcruiser	82-89	T20 A	8964	2213	11177	1712	730	2442	1	4WD - Large
Toyota	Landcruiser	90-97	T20 B	10227	2416	12643	2098	831	2929	1	4WD - Large
Toyota	Landcruiser	98-04	T20 C	3019	736	3755	780	266	1046	1	4WD - Large
Toyota	RAV4	94-00	T21 A	1673	418	2091	520	136	656	1	4WD - Compact
Toyota	RAV4	01-04	T21 B	609	143	752	139	40	179	1	4WD - Compact
Toyota	Starlet	96-99	T22 Z	3732	1081	4813	759	207	966	1	Light
Lexus	LS400 / Celsior	90-00	T25 Z	168	47	215	34	13	47	1	Luxury
Lexus	IS200 / IS300	99-04	T26 Z	281	71	352	27	4	31	1	Luxury
Toyota	Echo	99-04	T27 Z	2313	672	2985	473	139	612	1	Light
Lexus	GS300	97-04	T28 Z	101	21	122	13	1	14	0	
Toyota	Avalon	00-04	T29 Z	1177	337	1514	238	67	305	1	Large
Toyota	MR2	00-04	T30 Z	48	16	64	2	1	3	0	
Lexus	LS430	00-04	T31 Z	19	3	22	1	0	1	0	
Toyota	Corolla 4WD Wagon	92-96	T32 Z	240	72	312	38	19	57	1	Small
Toyota	Spacia	93-00	T33 A	146	36	182	21	4	25	1	People Mover
Toyota	Spacia	01-02	T33 B	14	5	19	5	0	5	0	
Lexus	ES300	01-04	T34 Z	14	2	16	3	1	4	0	
Lexus	SC430	01-04	T35 Z	9	2	11	0	0	0	0	
Toyota	Camry	02-04	T36 Z	740	189	929	129	30	159	1	Large
Toyota	Prius	01-02	T37 Z	9	1	10	0	0	0	0	
Toyota	Avensis	01-04	T38 Z	61	14	75	5	5	10	0	
Toyota	Prius	03-04	T39 Z	2	0	2	0	0	0	0	
Toyota	Kluger	03-04	T40 Z	37	12	49	12	1	13	0	
Toyota	Landcruiser Prado	96-03	T41 Z	105	30	135	24	10	34	1	4WD - Medium
Toyota	Landcruiser Prado	03-04	T42 Z	91	18	109	32	6	38	1	4WD - Medium

MAKE/MODEL			MODEL CODE	No. of uninjured drivers in NSW (87-2004) and QLD, WA (91-2004)	No. of injured drivers in NSW (87-2004) and QLD, WA (91-2004)	No. of involved drivers in NSW (87-2004) and QLD,WA (91-2004)	No. of injured (but not severely) drivers in NSW and Victoria (87-2004) and QLD,WA, NZ (91-2004)	No. of severely injured drivers in NSW and Victoria (87-2004) and QLD, WA, NZ (91-2004)	No. of injured drivers in NSW, Victoria (87-2004) and QLD, WA, NZ (91-2004)	ANALYSIS INCLUSION CRITERIA INV=100 INJ=20	MARKET GROUP
Lexus	RX330	03-04	T43 Z	34	6	40	1	1	2	0	
Volvo	850/S70/V70/C70	92-04	V877Z	1644	374	2018	294	89	383	1	Luxury
Volvo	200 Series	82-93	VO02Z	3847	762	4609	537	161	698	1	Luxury
Volvo	300 Series	84-88	VO03Z	231	30	261	48	16	64	1	Luxury
Volvo	700/900 Series	84-92	VO07Z	2287	457	2744	371	93	464	1	Luxury
Volvo	960/S90/V90	90-98	VO10Z	102	29	131	26	9	35	1	Luxury
Volvo	S80	98-04	VO11Z	65	8	73	3	2	5	0	
Volvo	S60	01-04	VO12Z	62	14	76	12	2	14	0	
Volvo	XC 90	03-04	VO13Z	9	1	10	0	0	0	0	
Volvo	S40/V50	04-04	VO14Z	3	1	4	0	0	0	0	
Volvo	S40/V40	97-04	VO40Z	496	115	611	72	18	90	1	Luxury
Volkswagen	Caravelle / Transporter	88-94	VS01A	384	67	451	44	13	57	1	Commercial - Van
Volkswagen	Caravelle / Transporter	95-04	VS01B	854	202	1056	123	32	155	1	Commercial - Van
Volkswagen	Golf	82-94	VS02A	229	43	272	65	18	83	1	Small
Volkswagen	Golf	95-98	VS02B	1038	220	1258	123	39	162	1	Small
Volkswagen	Golf / Bora	99-04	VS02C	1020	250	1270	175	36	211	1	Small
Volkswagen	Passat	95-97	VS04A	46	9	55	9	5	14	0	
Volkswagen	Passat	98-04	VS04B	222	47	269	49	10	59	1	Luxury
Volkswagen	Polo	96-00	VS08A	455	125	580	85	19	104	1	Light
Volkswagen	Polo	01-02	VS08B	44	13	57	18	3	21	0	
Volkswagen	New Beetle	00-04	VS10Z	114	21	135	20	4	24	1	Luxury
Volkswagen	Polo	02-03	VS11Z	31	9	40	7	0	7	0	
Volkswagen	LT	03-04	VS12Z	4	0	4	1	0	1	0	
Volkswagen	Touareg	03-04	VS13Z	5	0	5	1	2	3	0	
		Total		**1489068**	**373347**	**1862415**	**333419**	**94981**	**428400**	**385**	

APPENDIX 2

LOGISTIC REGRESSION ESTIMATES OF TOTAL SECONDARY SAFETY INJURY RISK BY MODEL AND MARKET GROUP

TOTAL SECONDARY SAFETY INJURY RISK RATINGS

New South Wales Data (1987-2004), Queensland and Western Australia Data (1991-2004)

Make	Model of Car	Years of Manufacture	Pr(Risk) %	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
ALL VEHICLE AVERAGE			17.38			
Compact Four Wheel Drive Vehicles			17.97	17.48	18.46	0.98
Daihatsu	Feroza / Rocky	89-97	19.13	16.96	21.51	4.55
Daihatsu	Rocky / Rugger	85-98	22.15	19.19	25.43	6.23
Daihatsu	Terios	97-04	21.42	18.11	25.15	7.04
Holden	Cruze	02-04	16.73	11.98	22.87	10.89
Kia	Sportage	98-03	18.31	14.80	22.44	7.65
Ford / Mazda	Escape / Tribute	01-04	13.61	10.15	18.01	7.86
Nissan	X-Trail	01-04	13.71	10.46	17.77	7.31
Lada	Niva	84-99	18.55	15.47	22.08	6.61
Honda	CR-V	97-01	14.59	12.87	16.50	3.63
Honda	CR-V	02-04	14.64	11.79	18.05	6.26
Honda	HR-V	99-02	16.07	12.76	20.06	7.30
Landrover	Freelander	98-04	17.81	12.63	24.54	11.91
Subaru	Forester	97-02	14.25	12.40	16.33	3.93
Subaru	Forester	02-04	14.87	11.16	19.54	8.37
Suzuki	Vitara / Escudo	88-98	19.79	18.56	21.09	2.53
Suzuki	Grand Vitara	99-04	15.11	10.74	20.84	10.11
Holden / Suzuki	Drover / Sierra / Samurai / SJ410 / SJ413	82-99	23.07	21.93	24.25	2.32
Toyota	RAV4	94-00	15.67	14.19	17.27	3.08
Toyota	RAV4	01-04	13.49	11.35	15.96	4.61
Medium Four Wheel Drive Vehicles			16.46	15.89	17.05	1.16
Daewoo / Ssangong	Musso	98-02	9.79	6.18	15.18	9.00
Holden / Isuzu	Jackaroo / Bighorn	82-91	22.67	20.13	25.43	5.30
Holden / Isuzu	Jackaroo / Bighorn	92-97	17.35	14.76	20.29	5.54
Holden / Isuzu	Jackaroo / Bighorn	98-02	18.19	15.06	21.82	6.76
Holden	Frontera / Mu	95-03	20.17	15.31	26.10	10.79
Hyundai	Santa Fe	00-04	17.12	12.41	23.14	10.74
Mitsubishi	Pajero	82-90	19.28	17.69	20.98	3.29
Mitsubishi	Pajero	92-99	15.84	14.67	17.10	2.43
Mitsubishi	Pajero NM / NP	00-04	12.78	9.94	16.29	6.35
Mitsubishi	Challenger	98-04	15.57	11.86	20.17	8.31
Jeep	Cherokee XJ	96-00	16.58	14.61	18.76	4.16
Jeep	Wrangler	96-04	20.99	15.66	27.53	11.87
Land Rover	Defender	92-04	16.17	12.77	20.26	7.49
Land Rover	Discovery	91-02	16.39	13.48	19.78	6.30
Nissan	Pathfinder / Terrano	88-94	18.77	15.75	22.23	6.48
Nissan	Pathfinder / Terrano	95-02	14.51	11.88	17.61	5.73
Toyota	Landcruiser Prado	96-03	13.26	8.81	19.47	10.65
Toyota	Landcruiser Prado	03-04	10.11	5.98	16.59	10.61

Make	Model of Car	Years of Manufacture	Pr(Risk) %	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Large Four Wheel Drive Vehicles			16.35	16.00	16.70	0.69
Ford	Bronco	82-87	21.93	16.14	29.07	12.94
Ford	Explorer	00-01	17.20	13.71	21.35	7.64
Jeep	Grand Cherokee	96-99	14.14	9.79	19.98	10.19
Jeep	Grand Cherokee	99-04	13.32	7.95	21.47	13.52
Mercedes Benz	M-Class W163	98-04	17.13	12.52	22.98	10.45
Nissan	Patrol / Safari	82-87	17.82	16.11	19.67	3.56
Nissan / Ford	Patrol / Maverick / Safari	88-97	15.92	15.13	16.74	1.61
Nissan	Patrol / Safari	98-04	16.33	14.78	18.00	3.21
Land Rover	Range Rover	82-94	17.14	14.94	19.58	4.63
Land Rover	Range Rover	95-02	16.15	10.72	23.60	12.88
Toyota	Landcruiser	82-89	19.11	18.30	19.95	1.64
Toyota	Landcruiser	90-97	17.13	16.43	17.86	1.42
Toyota	Landcruiser	98-04	15.68	14.56	16.88	2.32
Commercial Vehicles- Vans			18.97	18.55	19.40	0.85
Daihatsu	Handivan	82-90	27.68	24.87	30.68	5.81
Daihatsu	Hi-Jet	82-90	33.96	27.99	40.49	12.50
Daihatsu	Handivan / Cuore	99-03	20.98	15.78	27.35	11.56
Ford	Falcon Panel Van	82-95	17.81	16.70	18.97	2.27
Ford	Falcon Panel Van	96-99	16.05	13.30	19.25	5.96
Ford	Transit	95-00	17.15	14.94	19.61	4.67
Ford	Transit	01-04	11.45	7.81	16.50	8.69
Holden	Shuttle / WFR Van	82-87	22.59	19.53	25.97	6.44
Mercedes Benz	Vito	99-04	16.22	12.60	20.63	8.04
Mercedes Benz	Sprinter	98-04	18.03	13.75	23.28	9.52
Honda	Acty	83-86	15.61	12.56	19.25	6.69
Holden / Suzuki	Scurry / Carry	82-00	27.98	24.61	31.63	7.02
Toyota	Hiace/Liteace	82-86	22.12	20.96	23.32	2.36
Toyota	Hiace/Liteace	87-89	21.22	19.69	22.83	3.15
Toyota	Hiace/Liteace	90-95	20.34	19.26	21.47	2.21
Toyota	Hiace/Liteace	96-04	18.33	17.16	19.57	2.40
Volkswagen	Caravelle / Transporter	88-94	16.15	12.83	20.13	7.30
Volkswagen	Caravelle / Transporter	95-04	18.14	15.80	20.74	4.94
Commercial Vehicles- Utes			16.80	16.56	17.03	0.47
Ford / Nissan	Falcon Ute / XFN Ute	82-95	17.96	17.26	18.67	1.40
Ford	Falcon Ute	96-99	17.44	15.97	19.02	3.05
Ford	Falcon Ute AU	00-02	16.82	15.18	18.61	3.43
Ford	Falcon Ute BA	03-04	15.60	12.41	19.42	7.01
Ford	Ford F-Series	82-92	19.13	16.90	21.58	4.68
Holden	Commodore Ute VG/VP	90-93	16.97	15.36	18.71	3.35
Holden / Isuzu	Rodeo / Pickup	82-85	18.79	16.33	21.52	5.18
Holden / Isuzu	Rodeo / Pickup	86-88	19.51	16.37	23.08	6.71
Holden / Isuzu	Rodeo / Pickup	89-95	18.17	17.31	19.07	1.75
Holden	Rodeo	96-98	17.78	16.47	19.17	2.71
Holden	Rodeo	99-02	17.82	16.37	19.36	2.99

Make	Model of Car	Years of Manufacture	Pr(Risk) %	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Holden	WB Series	82-85	18.18	16.56	19.93	3.37
Holden	Commodore Ute VR/VS	94-00	16.72	15.90	17.58	1.68
Holden	Commodore VU Ute	00-02	14.92	13.14	16.89	3.75
Holden	Commodore VY/VZ Ute	02-04	17.20	14.66	20.07	5.40
Holden	Rodeo	03-04	13.17	10.47	16.44	5.97
Kia	Ceres	92-00	17.71	15.35	20.34	4.99
Ford / Mazda	Courier / B-Series / Bounty	98-02	15.74	13.87	17.81	3.95
Nissan	720 Ute	82-85	18.79	17.07	20.64	3.57
Nissan	Navara	86-91	16.83	15.76	17.96	2.20
Nissan	Navara	92-96	16.77	15.20	18.47	3.27
Nissan	Navara	97-04	17.07	14.89	19.50	4.61
Subaru	Brumby	82-92	19.73	18.12	21.44	3.32
Suzuki	Mighty Boy	85-88	28.56	25.18	32.20	7.02
Toyota	4Runner/Hilux	82-85	18.74	17.78	19.74	1.96
Toyota	4Runner/Hilux	86-88	18.24	17.21	19.33	2.12
Toyota	4Runner/Hilux	89-97	17.47	16.93	18.04	1.11
Toyota	Hilux	98-02	17.24	16.17	18.37	2.19
Toyota	Hilux	03-04	16.93	13.25	21.38	8.14
Large Cars			16.48	16.35	16.62	0.27
Ford	Falcon XE/XF	82-88	17.94	17.60	18.28	0.68
Ford	Falcon EA / Falcon EB Series I	88-Mar 92	17.29	16.92	17.66	0.73
Ford	Falcon EB Series II / Falcon ED	04 92-94	16.51	16.01	17.02	1.01
Ford	Falcon EF/EL	94-98	16.84	16.47	17.23	0.76
Ford	Falcon AU	98-02	16.91	16.35	17.48	1.12
Ford	Taurus	96-98	15.86	12.92	19.31	6.39
Ford	Falcon BA	02-04	16.41	14.98	17.95	2.97
Holden / Toyota	Commodore VN/VP / Lexcen	89-93	17.02	16.69	17.36	0.68
Holden / Toyota	Commodore VR/VS / Lexcen	93-97	16.44	16.08	16.81	0.72
Holden	Commodore VT/VX	97-02	17.09	16.65	17.54	0.89
Holden	Commodore VY/VZ	02-04	17.08	15.80	18.43	2.63
Holden	Commodore VB-VL	82-88	18.40	18.05	18.76	0.71
Hyundai	Sonata	98-01	16.06	13.84	18.55	4.71
Hyundai	Sonata	89-97	17.54	16.42	18.71	2.30
Hyundai	Grandeaur / XG	99-00	16.18	12.33	20.94	8.61
Mitsubishi	Magna TM/TN/TP / Sigma / V3000	85-90	18.22	17.77	18.68	0.92
Mitsubishi	Magna TE/TF/TH/TJ / Verada KE/KF/KH/KJ / Diamante	96-03	16.73	16.12	17.37	1.26
Mitsubishi	Magna TR/TS / Verada KR/KS / V3000 / Diamante	91-96	17.16	16.69	17.65	0.96
Nissan	Skyline	83-88	18.45	17.49	19.45	1.96
Holden / Toyota	Apollo JM/JP / Camry / Sceptor	93-97	17.48	17.02	17.95	0.93
Toyota	Camry	98-02	16.60	15.98	17.24	1.26
Toyota	Avalon	00-04	16.67	14.91	18.60	3.69
Toyota	Camry	02-04	15.47	13.37	17.83	4.46
Luxury Cars			15.23	15.00	15.48	0.48
Alfa Romeo	75	86-92	16.29	11.63	22.35	10.72
Audi	A4	95-01	13.66	10.79	17.15	6.36

Make	Model of Car	Years of Manufacture	Pr(Risk) %	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Audi	A4	01-04	14.97	11.66	19.01	7.34
BMW	3 Series E30	82-91	16.49	15.29	17.76	2.47
BMW	3 Series E36	92-98	15.72	14.71	16.79	2.08
BMW	3 Series E46	99-04	16.16	14.44	18.04	3.59
BMW	5 Series E28	82-88	15.46	13.23	17.98	4.75
BMW	5 Series E34	89-95	14.61	12.33	17.23	4.90
BMW	5 Series E39	96-03	12.63	10.35	15.32	4.97
BMW	7 Series E23	82-88	14.27	10.50	19.12	8.62
BMW	7 Series E32	89-94	15.04	10.70	20.74	10.04
Citroen	BX	86-94	6.38	2.88	13.52	10.63
Ford	Fairlane Z & LTD F	82-87	16.95	16.16	17.77	1.61
Ford	Fairlane N & LTD D	88-94	15.06	14.03	16.14	2.12
Ford	Fairlane N & LTD D	95-98	16.74	14.93	18.72	3.79
Ford	Fairlane & LTD AU	99-02	15.48	13.10	18.20	5.09
Holden	Statesman/C04ice WB	82-85	16.23	12.45	20.88	8.43
Holden	Stateman/C04ice VQ	90-93	15.45	13.40	17.74	4.34
Holden	Stateman/C04ice VR/VS	94-98	15.89	14.67	17.19	2.52
Holden	Statesman/C04ice WH	99-03	14.01	11.65	16.76	5.10
Jaguar	XJ6	82-86	19.09	15.01	23.96	8.95
Jaguar	XJ6	87-94	15.36	12.25	19.10	6.85
Mazda	929 / Luce	82-90	19.54	18.30	20.84	2.54
Mazda	929 / Sentia / Efini MS-9	92-96	15.28	11.23	20.46	9.23
Mazda	Eunos 500	93-99	20.56	15.95	26.09	10.14
Mercedes Benz	C-Class W201	87-93	15.87	13.29	18.83	5.54
Mercedes Benz	C-Class W202	95-00	12.47	10.76	14.42	3.66
Mercedes Benz	E-Class W123	82-85	14.72	11.66	18.43	6.77
Mercedes Benz	E-Class W124	86-94	15.59	13.67	17.72	4.05
Mercedes Benz	E-Class W210	96-02	14.25	11.82	17.08	5.26
Mercedes Benz	S-Class W126	82-92	14.69	12.47	17.24	4.77
Mercedes Benz	S-Class C140	93-98	9.84	6.27	15.10	8.83
Mercedes Benz	A-Class W168	98-04	17.09	12.68	22.63	9.94
Nissan	Maxima	90-94	17.28	14.89	19.97	5.09
Nissan	Maxima / Cefiro	95-99	17.27	15.16	19.62	4.46
Nissan	Maxima	00-02	17.82	13.86	22.61	8.76
Honda	Legend	86-95	15.59	13.38	18.10	4.73
Honda	Accord	82-85	19.71	18.20	21.30	3.10
Honda	Accord	86-90	16.58	15.19	18.08	2.89
Honda	Accord	91-93	13.97	12.35	15.77	3.42
Honda	Accord	94-98	15.93	14.67	17.28	2.60
Honda	Accord	99-02	16.50	13.64	19.82	6.18
Peugeot	405	89-97	14.91	12.30	17.96	5.66
Peugeot	505	82-93	12.87	10.71	15.39	4.69
Peugeot	406	96-04	7.28	4.48	11.62	7.14
Rover	3500	82-87	20.70	15.40	27.24	11.84
Saab	900 Series	82-92	16.78	14.61	19.20	4.59
Saab	900/9-3	94-02	14.07	12.18	16.21	4.03
Saab	9000	86-97	17.24	15.04	19.68	4.64
Toyota	Crown / Cressida / Mark II	82-85	18.53	17.09	20.07	2.98
Toyota	Crown / Cressida / Mark II	86-88	15.00	13.04	17.18	4.14
Toyota	Cressida / Mark II	89-93	14.85	13.53	16.26	2.73
Lexus	ES300 / Windom	92-01	16.29	13.40	19.66	6.26

Make	Model of Car	Years of Manufacture	Pr(Risk) %	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Lexus	LS400 / Celsior	90-00	16.12	11.65	21.88	10.23
Volvo	850/S70/V70/C70	92-04	15.90	14.30	17.63	3.32
Volvo	200 Series	82-93	14.52	13.42	15.68	2.26
Volvo	300 Series	84-88	12.79	8.90	18.05	9.15
Volvo	700/900 Series	84-92	15.39	13.97	16.93	2.96
Volvo	S40/V40	97-04	15.30	12.66	18.37	5.71
Volkswagen	Passat	98-04	13.43	9.89	17.99	8.11
Medium Cars			17.38	17.20	17.57	0.37
Daewoo	Espero	95-97	20.41	17.88	23.19	5.31
Daewoo	Leganza	97-04	17.48	14.76	20.58	5.82
Ford	Cortina	82-82	19.65	17.75	21.71	3.97
Ford	Mondeo	95-01	15.93	14.42	17.56	3.15
Holden	Camira	82-89	21.50	20.90	22.10	1.20
Holden	Vectra	97-03	16.10	14.82	17.48	2.66
Mitsubishi	Sigma / Galant / Sapporo / Lambda	82-84	18.87	18.25	19.51	1.25
Mitsubishi	Galant	95-96	18.12	16.33	20.06	3.73
Ford / Mazda	Telstar / 626 / MX6 / Capella	83-86	18.48	17.75	19.24	1.49
Ford / Mazda	Telstar / 626 / MX6 / Capella	88-91	17.43	16.47	18.43	1.96
Ford / Mazda	Telstar / 626 / MX6 / Capella / Cronos	92-97	14.73	13.85	15.65	1.79
Mazda	626	98-02	15.01	13.28	16.92	3.65
Nissan	Pintara	86-88	18.18	17.22	19.19	1.97
Nissan / Ford	Pintara / Corsair / Bluebird	89-92	18.48	17.74	19.24	1.51
Nissan	Bluebird	82-86	19.30	18.66	19.96	1.29
Nissan	Bluebird	93-97	14.76	13.14	16.55	3.41
Subaru	1800 / Leone / Omega / 4WD Wagon	82-93	19.02	18.14	19.93	1.79
Subaru	Liberty / Legacy	89-93	16.80	15.81	17.83	2.02
Subaru	Liberty / Legacy / Outback	94-98	15.82	14.45	17.29	2.84
Subaru	Liberty / Legacy / Outback	99-03	14.27	12.81	15.86	3.06
Toyota	Corona	82-88	18.95	18.43	19.47	1.04
Toyota	Camry	83-86	18.47	17.44	19.53	2.09
Holden / Toyota	Apollo JK/JL / Camry / Vista	88-92	17.90	17.48	18.33	0.85
People Movers			18.56	18.13	19.00	0.87
Chrysler	Voyager	97-04	18.27	14.98	22.09	7.11
Ford	Spectron	86-90	21.47	15.52	28.91	13.39
Mitsubishi	Nimbus / Chariot / Spacewagon	85-91	19.74	16.93	22.88	5.95
Mitsubishi	Nimbus / Chariot	92-98	16.81	14.46	19.46	5.00
Mitsubishi	Nimbus	99-03	10.37	7.29	14.53	7.24
Mitsubishi	Starwagon / L300	83-86	24.68	23.27	26.15	2.89
Mitsubishi	Starwagon / Delica Starwagon	87-93	21.37	20.26	22.52	2.26
Mitsubishi	Starwagon / Delica Spacegear	95-98	19.30	17.52	21.22	3.70
Mitsubishi	Starwagon / Delica Spacegear	98-04	18.65	15.86	21.81	5.96
Kia	Carnival	99-04	12.45	9.81	15.67	5.86
Mazda	MPV	94-99	14.91	11.63	18.92	7.28
Nissan	Prairie	84-86	20.38	16.95	24.30	7.35
Nissan	Serena	92-95	13.25	8.78	19.50	10.72

Make	Model of Car	Years of Manufacture	Pr(Risk) %	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Honda	Odyssey	95-00	15.25	12.62	18.32	5.70
Toyota	Tarago	83-89	21.03	20.03	22.08	2.05
Toyota	Tarago / Previa / Estima	91-99	14.64	13.51	15.84	2.33
Toyota	Tarago / Previa / Estima	00-04	14.61	11.53	18.34	6.80
Light Cars			19.35	19.14	19.55	0.40
Daihatsu	Charade	82-86	23.88	22.27	25.57	3.29
Daihatsu	Charade	88-92	20.28	19.45	21.13	1.69
Daihatsu	Charade	93-00	19.71	18.82	20.63	1.81
Daihatsu	Pyzar	97-01	15.72	12.41	19.71	7.29
Daihatsu	Sirion / Storia	98-04	17.85	15.93	19.96	4.03
Daihatsu	Mira	90-96	26.93	24.23	29.81	5.59
Daewoo	1.5i	94-95	20.61	17.68	23.87	6.19
Daewoo	Cielo	95-97	19.09	17.91	20.34	2.43
Daewoo	Lanos	97-03	18.87	17.75	20.05	2.30
Daewoo	Matiz	99-04	23.07	20.14	26.29	6.15
Ford	Festiva WD/WH/WF	94-01	20.18	19.51	20.86	1.35
Ford	Ka	99-04	18.70	15.01	23.04	8.03
Holden	Barina XC	01-04	18.02	15.66	20.64	4.99
Holden	Barina SB	95-00	19.28	18.39	20.20	1.81
Hyundai	Excel	86-90	22.19	20.98	23.46	2.48
Hyundai	Excel	90-94	19.87	19.18	20.56	1.38
Hyundai	Excel / Accent	95-00	19.89	19.39	20.40	1.01
Hyundai	Getz	02-04	18.43	15.27	22.08	6.81
Hyundai	Accent	00-04	17.92	16.71	19.19	2.48
Mitsubishi	Mirage / Colt	82-88	21.15	20.50	21.81	1.31
Kia	Rio	00-04	18.62	16.55	20.88	4.33
Ford / Mazda	Festiva WA / 121	87-90	20.96	20.07	21.88	1.81
Mazda	121 / Autozam Review	94-96	18.87	17.68	20.13	2.44
Mazda	121 Metro / Demio	97-02	17.41	16.01	18.91	2.90
Nissan	Micra	95-97	19.49	17.17	22.04	4.87
Honda	City	83-86	26.89	23.02	31.16	8.14
Peugoet	205	87-94	18.70	14.19	24.24	10.06
Peugeot	206	99-04	16.53	12.96	20.85	7.88
Subaru	Sherpa / Fiori / 700 / Rex	89-92	30.38	27.64	33.26	5.62
Suzuki	Swift	82-85	24.51	19.84	29.87	10.03
Holden / Suzuki	Barina / Swift / Cultus	86-88	23.88	22.73	25.07	2.34
Holden / Suzuki	Barina / Swift / Cultus	89-99	20.23	19.65	20.83	1.18
Suzuki	Hatch / Alto	82-84	30.76	28.24	33.41	5.16
Suzuki	Alto	85-00	29.00	23.61	35.07	11.46
Suzuki	Ignis	00-02	21.52	16.68	27.30	10.62
Toyota	Starlet	96-99	18.15	17.07	19.28	2.21
Toyota	Echo	99-04	16.13	14.91	17.44	2.54
Volkswagen	Polo	96-00	16.02	13.32	19.15	5.83
Small Cars			17.73	17.57	17.89	0.32
Alfa Romeo	33	83-92	15.90	13.23	18.99	5.75
Chrysler	Neon	96-99	15.97	13.28	19.09	5.82
Daihatsu	Applause	89-99	19.42	18.20	20.70	2.50

Make	Model of Car	Years of Manufacture	Pr(Risk) %	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Daewoo	Nubira	97-03	16.43	15.07	17.89	2.82
Ford	Laser	91-94	18.30	17.70	18.93	1.23
Ford	Laser	95-97	17.21	16.14	18.33	2.18
Ford	Escort	82-82	17.98	15.80	20.39	4.59
Ford	Focus	02-04	17.59	14.02	21.83	7.80
Fiat	Regata	84-88	14.62	10.93	19.29	8.36
Holden	Gemini	82-84	19.96	19.10	20.85	1.75
Holden	Gemini RB	86-87	22.54	20.32	24.92	4.61
Holden	Astra TR	96-98	16.05	14.07	18.24	4.17
Holden	Astra TS	98-04	15.07	14.16	16.03	1.87
Hyundai	Elantra	00-04	16.88	14.72	19.29	4.57
Hyundai	S Coupe	90-96	20.25	18.27	22.38	4.11
Hyundai	Lantra	91-95	18.81	17.39	20.31	2.92
Hyundai	Lantra	96-00	17.36	16.33	18.45	2.12
Mitsubishi	Lancer / Mirage CA	89-90	17.92	16.92	18.96	2.04
Mitsubishi	Lancer / Mirage CB	91-92	17.53	16.17	18.98	2.81
Mitsubishi	Lancer / Mirage CC	93-95	17.22	16.36	18.13	1.77
Mitsubishi	Lancer / Mirage CE	96-03	17.95	17.36	18.56	1.20
Mitsubishi	Cordia	83-87	21.65	19.87	23.54	3.67
Mitsubishi	Lancer CG	02-03	21.96	17.41	27.31	9.90
Mitsubishi	Lancer CH	03-04	17.55	12.74	23.69	10.95
Ford / Mazda	Laser / 323 / Familia	82-88	20.91	20.52	21.31	0.79
Mazda	323 / Familia / Lantis	90-93	17.85	16.73	19.03	2.31
Mazda	323 / Familia / Lantis	95-98	17.46	16.38	18.59	2.21
Ford / Mazda	Laser / 323	99-03	16.70	15.62	17.84	2.22
Mazda	3	03-04	16.31	11.59	22.46	10.87
Holden / Nissan	Astra / Pulsar / Langley	84-86	20.62	19.90	21.35	1.44
Holden / Nissan	Astra / Pulsar / Vector / Sentra	88-90	18.82	18.21	19.45	1.24
Nissan	Pulsar / Vector / Sentra	92-95	17.22	16.37	18.11	1.74
Nissan	Pulsar / Vector / Sentra	96-99	18.49	17.68	19.33	1.65
Nissan	Stanza	82-83	20.31	17.40	23.57	6.17
Nissan	Pulsar	00-04	16.76	15.64	17.94	2.30
Honda	Civic	82-83	18.72	16.31	21.39	5.08
Honda	Civic / Ballade / Shuttle	84-87	21.01	19.65	22.45	2.80
Honda	Civic / Shuttle	88-91	18.60	17.56	19.68	2.12
Honda	Civic	92-95	17.83	16.82	18.88	2.06
Honda	Civic	96-00	17.81	16.78	18.88	2.11
Honda	Civic	01-04	13.52	11.14	16.32	5.18
Honda	Concerto	89-93	15.94	13.29	18.99	5.70
Peugeot	306	94-01	14.53	12.62	16.67	4.04
Peugeot	307	01-04	12.73	8.63	18.39	9.76
Proton	Wira	95-96	18.72	16.72	20.91	4.18
Renault	19	91-96	20.68	16.22	25.99	9.76
Rover	Quintet	82-86	19.56	15.42	24.50	9.08
Subaru	Impreza	93-00	16.97	15.87	18.13	2.26
Subaru	Impreza	01-04	14.49	12.21	17.12	4.91
Suzuki	Baleno / Cultus Crescent	95-02	17.85	16.12	19.72	3.60
Toyota	Corolla	82-84	19.73	19.05	20.42	1.37
Toyota	Corolla	86-88	19.26	18.72	19.82	1.10
Toyota / Holden	Corolla / Nova	89-93	18.06	17.60	18.52	0.93
Toyota / Holden	Corolla / Nova	94-97	17.17	16.63	17.73	1.10

Make	Model of Car	Years of Manufacture	Pr(Risk) %	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Toyota	Corolla	98-01	16.11	15.23	17.02	1.79
Toyota	Corolla	02-04	16.52	15.20	17.93	2.73
Toyota	Tercel	83-88	20.44	17.39	23.88	6.50
Toyota	Corolla 4WD Wagon	92-96	15.70	12.24	19.93	7.70
Volkswagen	Golf	82-94	17.01	12.66	22.46	9.81
Volkswagen	Golf	95-98	14.93	12.98	17.12	4.14
Volkswagen	Golf / Bora	99-04	13.81	12.04	15.79	3.76
Sports Cars			17.59	17.21	17.97	0.77
Alfa Romeo	GTV	82-84	15.71	10.51	22.83	12.32
BMW	Z3 E36	97-03	15.95	11.36	21.93	10.58
Ford	C04i	89-94	21.43	19.59	23.40	3.81
Ford	Probe	94-98	20.51	15.52	26.60	11.07
Holden	Calibra	94-97	16.49	13.07	20.59	7.52
Holden	Monaro	01-04	23.55	19.02	28.77	9.76
Hyundai	Coupe	96-00	18.52	16.09	21.21	5.12
Mitsubishi	Starion	82-87	22.51	16.90	29.32	12.42
Mazda	RX7	82-85	18.81	15.86	22.16	6.31
Mazda	RX7	86-91	14.67	11.19	19.00	7.81
Mazda	MX5 / Eunos Roadster	89-97	19.91	17.03	23.15	6.12
Mazda	MX5 / Eunos Roadster	98-04	16.25	12.63	20.66	8.03
Mazda	Eunos 30X / Presso / MX-3 / Autozam AZ-3	90-97	17.06	13.92	20.74	6.82
Nissan	300ZX / Fairlady Z	90-95	19.55	16.35	23.20	6.85
Nissan	Gazelle / Silvia	84-86	19.55	16.16	23.46	7.30
Nissan	Exa	83-86	26.55	22.98	30.44	7.46
Nissan	Exa	87-91	16.23	12.64	20.60	7.96
Nissan	NX/NX-R	91-96	22.44	19.62	25.53	5.91
Nissan	200SX / Silvia	94-02	15.47	13.26	17.97	4.72
Honda	CRX	87-91	21.43	17.54	25.91	8.37
Honda	CRX	92-98	16.33	11.80	22.17	10.38
Honda	Prelude	82-82	17.37	13.21	22.51	9.31
Honda	Prelude	83-91	17.61	16.40	18.90	2.50
Honda	Prelude	92-96	15.87	14.05	17.87	3.83
Honda	Prelude	97-02	15.63	12.89	18.82	5.93
Honda	Integra	86-88	18.74	16.07	21.74	5.66
Honda	Integra	90-92	17.72	15.08	20.70	5.62
Honda	Integra	93-01	15.33	13.19	17.75	4.56
Renault	Feugo	82-87	15.84	12.36	20.09	7.73
Toyota	Celica	81-85	20.32	18.94	21.78	2.84
Toyota	Celica	86-89	18.16	16.72	19.69	2.97
Toyota	Celica	90-93	17.82	16.34	19.40	3.06
Toyota	Celica	94-99	19.16	17.15	21.34	4.18
Toyota	Celica	00-04	16.52	14.17	19.17	4.99
Toyota	Supra	82-90	23.05	19.68	26.81	7.12
Toyota	MR2	87-90	22.81	17.67	28.93	11.26
Toyota	MR2	91-00	17.92	12.79	24.54	11.75
Toyota	Paseo / Cynos	91-99	18.53	16.71	20.49	3.78

APPENDIX 3

LOGISTIC REGRESSION ESTIMATES OF TOTAL SECONDARY SAFETY INJURY SEVERITY BY MODEL AND MARKET GROUP

TOTAL SECONDARY SAFETY INJURY SEVERITY RATINGS

Victoria and New South Wales Data (1987-2004), Queensland, Western Australia and New Zealand Data (1991-2004)

Make	Model of Car	Years of Manufacture	Pr(Severity) %	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
ALL VEHICLE AVERAGE			22.18			
Compact Four Wheel Drive Vehicles			20.99	19.97	22.05	2.08
Daihatsu	Feroza / Rocky	89-97	22.28	17.75	27.57	9.83
Daihatsu	Rocky / Rugger	85-98	30.07	24.13	36.75	12.62
Daihatsu	Terios	97-04	18.29	13.09	24.97	11.87
Holden	Cruze	02-04	34.19	20.29	51.48	31.19
Kia	Sportage	98-03	18.78	12.25	27.69	15.44
Ford / Mazda	Escape / Tribute	01-04	13.49	7.64	22.72	15.08
Nissan	X-Trail	01-04	22.37	14.41	33.03	18.62
Lada	Niva	84-99	24.18	17.74	32.05	14.30
Honda	CR-V	97-01	17.18	13.53	21.57	8.04
Honda	CR-V	02-04	21.12	13.79	30.96	17.17
Honda	HR-V	99-02	33.84	23.97	45.36	21.38
Landrover	Freelander	98-04	37.59	24.07	53.37	29.30
Subaru	Forester	97-02	15.60	11.93	20.14	8.21
Subaru	Forester	02-04	20.98	12.44	33.16	20.72
Suzuki	Vitara / Escudo	88-98	23.01	20.37	25.87	5.50
Suzuki	Grand Vitara	99-04	15.98	9.34	25.98	16.63
Holden / Suzuki	Drover / Sierra / Samurai / SJ410 / SJ413	82-99	20.89	18.77	23.19	4.41
Toyota	RAV4	94-00	23.36	19.98	27.11	7.13
Toyota	RAV4	01-04	23.51	17.58	30.68	13.10
Medium Four Wheel Drive Vehicles			21.95	20.80	23.15	2.35
Daewoo / Ssangong	Musso	98-02	28.50	17.11	43.49	26.39
Holden / Isuzu	Jackaroo / Bighorn	82-91	17.77	14.26	21.92	7.66
Holden / Isuzu	Jackaroo / Bighorn	92-97	23.36	18.32	29.29	10.97
Holden / Isuzu	Jackaroo / Bighorn	98-02	24.26	17.16	33.11	15.95
Holden	Frontera / Mu	95-03	22.46	13.67	34.64	20.96
Hyundai	Santa Fe	00-04	23.12	13.16	37.39	24.23
Mitsubishi	Pajero	82-90	25.05	22.11	28.25	6.14
Mitsubishi	Pajero	92-99	23.77	20.91	26.88	5.98
Mitsubishi	Pajero NM / NP	00-04	19.46	11.94	30.11	18.17
Mitsubishi	Challenger	98-04	15.96	9.56	25.45	15.90
Jeep	Cherokee XJ	96-00	23.20	18.77	28.32	9.55
Jeep	Wrangler	96-04	24.14	15.94	34.82	18.88
Land Rover	Defender	92-04	22.53	15.47	31.59	16.12
Land Rover	Discovery	91-02	19.41	14.89	24.90	10.01
Nissan	Pathfinder / Terrano	88-94	21.45	17.98	25.37	7.39
Nissan	Pathfinder / Terrano	95-02	25.00	19.35	31.65	12.30
Toyota	Landcruiser Prado	96-03	29.65	16.31	47.69	31.39
Toyota	Landcruiser Prado	03-04	15.41	6.92	30.89	23.97

Make	Model of Car	Years of Manufacture	Pr(Severity) %	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Large Four Wheel Drive Vehicles			25.38	24.56	26.23	1.67
Ford	Bronco	82-87	24.24	14.79	37.10	22.31
Ford	Explorer	00-01	23.03	16.29	31.51	15.21
Jeep	Grand Cherokee	96-99	23.40	15.26	34.15	18.89
Jeep	Grand Cherokee	99-04	27.33	17.28	40.37	23.09
Mercedes Benz	M-Class W163	98-04	13.94	7.68	23.97	16.28
Nissan	Patrol / Safari	82-87	26.17	22.35	30.39	8.04
Nissan / Ford	Patrol / Maverick / Safari	88-97	24.19	22.26	26.24	3.98
Nissan	Patrol / Safari	98-04	26.61	23.09	30.45	7.36
Land Rover	Range Rover	82-94	23.03	18.50	28.29	9.80
Land Rover	Range Rover	95-02	21.30	12.49	33.92	21.43
Toyota	Landcruiser	82-89	28.54	26.65	30.51	3.87
Toyota	Landcruiser	90-97	27.43	25.70	29.22	3.52
Toyota	Landcruiser	98-04	24.47	21.84	27.30	5.47
Commercial Vehicles- Vans			22.40	21.56	23.27	1.71
Daihatsu	Handivan	82-90	25.49	20.73	30.91	10.19
Daihatsu	Hi-Jet	82-90	26.89	19.16	36.34	17.18
Daihatsu	Handivan / Cuore	99-03	19.17	10.00	33.59	23.58
Ford	Falcon Panel Van	82-95	21.78	19.20	24.59	5.39
Ford	Falcon Panel Van	96-99	19.00	12.79	27.29	14.50
Ford	Transit	95-00	21.32	16.13	27.63	11.50
Ford	Transit	01-04	15.19	7.55	28.21	20.65
Holden	Shuttle / WFR Van	82-87	21.76	16.30	28.44	12.14
Mercedes Benz	Vito	99-04	25.59	15.85	38.57	22.72
Mercedes Benz	Sprinter	98-04	18.78	10.90	30.41	19.51
Honda	Acty	83-86	19.47	12.99	28.13	15.14
Holden / Suzuki	Scurry / Carry	82-00	27.04	21.60	33.27	11.67
Toyota	Hiace/Liteace	82-86	25.55	23.57	27.64	4.07
Toyota	Hiace/Liteace	87-89	23.56	21.11	26.21	5.10
Toyota	Hiace/Liteace	90-95	23.04	21.04	25.17	4.12
Toyota	Hiace/Liteace	96-04	22.31	19.50	25.40	5.90
Volkswagen	Caravelle / Transporter	88-94	24.54	14.53	38.35	23.82
Volkswagen	Caravelle / Transporter	95-04	20.80	14.92	28.23	13.31
Commercial Vehicles- Utes			23.37	22.83	23.91	1.07
Ford / Nissan	Falcon Ute / XFN Ute	82-95	23.56	21.92	25.29	3.37
Ford	Falcon Ute	96-99	22.60	19.09	26.54	7.45
Ford	Falcon Ute AU	00-02	20.81	17.19	24.97	7.79
Ford	Falcon Ute BA	03-04	25.79	17.78	35.85	18.08
Ford	Ford F-Series	82-92	24.88	19.90	30.64	10.75
Holden	Commodore Ute VG/VP	90-93	22.41	18.72	26.58	7.86
Holden / Isuzu	Rodeo / Pickup	82-85	25.69	20.61	31.53	10.92
Holden / Isuzu	Rodeo / Pickup	86-88	16.40	10.67	24.38	13.71
Holden / Isuzu	Rodeo / Pickup	89-95	26.90	24.79	29.12	4.33
Holden	Rodeo	96-98	22.49	19.52	25.77	6.24
Holden	Rodeo	99-02	22.68	19.35	26.40	7.04

Make	Model of Car	Years of Manufacture	Pr(Severity) %	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Holden	WB Series	82-85	28.42	24.39	32.82	8.43
Holden	Commodore Ute VR/VS	94-00	24.91	22.76	27.19	4.43
Holden	Commodore VU Ute	00-02	31.99	26.37	38.20	11.83
Holden	Commodore VY/VZ Ute	02-04	26.36	19.94	33.98	14.04
Holden	Rodeo	03-04	19.86	12.85	29.41	16.57
Kia	Ceres	92-00	26.15	19.88	33.57	13.69
Ford / Mazda	Courier / B-Series / Bounty	98-02	23.92	19.11	29.52	10.41
Nissan	720 Ute	82-85	18.97	15.83	22.56	6.73
Nissan	Navara	86-91	24.12	21.79	26.61	4.83
Nissan	Navara	92-96	22.41	19.15	26.05	6.90
Nissan	Navara	97-04	23.23	18.68	28.51	9.82
Subaru	Brumby	82-92	27.74	24.24	31.54	7.30
Suzuki	Mighty Boy	85-88	23.84	18.30	30.45	12.15
Toyota	4Runner/Hilux	82-85	25.16	23.09	27.35	4.27
Toyota	4Runner/Hilux	86-88	24.61	22.56	26.78	4.22
Toyota	4Runner/Hilux	89-97	24.20	23.02	25.42	2.40
Toyota	Hilux	98-02	23.33	20.85	26.02	5.17
Toyota	Hilux	03-04	24.64	15.86	36.18	20.31
Large Cars			21.74	21.44	22.05	0.61
Ford	Falcon XE/XF	82-88	23.56	22.81	24.33	1.52
Ford	Falcon EA / Falcon EB Series I	88-Mar 92	22.60	21.76	23.47	1.71
Ford	Falcon EB Series II / Falcon ED	04 92-94	22.68	21.47	23.94	2.47
Ford	Falcon EF/EL	94-98	21.59	20.70	22.51	1.81
Ford	Falcon AU	98-02	20.71	19.44	22.05	2.61
Ford	Taurus	96-98	22.30	15.56	30.89	15.33
Ford	Falcon BA	02-04	21.70	18.28	25.54	7.26
Holden / Toyota	Commodore VN/VP / Lexcen	89-93	23.16	22.37	23.97	1.60
Holden / Toyota	Commodore VR/VS / Lexcen	93-97	21.66	20.78	22.56	1.78
Holden	Commodore VT/VX	97-02	21.08	20.02	22.18	2.17
Holden	Commodore VY/VZ	02-04	19.80	16.83	23.15	6.33
Holden	Commodore VB-VL	82-88	24.19	23.39	25.02	1.63
Hyundai	Sonata	98-01	18.72	13.22	25.83	12.60
Hyundai	Sonata	89-97	22.25	19.55	25.22	5.67
Hyundai	Grandeaur / XG	99-00	18.65	9.25	34.01	24.76
Mitsubishi	Magna TM/TN/TP / Sigma / V3000	85-90	23.46	22.43	24.51	2.08
Mitsubishi	Magna TE/TF/TH/TJ / Verada KE/KF/KH/KJ / Diamante	96-03	20.72	19.25	22.28	3.02
Mitsubishi	Magna TR/TS / Verada KR/KS / V3000 / Diamante	91-96	21.28	20.19	22.42	2.23
Nissan	Skyline	83-88	22.33	20.42	24.36	3.94
Holden / Toyota	Apollo JM/JP / Camry / Sceptor	93-97	22.31	21.15	23.52	2.36
Toyota	Camry	98-02	22.40	20.71	24.18	3.47
Toyota	Avalon	00-04	22.51	17.97	27.81	9.84
Toyota	Camry	02-04	18.63	13.18	25.69	12.51
Luxury Cars			21.20	20.65	21.77	1.11
Alfa Romeo	75	86-92	24.69	12.74	42.40	29.66
Audi	A4	95-01	22.21	15.34	31.03	15.69

Make	Model of Car	Years of Manufacture	Pr(Severity) %	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Audi	A4	01-04	19.33	10.83	32.10	21.27
BMW	3 Series E30	82-91	21.50	18.88	24.37	5.50
BMW	3 Series E36	92-98	21.98	19.32	24.89	5.57
BMW	3 Series E46	99-04	18.38	14.24	23.39	9.15
BMW	5 Series E28	82-88	23.14	17.77	29.54	11.77
BMW	5 Series E34	89-95	24.64	19.39	30.76	11.38
BMW	5 Series E39	96-03	18.34	12.37	26.32	13.95
BMW	7 Series E23	82-88	16.89	9.40	28.48	19.08
BMW	7 Series E32	89-94	23.05	14.45	34.70	20.25
Citroen	BX	86-94	14.21	7.81	24.47	16.66
Ford	Fairlane Z & LTD F	82-87	23.15	21.26	25.15	3.89
Ford	Fairlane N & LTD D	88-94	22.93	20.58	25.45	4.87
Ford	Fairlane N & LTD D	95-98	23.25	19.33	27.70	8.37
Ford	Fairlane & LTD AU	99-02	21.36	15.05	29.41	14.36
Holden	Statesman/C04ice WB	82-85	38.63	27.71	50.82	23.11
Holden	Stateman/C04ice VQ	90-93	27.82	22.49	33.86	11.37
Holden	Stateman/C04ice VR/VS	94-98	24.27	21.16	27.68	6.52
Holden	Statesman/C04ice WH	99-03	19.19	13.54	26.48	12.94
Jaguar	XJ6	82-86	31.22	22.33	41.75	19.42
Jaguar	XJ6	87-94	18.58	12.08	27.48	15.40
Mazda	929 / Luce	82-90	21.96	19.61	24.50	4.90
Mazda	929 / Sentia / Efini MS-9	92-96	27.49	17.45	40.47	23.02
Mazda	Eunos 500	93-99	20.30	11.98	32.27	20.29
Mercedes Benz	C-Class W201	87-93	23.10	17.47	29.88	12.40
Mercedes Benz	C-Class W202	95-00	20.49	15.62	26.40	10.78
Mercedes Benz	E-Class W123	82-85	20.33	12.85	30.63	17.78
Mercedes Benz	E-Class W124	86-94	22.68	17.87	28.35	10.48
Mercedes Benz	E-Class W210	96-02	21.25	15.18	28.93	13.75
Mercedes Benz	S-Class W126	82-92	22.28	16.34	29.61	13.27
Mercedes Benz	S-Class C140	93-98	17.65	8.75	32.40	23.65
Mercedes Benz	A-Class W168	98-04	21.08	10.65	37.43	26.77
Nissan	Maxima	90-94	20.77	16.89	25.27	8.39
Nissan	Maxima / Cefiro	95-99	17.85	14.16	22.26	8.10
Nissan	Maxima	00-02	20.39	13.03	30.45	17.41
Honda	Legend	86-95	21.19	16.69	26.53	9.84
Honda	Accord	82-85	22.52	20.38	24.81	4.43
Honda	Accord	86-90	22.35	20.09	24.79	4.70
Honda	Accord	91-93	19.90	16.45	23.87	7.43
Honda	Accord	94-98	20.55	17.62	23.83	6.21
Honda	Accord	99-02	16.75	10.95	24.76	13.81
Peugeot	405	89-97	21.61	16.85	27.28	10.42
Peugeot	505	82-93	21.95	16.53	28.54	12.01
Peugeot	406	96-04	24.58	14.66	38.21	23.55
Rover	3500	82-87	16.72	8.84	29.35	20.51
Saab	900 Series	82-92	19.88	15.30	25.41	10.11
Saab	900/9-3	94-02	20.46	15.29	26.83	11.54
Saab	9000	86-97	14.13	10.06	19.48	9.42
Toyota	Crown / Cressida / Mark II	82-85	25.20	22.23	28.41	6.19
Toyota	Crown / Cressida / Mark II	86-88	27.66	22.03	34.11	12.08
Toyota	Cressida / Mark II	89-93	20.67	17.30	24.49	7.19
Lexus	ES300 / Windom	92-01	21.41	15.48	28.83	13.34

Make	Model of Car	Years of Manufacture	Pr(Severity) %	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Lexus	LS400 / Celsior	90-00	24.81	14.53	39.05	24.52
Volvo	850/S70/V70/C70	92-04	24.07	19.82	28.91	9.09
Volvo	200 Series	82-93	21.74	18.77	25.03	6.26
Volvo	300 Series	84-88	27.36	17.33	40.36	23.03
Volvo	700/900 Series	84-92	20.08	16.56	24.13	7.58
Volvo	S40/V40	97-04	21.14	13.60	31.36	17.76
Volkswagen	Passat	98-04	18.60	10.22	31.44	21.22
Medium Cars			21.32	20.93	21.71	0.78
Daewoo	Espero	95-97	23.83	18.32	30.37	12.05
Daewoo	Leganza	97-04	24.12	17.16	32.79	15.62
Ford	Cortina	82-82	23.45	20.37	26.84	6.48
Ford	Mondeo	95-01	19.16	16.01	22.76	6.75
Holden	Camira	82-89	22.77	21.63	23.96	2.33
Holden	Vectra	97-03	19.00	16.16	22.19	6.03
Mitsubishi	Sigma / Galant / Sapporo / Lambda	82-84	22.63	21.38	23.93	2.55
Mitsubishi	Galant	95-96	21.36	18.01	25.13	7.12
Ford / Mazda	Telstar / 626 / MX6 / Capella	83-86	21.35	20.06	22.70	2.64
Ford / Mazda	Telstar / 626 / MX6 / Capella	88-91	22.08	20.37	23.90	3.53
Ford / Mazda	Telstar / 626 / MX6 / Capella / Cronos	92-97	22.40	20.43	24.50	4.07
Mazda	626	98-02	25.11	20.72	30.08	9.36
Nissan	Pintara	86-88	22.99	20.85	25.27	4.42
Nissan / Ford	Pintara / Corsair / Bluebird	89-92	23.43	21.80	25.13	3.33
Nissan	Bluebird	82-86	23.57	22.26	24.93	2.67
Nissan	Bluebird	93-97	20.55	17.56	23.91	6.35
Subaru	1800 / Leone / Omega / 4WD Wagon	82-93	21.76	20.08	23.54	3.46
Subaru	Liberty / Legacy	89-93	21.48	19.56	23.53	3.97
Subaru	Liberty / Legacy / Outback	94-98	21.99	18.69	25.69	7.00
Subaru	Liberty / Legacy / Outback	99-03	20.73	16.62	25.55	8.93
Toyota	Corona	82-88	22.86	21.68	24.08	2.41
Toyota	Camry	83-86	22.23	19.88	24.77	4.89
Holden / Toyota	Apollo JK/JL / Camry / Vista	88-92	21.83	20.84	22.85	2.01
People Movers			22.28	21.37	23.23	1.86
Chrysler	Voyager	97-04	18.58	11.25	29.11	17.86
Ford	Spectron	86-90	21.15	10.88	37.07	26.19
Mitsubishi	Nimbus / Chariot / Spacewagon	85-91	20.82	16.59	25.79	9.20
Mitsubishi	Nimbus / Chariot	92-98	18.60	13.71	24.74	11.03
Mitsubishi	Nimbus	99-03	13.74	5.11	32.04	26.94
Mitsubishi	Starwagon / L300	83-86	26.35	23.89	28.98	5.09
Mitsubishi	Starwagon / Delica Starwagon	87-93	22.95	20.96	25.07	4.11
Mitsubishi	Starwagon / Delica Spacegear	95-98	19.69	15.99	24.01	8.02
Mitsubishi	Starwagon / Delica Spacegear	98-04	25.69	19.13	33.57	14.44
Kia	Carnival	99-04	18.82	11.58	29.08	17.50
Mazda	MPV	94-99	16.92	8.79	30.09	21.31
Nissan	Prairie	84-86	24.86	18.84	32.04	13.20
Nissan	Serena	92-95	20.22	12.56	30.90	18.34

Make	Model of Car	Years of Manufacture	Pr(Severity) %	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Honda	Odyssey	95-00	21.23	14.00	30.85	16.85
Toyota	Tarago	83-89	24.70	22.49	27.06	4.58
Toyota	Tarago / Previa / Estima	91-99	21.86	18.73	25.35	6.61
Toyota	Tarago / Previa / Estima	00-04	21.50	12.64	34.15	21.51
Light Cars			22.05	21.61	22.50	0.89
Daihatsu	Charade	82-86	25.89	23.13	28.85	5.72
Daihatsu	Charade	88-92	23.76	21.81	25.83	4.03
Daihatsu	Charade	93-00	24.28	21.89	26.83	4.93
Daihatsu	Pyzar	97-01	21.67	12.99	33.90	20.91
Daihatsu	Sirion / Storia	98-04	21.62	16.55	27.74	11.20
Daihatsu	Mira	90-96	27.82	23.30	32.85	9.55
Daewoo	1.5i	94-95	16.50	10.05	25.90	15.85
Daewoo	Cielo	95-97	19.45	16.90	22.27	5.37
Daewoo	Lanos	97-03	23.21	20.53	26.13	5.59
Daewoo	Matiz	99-04	15.82	11.11	22.04	10.93
Ford	Festiva WD/WH/WF	94-01	23.33	21.78	24.95	3.18
Ford	Ka	99-04	21.29	13.97	31.05	17.08
Holden	Barina XC	01-04	18.63	13.75	24.74	10.99
Holden	Barina SB	95-00	21.79	19.62	24.12	4.50
Hyundai	Excel	86-90	24.20	21.86	26.70	4.84
Hyundai	Excel	90-94	22.60	21.02	24.27	3.26
Hyundai	Excel / Accent	95-00	22.19	21.02	23.41	2.40
Hyundai	Getz	02-04	39.34	29.00	50.73	21.73
Hyundai	Accent	00-04	21.79	18.61	25.34	6.73
Mitsubishi	Mirage / Colt	82-88	23.14	21.81	24.52	2.70
Kia	Rio	00-04	23.69	18.59	29.68	11.09
Ford / Mazda	Festiva WA / 121	87-90	22.84	20.94	24.86	3.92
Mazda	121 / Autozam Review	94-96	19.78	17.04	22.84	5.80
Mazda	121 Metro / Demio	97-02	18.26	15.07	21.95	6.88
Nissan	Micra	95-97	27.41	21.58	34.12	12.54
Honda	City	83-86	22.24	19.16	25.66	6.50
Peugoet	205	87-94	20.42	12.69	31.17	18.47
Peugeot	206	99-04	32.78	20.79	47.53	26.74
Subaru	Sherpa / Fiori / 700 / Rex	89-92	22.48	18.55	26.97	8.42
Suzuki	Swift	82-85	27.51	18.90	38.20	19.30
Holden / Suzuki	Barina / Swift / Cultus	86-88	23.72	21.64	25.94	4.30
Holden / Suzuki	Barina / Swift / Cultus	89-99	23.17	21.80	24.59	2.79
Suzuki	Hatch / Alto	82-84	25.55	21.53	30.04	8.51
Suzuki	Alto	85-00	25.91	20.10	32.73	12.63
Suzuki	Ignis	00-02	16.55	9.17	28.04	18.86
Toyota	Starlet	96-99	22.92	20.19	25.91	5.73
Toyota	Echo	99-04	22.81	19.51	26.49	6.98
Volkswagen	Polo	96-00	17.59	11.33	26.28	14.95
Small Cars			21.27	20.93	21.60	0.67
Alfa Romeo	33	83-92	25.18	19.24	32.23	12.99
Chrysler	Neon	96-99	14.02	8.59	22.04	13.45
Daihatsu	Applause	89-99	20.69	17.90	23.78	5.88

Make	Model of Car	Years of Manufacture	Pr(Severity) %	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Daewoo	Nubira	97-03	20.84	17.44	24.70	7.27
Ford	Laser	91-94	21.72	20.40	23.11	2.71
Ford	Laser	95-97	23.84	21.19	26.70	5.51
Ford	Escort	82-82	14.26	8.61	22.69	14.07
Ford	Focus	02-04	21.89	14.29	32.02	17.73
Fiat	Regata	84-88	29.51	19.17	42.51	23.34
Holden	Gemini	82-84	22.79	21.03	24.65	3.62
Holden	Gemini RB	86-87	21.91	17.94	26.48	8.54
Holden	Astra TR	96-98	19.25	14.93	24.46	9.53
Holden	Astra TS	98-04	20.31	17.83	23.04	5.22
Hyundai	Elantra	00-04	23.45	17.20	31.10	13.90
Hyundai	S Coupe	90-96	20.63	16.48	25.51	9.04
Hyundai	Lantra	91-95	22.24	18.77	26.14	7.37
Hyundai	Lantra	96-00	21.83	19.16	24.77	5.61
Mitsubishi	Lancer / Mirage CA	89-90	21.46	19.53	23.53	4.00
Mitsubishi	Lancer / Mirage CB	91-92	21.38	17.98	25.23	7.25
Mitsubishi	Lancer / Mirage CC	93-95	21.94	19.97	24.04	4.06
Mitsubishi	Lancer / Mirage CE	96-03	21.69	20.16	23.30	3.14
Mitsubishi	Cordia	83-87	25.29	22.54	28.25	5.71
Mitsubishi	Lancer CG	02-03	14.44	7.52	25.92	18.40
Mitsubishi	Lancer CH	03-04	40.03	23.41	59.31	35.91
Ford / Mazda	Laser / 323 / Familia	82-88	22.32	21.58	23.08	1.50
Mazda	323 / Familia / Lantis	90-93	19.96	18.13	21.93	3.80
Mazda	323 / Familia / Lantis	95-98	21.79	19.11	24.73	5.62
Ford / Mazda	Laser / 323	99-03	20.41	17.70	23.41	5.71
Mazda	3	03-04	6.70	1.65	23.57	21.92
Holden / Nissan	Astra / Pulsar / Langley	84-86	24.48	23.05	25.98	2.93
Holden / Nissan	Astra / Pulsar / Vector / Sentra	88-90	23.49	22.11	24.94	2.83
Nissan	Pulsar / Vector / Sentra	92-95	21.34	19.52	23.28	3.76
Nissan	Pulsar / Vector / Sentra	96-99	21.63	19.65	23.75	4.10
Nissan	Stanza	82-83	24.17	18.09	31.51	13.43
Nissan	Pulsar	00-04	25.33	21.94	29.05	7.10
Honda	Civic	82-83	23.25	19.95	26.91	6.96
Honda	Civic / Ballade / Shuttle	84-87	24.52	22.35	26.84	4.48
Honda	Civic / Shuttle	88-91	22.09	20.14	24.17	4.03
Honda	Civic	92-95	21.59	19.49	23.86	4.37
Honda	Civic	96-00	17.73	15.34	20.39	5.05
Honda	Civic	01-04	21.41	14.90	29.78	14.88
Honda	Concerto	89-93	25.64	20.59	31.43	10.84
Peugeot	306	94-01	16.35	12.39	21.27	8.88
Peugeot	307	01-04	14.03	5.75	30.40	24.65
Proton	Wira	95-96	23.85	19.05	29.43	10.39
Renault	19	91-96	17.48	10.33	28.04	17.71
Rover	Quintet	82-86	19.07	12.48	28.03	15.55
Subaru	Impreza	93-00	26.20	23.31	29.31	6.00
Subaru	Impreza	01-04	17.30	11.34	25.49	14.15
Suzuki	Baleno / Cultus Crescent	95-02	17.59	13.48	22.62	9.13
Toyota	Corolla	82-84	21.21	19.92	22.57	2.64
Toyota	Corolla	86-88	22.77	21.58	24.01	2.43
Toyota / Holden	Corolla / Nova	89-93	22.47	21.44	23.55	2.11
Toyota / Holden	Corolla / Nova	94-97	21.28	19.94	22.67	2.73

Make	Model of Car	Years of Manufacture	Pr(Severity) %	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Toyota	Corolla	98-01	20.24	17.90	22.80	4.90
Toyota	Corolla	02-04	21.28	17.84	25.19	7.35
Toyota	Tercel	83-88	23.13	17.02	30.62	13.60
Toyota	Corolla 4WD Wagon	92-96	30.43	19.73	43.77	24.03
Volkswagen	Golf	82-94	29.70	19.72	42.09	22.37
Volkswagen	Golf	95-98	24.12	17.88	31.70	13.82
Volkswagen	Golf / Bora	99-04	18.24	13.35	24.43	11.08
Sports Cars			22.42	21.67	23.20	1.53
Alfa Romeo	GTV	82-84	54.19	36.73	70.69	33.96
BMW	Z3 E36	97-03	29.68	18.14	44.56	26.42
Ford	C04i	89-94	19.98	16.56	23.91	7.35
Ford	Probe	94-98	25.18	15.30	38.54	23.24
Holden	Calibra	94-97	22.02	15.99	29.53	13.54
Holden	Monaro	01-04	32.69	22.57	44.74	22.17
Hyundai	Coupe	96-00	26.90	20.86	33.93	13.07
Mitsubishi	Starion	82-87	34.63	25.75	44.73	18.97
Mazda	RX7	82-85	28.02	22.04	34.89	12.86
Mazda	RX7	86-91	20.68	14.80	28.12	13.33
Mazda	MX5 / Eunos Roadster	89-97	21.15	15.18	28.68	13.50
Mazda	MX5 / Eunos Roadster	98-04	11.38	4.75	24.85	20.10
Mazda	Eunos 30X / Presso / MX-3 / Autozam AZ-3	90-97	18.29	11.53	27.77	16.25
Nissan	300ZX / Fairlady Z	90-95	23.09	17.39	29.98	12.58
Nissan	Gazelle / Silvia	84-86	27.24	23.55	31.27	7.72
Nissan	Exa	83-86	28.89	22.76	35.91	13.16
Nissan	Exa	87-91	30.82	22.10	41.16	19.07
Nissan	NX/NX-R	91-96	28.47	22.74	34.99	12.25
Nissan	200SX / Silvia	94-02	23.80	17.87	30.95	13.07
Honda	CRX	87-91	25.68	21.51	30.35	8.85
Honda	CRX	92-98	28.34	19.39	39.41	20.01
Honda	Prelude	82-82	17.83	9.78	30.27	20.49
Honda	Prelude	83-91	22.76	20.81	24.83	4.02
Honda	Prelude	92-96	24.89	20.76	29.54	8.78
Honda	Prelude	97-02	17.38	11.45	25.50	14.04
Honda	Integra	86-88	21.59	18.09	25.55	7.46
Honda	Integra	90-92	20.38	16.05	25.53	9.47
Honda	Integra	93-01	19.37	14.89	24.82	9.94
Renault	Feugo	82-87	16.63	10.78	24.76	13.98
Toyota	Celica	81-85	20.20	17.70	22.96	5.27
Toyota	Celica	86-89	23.20	19.99	26.76	6.77
Toyota	Celica	90-93	24.07	20.72	27.76	7.04
Toyota	Celica	94-99	22.54	18.02	27.81	9.79
Toyota	Celica	00-04	23.66	16.28	33.06	16.78
Toyota	Supra	82-90	26.86	20.55	34.26	13.71
Toyota	MR2	87-90	26.34	20.15	33.65	13.50
Toyota	MR2	91-00	24.38	16.70	34.15	17.45
Toyota	Paseo / Cynos	91-99	23.08	18.92	27.84	8.92

APPENDIX 4

TOTAL SECONDARY SAFETY INDEX OF 1982-2004 MODELS OF CARS INVOLVED IN CRASHES DURING 1987-2004 with (1) 95 % CONFIDENCE LIMITS (2) 90 % CONFIDENCE LIMITS

TOTAL SECONDARY SAFETY INDEX

(WITH 95% CONFIDENCE LIMITS)

Victoria and New South Wales Data (1987-2004), Queensland, Western Australia and New Zealand Data (1991-2004)

Make	Model of Car	Years of Manufacture	Serious injury rate per 100 road users involved	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
ALL VEHICLE AVERAGE			3.85			
Compact Four Wheel Drive Vehicles			3.77	3.56	3.99	0.43
Daihatsu	Feroza / Rocky	89-97	4.26	3.32	5.48	2.16
Daihatsu	Rocky / Rugger	85-98	6.66	5.17	8.58	3.41
Daihatsu	Terios	97-04	3.92	2.73	5.63	2.91
Holden	Cruze	02-04	5.72	3.23	10.12	6.89
Kia	Sportage	98-03	3.44	2.17	5.45	3.27
Ford / Mazda	Escape / Tribute	01-04	1.84	0.99	3.41	2.42
Nissan	X-Trail	01-04	3.07	1.87	5.03	3.16
Lada	Niva	84-99	4.49	3.17	6.34	3.17
Honda	CR-V	97-01	2.51	1.92	3.26	1.34
Honda	CR-V	02-04	3.09	1.95	4.89	2.94
Honda	HR-V	99-02	5.44	3.68	8.05	4.38
Landrover	Freelander	98-04	6.70	3.98	11.28	7.30
Subaru	Forester	97-02	2.22	1.65	2.99	1.34
Subaru	Forester	02-04	3.12	1.77	5.51	3.74
Suzuki	Vitara / Escudo	88-98	4.55	3.98	5.22	1.24
Suzuki	Grand Vitara	99-04	2.41	1.31	4.46	3.15
Holden / Suzuki	Drover / Sierra / Samurai / SJ410 / SJ413	82-99	4.82	4.29	5.42	1.13
Toyota	RAV4	94-00	3.66	3.05	4.39	1.34
Toyota	RAV4	01-04	3.17	2.29	4.40	2.11
Medium Four Wheel Drive Vehicles			3.61	3.39	3.85	0.46
Daewoo / Ssangong	Musso	98-02	2.79	1.45	5.36	3.90
Holden / Isuzu	Jackaroo / Bighorn	82-91	4.03	3.15	5.15	1.99
Holden / Isuzu	Jackaroo / Bighorn	92-97	4.05	3.05	5.38	2.33
Holden / Isuzu	Jackaroo / Bighorn	98-02	4.41	3.02	6.44	3.42
Holden	Frontera / Mu	95-03	4.53	2.64	7.77	5.13
Hyundai	Santa Fe	00-04	3.96	2.14	7.30	5.16
Mitsubishi	Pajero	82-90	4.83	4.16	5.61	1.45
Mitsubishi	Pajero	92-99	3.77	3.25	4.36	1.11
Mitsubishi	Pajero NM / NP	00-04	2.49	1.47	4.21	2.75
Mitsubishi	Challenger	98-04	2.49	1.42	4.35	2.93
Jeep	Cherokee XJ	96-00	3.85	3.02	4.90	1.87
Jeep	Wrangler	96-04	5.07	3.12	8.22	5.10
Land Rover	Defender	92-04	3.64	2.38	5.58	3.20

Make	Model of Car	Years of Manufacture	Serious injury rate per 100 road users involved	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Land Rover	Discovery	91-02	3.18	2.31	4.39	2.08
Nissan	Pathfinder / Terrano	88-94	4.03	3.15	5.14	1.98
Nissan	Pathfinder / Terrano	95-02	3.63	2.65	4.97	2.33
Toyota	Landcruiser Prado	96-03	3.93	2.01	7.70	5.70
Toyota	Landcruiser Prado	03-04	1.56	0.62	3.89	3.27
Large Four Wheel Drive Vehicles			4.15	3.99	4.32	0.32
Ford	Bronco	82-87	5.32	3.07	9.21	6.14
Ford	Explorer	00-01	3.96	2.66	5.90	3.24
Jeep	Grand Cherokee	96-99	3.31	1.93	5.68	3.75
Jeep	Grand Cherokee	99-04	3.64	1.89	7.02	5.14
Mercedes Benz	M-Class W163	98-04	2.39	1.25	4.57	3.32
Nissan	Patrol / Safari	82-87	4.66	3.88	5.60	1.72
Nissan / Ford	Patrol / Maverick / Safari	88-97	3.85	3.50	4.24	0.75
Nissan	Patrol / Safari	98-04	4.34	3.67	5.15	1.48
Land Rover	Range Rover	82-94	3.95	3.07	5.08	2.01
Land Rover	Range Rover	95-02	3.44	1.81	6.53	4.72
Toyota	Landcruiser	82-89	5.45	5.03	5.91	0.88
Toyota	Landcruiser	90-97	4.70	4.35	5.07	0.72
Toyota	Landcruiser	98-04	3.84	3.36	4.39	1.03
Commercial Vehicles- Vans			4.25	4.07	4.44	0.38
Daihatsu	Handivan	82-90	7.06	5.63	8.85	3.22
Daihatsu	Hi-Jet	82-90	9.13	6.30	13.23	6.93
Daihatsu	Handivan / Cuore	99-03	4.02	2.06	7.87	5.82
Ford	Falcon Panel Van	82-95	3.88	3.37	4.46	1.08
Ford	Falcon Panel Van	96-99	3.05	2.00	4.66	2.66
Ford	Transit	95-00	3.66	2.70	4.95	2.24
Ford	Transit	01-04	1.74	0.81	3.74	2.93
Holden	Shuttle / WFR Van	82-87	4.92	3.59	6.73	3.13
Mercedes Benz	Vito	99-04	4.15	2.49	6.92	4.43
Mercedes Benz	Sprinter	98-04	3.39	1.89	6.05	4.15
Honda	Acty	83-86	3.04	1.95	4.73	2.78
Holden / Suzuki	Scurry / Carry	82-00	7.57	5.89	9.72	3.83
Toyota	Hiace/Liteace	82-86	5.65	5.13	6.22	1.08
Toyota	Hiace/Liteace	87-89	5.00	4.38	5.70	1.32
Toyota	Hiace/Liteace	90-95	4.69	4.22	5.20	0.98
Toyota	Hiace/Liteace	96-04	4.09	3.53	4.74	1.21
Volkswagen	Caravelle / Transporter	88-94	3.96	2.31	6.79	4.48
Volkswagen	Caravelle / Transporter	95-04	3.77	2.67	5.34	2.68
Commercial Vehicles- Utes			3.92	3.82	4.03	0.21
Ford / Nissan	Falcon Ute / XFN Ute	82-95	4.23	3.90	4.59	0.69
Ford	Falcon Ute	96-99	3.94	3.27	4.75	1.48
Ford	Falcon Ute AU	00-02	3.50	2.83	4.33	1.50
Ford	Falcon Ute BA	03-04	4.02	2.65	6.11	3.46

Make	Model of Car	Years of Manufacture	Serious injury rate per 100 road users involved	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Ford	Ford F-Series	82-92	4.76	3.71	6.10	2.39
Holden	Commodore Ute VG/VP	90-93	3.80	3.11	4.65	1.54
Holden / Isuzu	Rodeo / Pickup	82-85	4.83	3.75	6.22	2.48
Holden / Isuzu	Rodeo / Pickup	86-88	3.20	2.04	5.02	2.97
Holden / Isuzu	Rodeo / Pickup	89-95	4.89	4.45	5.37	0.92
Holden	Rodeo	96-98	4.00	3.41	4.68	1.27
Holden	Rodeo	99-02	4.04	3.39	4.82	1.43
Holden	WB Series	82-85	5.17	4.34	6.16	1.82
Holden	Commodore Ute VR/VS	94-00	4.17	3.76	4.61	0.85
Holden	Commodore VU Ute	00-02	4.77	3.82	5.97	2.16
Holden	Commodore VY/VZ Ute	02-04	4.53	3.33	6.18	2.86
Holden	Rodeo	03-04	2.62	1.63	4.20	2.57
Kia	Ceres	92-00	4.63	3.44	6.24	2.80
Ford / Mazda	Courier / B-Series / Bounty	98-02	3.77	2.93	4.84	1.91
Nissan	720 Ute	82-85	3.56	2.91	4.36	1.44
Nissan	Navara	86-91	4.06	3.60	4.58	0.97
Nissan	Navara	92-96	3.76	3.13	4.51	1.38
Nissan	Navara	97-04	3.97	3.09	5.10	2.01
Subaru	Brumby	82-92	5.47	4.68	6.40	1.72
Suzuki	Mighty Boy	85-88	6.81	5.13	9.04	3.91
Toyota	4Runner/Hilux	82-85	4.71	4.27	5.21	0.94
Toyota	4Runner/Hilux	86-88	4.49	4.05	4.98	0.93
Toyota	4Runner/Hilux	89-97	4.23	3.99	4.49	0.50
Toyota	Hilux	98-02	4.02	3.54	4.57	1.03
Toyota	Hilux	03-04	4.17	2.58	6.73	4.15
Large Cars			3.58	3.53	3.64	0.12
Ford	Falcon XE/XF	82-88	4.23	4.07	4.39	0.32
Ford	Falcon EA / Falcon EB Series I	88-Mar 92	3.91	3.74	4.08	0.34
Ford	Falcon EB Series II / Falcon ED	04 92-94	3.74	3.52	3.99	0.47
Ford	Falcon EF/EL	94-98	3.64	3.47	3.81	0.35
Ford	Falcon AU	98-02	3.50	3.26	3.76	0.50
Ford	Taurus	96-98	3.54	2.37	5.27	2.90
Ford	Falcon BA	02-04	3.56	2.94	4.31	1.36
Holden / Toyota	Commodore VN/VP / Lexcen	89-93	3.94	3.79	4.10	0.31
Holden / Toyota	Commodore VR/VS / Lexcen	93-97	3.56	3.40	3.73	0.33
Holden	Commodore VT/VX	97-02	3.60	3.40	3.82	0.42
Holden	Commodore VY/VZ	02-04	3.38	2.83	4.04	1.21
Holden	Commodore VB-VL	82-88	4.45	4.28	4.63	0.35
Hyundai	Sonata	98-01	3.01	2.08	4.34	2.25
Hyundai	Sonata	89-97	3.90	3.38	4.50	1.12
Hyundai	Grandeaur / XG	99-00	3.02	1.48	6.14	4.66
Mitsubishi	Magna TM/TN/TP / Sigma / V3000	85-90	4.27	4.06	4.50	0.44
Mitsubishi	Magna TE/TF/TH/TJ / Verada KE/KF/KH/KJ / Diamante	96-03	3.47	3.20	3.76	0.57
Mitsubishi	Magna TR/TS / Verada KR/KS / V3000 / Diamante	91-96	3.65	3.44	3.88	0.43
Nissan	Skyline	83-88	4.12	3.72	4.57	0.85

Make	Model of Car	Years of Manufacture	Serious injury rate per 100 road users involved	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Holden / Toyota	Apollo JM/JP / Camry / Sceptor	93-97	3.90	3.68	4.14	0.46
Toyota	Camry	98-02	3.72	3.41	4.05	0.64
Toyota	Avalon	00-04	3.75	2.94	4.80	1.86
Toyota	Camry	02-04	2.88	2.00	4.15	2.15
Luxury Cars			3.23	3.13	3.33	0.20
Alfa Romeo	75	86-92	4.02	2.01	8.03	6.02
Audi	A4	95-01	3.03	1.99	4.63	2.64
Audi	A4	01-04	2.89	1.59	5.27	3.69
BMW	3 Series E30	82-91	3.54	3.06	4.11	1.05
BMW	3 Series E36	92-98	3.45	2.99	3.99	0.99
BMW	3 Series E46	99-04	2.97	2.26	3.90	1.64
BMW	5 Series E28	82-88	3.58	2.66	4.81	2.16
BMW	5 Series E34	89-95	3.60	2.71	4.79	2.08
BMW	5 Series E39	96-03	2.32	1.51	3.55	2.04
BMW	7 Series E23	82-88	2.41	1.28	4.55	3.27
BMW	7 Series E32	89-94	3.47	2.00	6.02	4.02
Citroen	BX	86-94	0.91	0.34	2.38	2.04
Ford	Fairlane Z & LTD F	82-87	3.92	3.56	4.32	0.76
Ford	Fairlane N & LTD D	88-94	3.45	3.04	3.92	0.88
Ford	Fairlane N & LTD D	95-98	3.89	3.15	4.81	1.67
Ford	Fairlane & LTD AU	99-02	3.31	2.27	4.81	2.53
Holden	Statesman/C04ice WB	82-85	6.27	4.20	9.35	5.15
Holden	Stateman/C04ice VQ	90-93	4.30	3.35	5.51	2.16
Holden	Stateman/C04ice VR/VS	94-98	3.86	3.30	4.51	1.21
Holden	Statesman/C04ice WH	99-03	2.69	1.83	3.94	2.11
Jaguar	XJ6	82-86	5.96	4.03	8.82	4.79
Jaguar	XJ6	87-94	2.85	1.79	4.56	2.78
Mazda	929 / Luce	82-90	4.29	3.77	4.88	1.11
Mazda	929 / Sentia / Efini MS-9	92-96	4.20	2.50	7.06	4.56
Mazda	Eunos 500	93-99	4.17	2.39	7.28	4.89
Mercedes Benz	C-Class W201	87-93	3.67	2.66	5.05	2.39
Mercedes Benz	C-Class W202	95-00	2.56	1.89	3.45	1.56
Mercedes Benz	E-Class W123	82-85	2.99	1.83	4.90	3.08
Mercedes Benz	E-Class W124	86-94	3.54	2.71	4.61	1.90
Mercedes Benz	E-Class W210	96-02	3.03	2.09	4.40	2.31
Mercedes Benz	S-Class W126	82-92	3.27	2.33	4.60	2.27
Mercedes Benz	S-Class C140	93-98	1.74	0.78	3.85	3.07
Mercedes Benz	A-Class W168	98-04	3.60	1.79	7.25	5.46
Nissan	Maxima	90-94	3.59	2.80	4.61	1.81
Nissan	Maxima / Cefiro	95-99	3.08	2.38	4.00	1.63
Nissan	Maxima	00-02	3.63	2.22	5.94	3.72
Honda	Legend	86-95	3.30	2.50	4.36	1.86
Honda	Accord	82-85	4.44	3.91	5.03	1.12
Honda	Accord	86-90	3.71	3.23	4.25	1.02
Honda	Accord	91-93	2.78	2.22	3.48	1.25
Honda	Accord	94-98	3.27	2.76	3.89	1.13
Honda	Accord	99-02	2.76	1.76	4.34	2.57

Make	Model of Car	Years of Manufacture	Serious injury rate per 100 road users involved	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Peugeot	405	89-97	3.22	2.37	4.38	2.01
Peugeot	505	82-93	2.82	2.03	3.92	1.89
Peugeot	406	96-04	1.79	0.91	3.53	2.62
Rover	3500	82-87	3.46	1.77	6.76	4.99
Saab	900 Series	82-92	3.34	2.50	4.45	1.95
Saab	900/9-3	94-02	2.88	2.10	3.95	1.85
Saab	9000	86-97	2.44	1.70	3.48	1.78
Toyota	Crown / Cressida / Mark II	82-85	4.67	4.03	5.41	1.38
Toyota	Crown / Cressida / Mark II	86-88	4.15	3.20	5.37	2.17
Toyota	Cressida / Mark II	89-93	3.07	2.52	3.74	1.22
Lexus	ES300 / Windom	92-01	3.49	2.42	5.03	2.61
Lexus	LS400 / Celsior	90-00	4.00	2.22	7.22	5.00
Volvo	850/S70/V70/C70	92-04	3.83	3.08	4.75	1.67
Volvo	200 Series	82-93	3.16	2.68	3.72	1.04
Volvo	300 Series	84-88	3.50	2.01	6.09	4.08
Volvo	700/900 Series	84-92	3.09	2.50	3.82	1.32
Volvo	S40/V40	97-04	3.23	2.04	5.12	3.08
Volkswagen	Passat	98-04	2.50	1.32	4.75	3.43
Medium Cars			3.71	3.63	3.78	0.16
Daewoo	Espero	95-97	4.86	3.66	6.46	2.81
Daewoo	Leganza	97-04	4.22	2.93	6.07	3.15
Ford	Cortina	82-82	4.61	3.88	5.47	1.59
Ford	Mondeo	95-01	3.05	2.49	3.73	1.24
Holden	Camira	82-89	4.89	4.62	5.19	0.57
Holden	Vectra	97-03	3.06	2.56	3.66	1.10
Mitsubishi	Sigma / Galant / Sapporo / Lambda	82-84	4.27	4.00	4.56	0.56
Mitsubishi	Galant	95-96	3.87	3.18	4.71	1.53
Ford / Mazda	Telstar / 626 / MX6 / Capella	83-86	3.95	3.67	4.25	0.58
Ford / Mazda	Telstar / 626 / MX6 / Capella	88-91	3.85	3.49	4.24	0.75
Ford / Mazda	Telstar / 626 / MX6 / Capella / Cronos	92-97	3.30	2.96	3.68	0.72
Mazda	626	98-02	3.77	3.02	4.71	1.69
Nissan	Pintara	86-88	4.18	3.74	4.67	0.92
Nissan / Ford	Pintara / Corsair / Bluebird	89-92	4.33	3.99	4.70	0.71
Nissan	Bluebird	82-86	4.55	4.26	4.86	0.60
Nissan	Bluebird	93-97	3.03	2.50	3.68	1.18
Subaru	1800 / Leone / Omega / 4WD Wagon	82-93	4.14	3.77	4.54	0.77
Subaru	Liberty / Legacy	89-93	3.61	3.23	4.03	0.80
Subaru	Liberty / Legacy / Outback	94-98	3.48	2.90	4.18	1.28
Subaru	Liberty / Legacy / Outback	99-03	2.96	2.32	3.76	1.44
Toyota	Corona	82-88	4.33	4.08	4.60	0.51
Toyota	Camry	83-86	4.11	3.63	4.65	1.02
Holden / Toyota	Apollo JK/JL / Camry / Vista	88-92	3.91	3.71	4.12	0.40

Make	Model of Car	Years of Manufacture	Serious injury rate per 100 road users involved	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
People Movers			4.14	3.94	4.34	0.40
Chrysler	Voyager	97-04	3.39	2.02	5.69	3.67
Ford	Spectron	86-90	4.54	2.27	9.09	6.82
Mitsubishi	Nimbus / Chariot / Spacewagon	85-91	4.11	3.14	5.37	2.22
Mitsubishi	Nimbus / Chariot	92-98	3.13	2.25	4.36	2.11
Mitsubishi	Nimbus	99-03	1.42	0.53	3.86	3.34
Mitsubishi	Starwagon / L300	83-86	6.50	5.81	7.28	1.47
Mitsubishi	Starwagon / Delica Starwagon	87-93	4.91	4.42	5.44	1.02
Mitsubishi	Starwagon / Delica Spacegear	95-98	3.80	3.04	4.76	1.72
Mitsubishi	Starwagon / Delica Spacegear	98-04	4.79	3.47	6.63	3.16
Kia	Carnival	99-04	2.34	1.39	3.94	2.54
Mazda	MPV	94-99	2.52	1.29	4.92	3.63
Nissan	Prairie	84-86	5.07	3.67	6.99	3.31
Nissan	Serena	92-95	2.68	1.46	4.90	3.44
Honda	Odyssey	95-00	3.24	2.09	5.02	2.93
Toyota	Tarago	83-89	5.20	4.68	5.77	1.09
Toyota	Tarago / Previa / Estima	91-99	3.20	2.70	3.80	1.10
Toyota	Tarago / Previa / Estima	00-04	3.14	1.81	5.46	3.65
Light Cars			4.27	4.17	4.36	0.19
Daihatsu	Charade	82-86	6.18	5.43	7.04	1.62
Daihatsu	Charade	88-92	4.82	4.38	5.29	0.91
Daihatsu	Charade	93-00	4.78	4.28	5.35	1.07
Daihatsu	Pyzar	97-01	3.41	1.99	5.82	3.83
Daihatsu	Sirion / Storia	98-04	3.86	2.91	5.12	2.21
Daihatsu	Mira	90-96	7.49	6.13	9.16	3.03
Daewoo	1.5i	94-95	3.40	2.06	5.60	3.54
Daewoo	Cielo	95-97	3.71	3.19	4.32	1.13
Daewoo	Lanos	97-03	4.38	3.83	5.01	1.19
Daewoo	Matiz	99-04	3.65	2.53	5.28	2.75
Ford	Festiva WD/WH/WF	94-01	4.71	4.36	5.08	0.71
Ford	Ka	99-04	3.98	2.52	6.27	3.75
Holden	Barina XC	01-04	3.36	2.42	4.65	2.22
Holden	Barina SB	95-00	4.20	3.75	4.71	0.96
Hyundai	Excel	86-90	5.37	4.79	6.02	1.23
Hyundai	Excel	90-94	4.49	4.14	4.86	0.72
Hyundai	Excel / Accent	95-00	4.41	4.16	4.68	0.53
Hyundai	Getz	02-04	7.25	5.18	10.14	4.96
Hyundai	Accent	00-04	3.90	3.30	4.62	1.33
Mitsubishi	Mirage / Colt	82-88	4.89	4.58	5.23	0.65
Kia	Rio	00-04	4.41	3.40	5.73	2.33
Ford / Mazda	Festiva WA / 121	87-90	4.79	4.35	5.27	0.92
Mazda	121 / Autozam Review	94-96	3.73	3.18	4.38	1.20
Mazda	121 Metro / Demio	97-02	3.18	2.59	3.91	1.32
Nissan	Micra	95-97	5.34	4.11	6.94	2.82
Honda	City	83-86	5.98	4.85	7.38	2.54

Make	Model of Car	Years of Manufacture	Serious injury rate per 100 road users involved	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Peugoet	205	87-94	3.82	2.26	6.46	4.20
Peugeot	206	99-04	5.42	3.36	8.75	5.40
Subaru	Sherpa / Fiori / 700 / Rex	89-92	6.83	5.54	8.42	2.88
Suzuki	Swift	82-85	6.74	4.48	10.15	5.67
Holden / Suzuki	Barina / Swift / Cultus	86-88	5.67	5.11	6.28	1.17
Holden / Suzuki	Barina / Swift / Cultus	89-99	4.69	4.38	5.01	0.63
Suzuki	Hatch / Alto	82-84	7.86	6.52	9.48	2.95
Suzuki	Alto	85-00	7.52	5.49	10.30	4.81
Suzuki	Ignis	00-02	3.56	1.93	6.59	4.66
Toyota	Starlet	96-99	4.16	3.62	4.78	1.16
Toyota	Echo	99-04	3.68	3.10	4.37	1.27
Volkswagen	Polo	96-00	2.82	1.78	4.46	2.69
Small Cars			3.77	3.70	3.84	0.14
Alfa Romeo	33	83-92	4.00	2.92	5.49	2.57
Chrysler	Neon	96-99	2.24	1.35	3.72	2.37
Daihatsu	Applause	89-99	4.02	3.44	4.70	1.26
Daewoo	Nubira	97-03	3.42	2.82	4.16	1.34
Ford	Laser	91-94	3.98	3.70	4.27	0.56
Ford	Laser	95-97	4.10	3.60	4.68	1.08
Ford	Escort	82-82	2.56	1.55	4.24	2.69
Ford	Focus	02-04	3.85	2.43	6.11	3.69
Fiat	Regata	84-88	4.32	2.64	7.05	4.41
Holden	Gemini	82-84	4.55	4.15	4.98	0.83
Holden	Gemini RB	86-87	4.94	3.96	6.15	2.19
Holden	Astra TR	96-98	3.09	2.34	4.08	1.75
Holden	Astra TS	98-04	3.06	2.65	3.53	0.88
Hyundai	Elantra	00-04	3.96	2.86	5.49	2.63
Hyundai	S Coupe	90-96	4.18	3.28	5.32	2.04
Hyundai	Lantra	91-95	4.18	3.48	5.02	1.54
Hyundai	Lantra	96-00	3.79	3.29	4.37	1.08
Mitsubishi	Lancer / Mirage CA	89-90	3.85	3.45	4.29	0.84
Mitsubishi	Lancer / Mirage CB	91-92	3.75	3.11	4.52	1.41
Mitsubishi	Lancer / Mirage CC	93-95	3.78	3.40	4.20	0.80
Mitsubishi	Lancer / Mirage CE	96-03	3.89	3.60	4.22	0.62
Mitsubishi	Cordia	83-87	5.48	4.75	6.31	1.55
Mitsubishi	Lancer CG	02-03	3.17	1.63	6.16	4.52
Mitsubishi	Lancer CH	03-04	7.02	4.00	12.33	8.32
Ford / Mazda	Laser / 323 / Familia	82-88	4.67	4.49	4.85	0.36
Mazda	323 / Familia / Lantis	90-93	3.56	3.18	4.00	0.82
Mazda	323 / Familia / Lantis	95-98	3.80	3.30	4.39	1.10
Ford / Mazda	Laser / 323	99-03	3.41	2.92	3.98	1.06
Mazda	3	03-04	1.09	0.27	4.43	4.16
Holden / Nissan	Astra / Pulsar / Langley	84-86	5.05	4.71	5.41	0.70
Holden / Nissan	Astra / Pulsar / Vector / Sentra	88-90	4.42	4.13	4.74	0.61
Nissan	Pulsar / Vector / Sentra	92-95	3.68	3.32	4.07	0.75
Nissan	Pulsar / Vector / Sentra	96-99	4.00	3.60	4.44	0.84
Nissan	Stanza	82-83	4.91	3.57	6.74	3.17

Make	Model of Car	Years of Manufacture	Serious injury rate per 100 road users involved	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Nissan	Pulsar	00-04	4.24	3.63	4.96	1.33
Honda	Civic	82-83	4.35	3.56	5.33	1.77
Honda	Civic / Ballade / Shuttle	84-87	5.15	4.60	5.77	1.17
Honda	Civic / Shuttle	88-91	4.11	3.69	4.58	0.89
Honda	Civic	92-95	3.85	3.43	4.32	0.90
Honda	Civic	96-00	3.16	2.71	3.68	0.98
Honda	Civic	01-04	2.90	1.95	4.31	2.36
Honda	Concerto	89-93	4.09	3.10	5.39	2.29
Peugeot	306	94-01	2.38	1.75	3.22	1.47
Peugeot	307	01-04	1.79	0.71	4.51	3.81
Proton	Wira	95-96	4.47	3.50	5.71	2.21
Renault	19	91-96	3.62	2.07	6.30	4.23
Rover	Quintet	82-86	3.73	2.34	5.96	3.62
Subaru	Impreza	93-00	4.45	3.89	5.07	1.18
Subaru	Impreza	01-04	2.51	1.61	3.90	2.28
Suzuki	Baleno / Cultus Crescent	95-02	3.14	2.38	4.14	1.77
Toyota	Corolla	82-84	4.18	3.90	4.49	0.60
Toyota	Corolla	86-88	4.39	4.13	4.66	0.53
Toyota / Holden	Corolla / Nova	89-93	4.06	3.85	4.28	0.43
Toyota / Holden	Corolla / Nova	94-97	3.65	3.40	3.92	0.52
Toyota	Corolla	98-01	3.26	2.85	3.72	0.87
Toyota	Corolla	02-04	3.51	2.90	4.26	1.35
Toyota	Tercel	83-88	4.73	3.38	6.61	3.22
Toyota	Corolla 4WD Wagon	92-96	4.78	2.99	7.64	4.65
Volkswagen	Golf	82-94	5.05	3.13	8.14	5.01
Volkswagen	Golf	95-98	3.60	2.62	4.95	2.34
Volkswagen	Golf / Bora	99-04	2.52	1.81	3.51	1.70
Sports Cars			3.94	3.79	4.11	0.32
Alfa Romeo	GTV	82-84	8.51	5.12	14.15	9.03
BMW	Z3 E36	97-03	4.73	2.70	8.29	5.59
Ford	C04i	89-94	4.28	3.49	5.25	1.76
Ford	Probe	94-98	5.16	3.02	8.85	5.83
Holden	Calibra	94-97	3.63	2.48	5.32	2.85
Holden	Monaro	01-04	7.70	5.15	11.50	6.35
Hyundai	Coupe	96-00	4.98	3.76	6.59	2.83
Mitsubishi	Starion	82-87	7.79	5.27	11.53	6.25
Mazda	RX7	82-85	5.27	3.96	7.00	3.04
Mazda	RX7	86-91	3.03	2.00	4.60	2.60
Mazda	MX5 / Eunos Roadster	89-97	4.21	2.95	6.00	3.05
Mazda	MX5 / Eunos Roadster	98-04	1.85	0.77	4.43	3.66
Mazda	Eunos 30X / Presso / MX-3 / Autozam AZ-3	90-97	3.12	1.92	5.07	3.15
Nissan	300ZX / Fairlady Z	90-95	4.51	3.26	6.24	2.98
Nissan	Gazelle / Silvia	84-86	5.32	4.21	6.73	2.52
Nissan	Exa	83-86	7.67	5.87	10.03	4.17
Nissan	Exa	87-91	5.00	3.36	7.44	4.07
Nissan	NX/NX-R	91-96	6.39	4.96	8.23	3.27
Nissan	200SX / Silvia	94-02	3.68	2.69	5.04	2.35

Make	Model of Car	Years of Manufacture	Serious injury rate per 100 road users involved	Lower 95% Confidence Limit	Upper 95% Confidence Limit	Width of Confidence Interval
Honda	CRX	87-91	5.50	4.24	7.14	2.90
Honda	CRX	92-98	4.63	2.87	7.45	4.58
Honda	Prelude	82-82	3.10	1.65	5.81	4.16
Honda	Prelude	83-91	4.01	3.58	4.49	0.91
Honda	Prelude	92-96	3.95	3.19	4.89	1.70
Honda	Prelude	97-02	2.72	1.74	4.24	2.49
Honda	Integra	86-88	4.05	3.22	5.09	1.87
Honda	Integra	90-92	3.61	2.73	4.78	2.06
Honda	Integra	93-01	2.97	2.21	3.99	1.78
Renault	Feugo	82-87	2.63	1.62	4.27	2.65
Toyota	Celica	81-85	4.11	3.54	4.76	1.22
Toyota	Celica	86-89	4.21	3.56	4.98	1.42
Toyota	Celica	90-93	4.29	3.62	5.08	1.46
Toyota	Celica	94-99	4.32	3.39	5.51	2.12
Toyota	Celica	00-04	3.91	2.66	5.75	3.10
Toyota	Supra	82-90	6.19	4.59	8.35	3.76
Toyota	MR2	87-90	6.01	4.21	8.58	4.38
Toyota	MR2	91-00	4.37	2.69	7.10	4.41
Toyota	Paseo / Cynos	91-99	4.28	3.44	5.32	1.88

TOTAL SECONDARY SAFETY INDEX

(WITH 90% CONFIDENCE LIMITS)

Victoria and New South Wales Data (1987-2004), Queensland, Western Australia and New Zealand Data (1991-2004)

Make	Model of Car	Years of Manufacture	Serious injury rate per 100 road users involved	Lower 90% Confidence Limit	Upper 90% Confidence Limit	Width of Confidence Interval
ALL VEHICLE AVERAGE			3.85			
Compact Four Wheel Drive Vehicles			3.77	3.60	3.95	0.36
Daihatsu	Feroza / Rocky	89-97	4.26	3.45	5.26	1.80
Daihatsu	Rocky / Rugger	85-98	6.66	5.39	8.23	2.84
Daihatsu	Terios	97-04	3.92	2.89	5.31	2.42
Holden	Cruze	02-04	5.72	3.55	9.22	5.67
Kia	Sportage	98-03	3.44	2.34	5.05	2.71
Ford / Mazda	Escape / Tribute	01-04	1.84	1.09	3.08	1.99
Nissan	X-Trail	01-04	3.07	2.03	4.64	2.61
Lada	Niva	84-99	4.49	3.36	5.99	2.63
Honda	CR-V	97-01	2.51	2.01	3.13	1.12
Honda	CR-V	02-04	3.09	2.11	4.54	2.44
Honda	HR-V	99-02	5.44	3.92	7.55	3.63
Landrover	Freelander	98-04	6.70	4.33	10.36	6.03
Subaru	Forester	97-02	2.22	1.74	2.85	1.11
Subaru	Forester	02-04	3.12	1.94	5.02	3.08
Suzuki	Vitara / Escudo	88-98	4.55	4.07	5.10	1.03
Suzuki	Grand Vitara	99-04	2.41	1.45	4.03	2.59
Holden / Suzuki	Drover / Sierra / Samurai / SJ410 / SJ413	82-99	4.82	4.37	5.32	0.95
Toyota	RAV4	94-00	3.66	3.14	4.26	1.12
Toyota	RAV4	01-04	3.17	2.41	4.17	1.76
Medium Four Wheel Drive Vehicles			3.61	3.43	3.81	0.39
Daewoo / Ssangong	Musso	98-02	2.79	1.62	4.81	3.20
Holden / Isuzu	Jackaroo / Bighorn	82-91	4.03	3.28	4.95	1.66
Holden / Isuzu	Jackaroo / Bighorn	92-97	4.05	3.20	5.14	1.94
Holden / Isuzu	Jackaroo / Bighorn	98-02	4.41	3.22	6.06	2.84
Holden	Frontera / Mu	95-03	4.53	2.89	7.11	4.23
Hyundai	Santa Fe	00-04	3.96	2.37	6.61	4.24
Mitsubishi	Pajero	82-90	4.83	4.26	5.47	1.21
Mitsubishi	Pajero	92-99	3.77	3.33	4.26	0.93
Mitsubishi	Pajero NM / NP	00-04	2.49	1.60	3.87	2.27
Mitsubishi	Challenger	98-04	2.49	1.56	3.97	2.42
Jeep	Cherokee XJ	96-00	3.85	3.14	4.71	1.56
Jeep	Wrangler	96-04	5.07	3.38	7.60	4.22
Land Rover	Defender	92-04	3.64	2.55	5.21	2.66
Land Rover	Discovery	91-02	3.18	2.43	4.16	1.73
Nissan	Pathfinder / Terrano	88-94	4.03	3.28	4.94	1.65

Make	Model of Car	Years of Manufacture	Serious injury rate per 100 road users involved	Lower 90% Confidence Limit	Upper 90% Confidence Limit	Width of Confidence Interval
Nissan	Pathfinder / Terrano	95-02	3.63	2.79	4.72	1.94
Toyota	Landcruiser Prado	96-03	3.93	2.24	6.90	4.66
Toyota	Landcruiser Prado	03-04	1.56	0.72	3.35	2.63
Large Four Wheel Drive Vehicles			4.15	4.02	4.29	0.27
Ford	Bronco	82-87	5.32	3.36	8.42	5.06
Ford	Explorer	00-01	3.96	2.84	5.53	2.69
Jeep	Grand Cherokee	96-99	3.31	2.11	5.20	3.10
Jeep	Grand Cherokee	99-04	3.64	2.10	6.31	4.21
Mercedes Benz	M-Class W163	98-04	2.39	1.39	4.11	2.72
Nissan	Patrol / Safari	82-87	4.66	4.00	5.44	1.44
Nissan / Ford	Patrol / Maverick / Safari	88-97	3.85	3.55	4.18	0.62
Nissan	Patrol / Safari	98-04	4.34	3.77	5.01	1.24
Land Rover	Range Rover	82-94	3.95	3.20	4.87	1.68
Land Rover	Range Rover	95-02	3.44	2.01	5.88	3.87
Toyota	Landcruiser	82-89	5.45	5.10	5.83	0.73
Toyota	Landcruiser	90-97	4.70	4.41	5.01	0.60
Toyota	Landcruiser	98-04	3.84	3.43	4.29	0.86
Commercial Vehicles- Vans			4.25	4.10	4.41	0.31
Daihatsu	Handivan	82-90	7.06	5.84	8.53	2.69
Daihatsu	Hi-Jet	82-90	9.13	6.70	12.46	5.76
Daihatsu	Handivan / Cuore	99-03	4.02	2.29	7.05	4.76
Ford	Falcon Panel Van	82-95	3.88	3.45	4.36	0.90
Ford	Falcon Panel Van	96-99	3.05	2.14	4.35	2.21
Ford	Transit	95-00	3.66	2.84	4.71	1.87
Ford	Transit	01-04	1.74	0.92	3.30	2.38
Holden	Shuttle / WFR Van	82-87	4.92	3.78	6.39	2.61
Mercedes Benz	Vito	99-04	4.15	2.70	6.37	3.66
Mercedes Benz	Sprinter	98-04	3.39	2.08	5.50	3.42
Honda	Acty	83-86	3.04	2.10	4.40	2.31
Holden / Suzuki	Scurry / Carry	82-00	7.57	6.14	9.33	3.19
Toyota	Hiace/Liteace	82-86	5.65	5.21	6.12	0.91
Toyota	Hiace/Liteace	87-89	5.00	4.48	5.58	1.10
Toyota	Hiace/Liteace	90-95	4.69	4.29	5.12	0.82
Toyota	Hiace/Liteace	96-04	4.09	3.62	4.63	1.01
Volkswagen	Caravelle / Transporter	88-94	3.96	2.52	6.22	3.70
Volkswagen	Caravelle / Transporter	95-04	3.77	2.82	5.05	2.23
Commercial Vehicles- Utes			3.92	3.84	4.01	0.18
Ford / Nissan	Falcon Ute / XFN Ute	82-95	4.23	3.95	4.53	0.58
Ford	Falcon Ute	96-99	3.94	3.37	4.61	1.24
Ford	Falcon Ute AU	00-02	3.50	2.93	4.18	1.25
Ford	Falcon Ute BA	03-04	4.02	2.84	5.71	2.87
Ford	Ford F-Series	82-92	4.76	3.87	5.86	1.99
Holden	Commodore Ute VG/VP	90-93	3.80	3.21	4.50	1.29

Make	Model of Car	Years of Manufacture	Serious injury rate per 100 road users involved	Lower 90% Confidence Limit	Upper 90% Confidence Limit	Width of Confidence Interval
Holden / Isuzu	Rodeo / Pickup	82-85	4.83	3.90	5.97	2.06
Holden / Isuzu	Rodeo / Pickup	86-88	3.20	2.20	4.66	2.46
Holden / Isuzu	Rodeo / Pickup	89-95	4.89	4.52	5.29	0.77
Holden	Rodeo	96-98	4.00	3.50	4.57	1.06
Holden	Rodeo	99-02	4.04	3.49	4.68	1.20
Holden	WB Series	82-85	5.17	4.46	5.98	1.52
Holden	Commodore Ute VR/VS	94-00	4.17	3.82	4.54	0.71
Holden	Commodore VU Ute	00-02	4.77	3.96	5.76	1.80
Holden	Commodore VY/VZ Ute	02-04	4.53	3.50	5.88	2.38
Holden	Rodeo	03-04	2.62	1.76	3.89	2.13
Kia	Ceres	92-00	4.63	3.61	5.94	2.33
Ford / Mazda	Courier / B-Series / Bounty	98-02	3.77	3.05	4.65	1.60
Nissan	720 Ute	82-85	3.56	3.01	4.22	1.21
Nissan	Navara	86-91	4.06	3.67	4.49	0.81
Nissan	Navara	92-96	3.76	3.23	4.38	1.15
Nissan	Navara	97-04	3.97	3.22	4.89	1.68
Subaru	Brumby	82-92	5.47	4.80	6.24	1.44
Suzuki	Mighty Boy	85-88	6.81	5.37	8.63	3.26
Toyota	4Runner/Hilux	82-85	4.71	4.34	5.12	0.79
Toyota	4Runner/Hilux	86-88	4.49	4.12	4.90	0.78
Toyota	4Runner/Hilux	89-97	4.23	4.03	4.44	0.42
Toyota	Hilux	98-02	4.02	3.62	4.48	0.86
Toyota	Hilux	03-04	4.17	2.79	6.23	3.43
Large Cars			3.58	3.54	3.63	0.10
Ford	Falcon XE/XF	82-88	4.23	4.10	4.36	0.27
Ford	Falcon EA / Falcon EB Series I	88-Mar 92	3.91	3.77	4.05	0.28
Ford	Falcon EB Series II / Falcon ED	04 92-94	3.74	3.55	3.95	0.39
Ford	Falcon EF/EL	94-98	3.64	3.49	3.78	0.29
Ford	Falcon AU	98-02	3.50	3.30	3.72	0.42
Ford	Taurus	96-98	3.54	2.53	4.94	2.40
Ford	Falcon BA	02-04	3.56	3.04	4.17	1.14
Holden / Toyota	Commodore VN/VP / Lexcen	89-93	3.94	3.81	4.08	0.26
Holden / Toyota	Commodore VR/VS / Lexcen	93-97	3.56	3.43	3.70	0.28
Holden	Commodore VT/VX	97-02	3.60	3.43	3.78	0.35
Holden	Commodore VY/VZ	02-04	3.38	2.92	3.92	1.01
Holden	Commodore VB-VL	82-88	4.45	4.31	4.60	0.29
Hyundai	Sonata	98-01	3.01	2.21	4.08	1.87
Hyundai	Sonata	89-97	3.90	3.46	4.40	0.94
Hyundai	Grandeaur / XG	99-00	3.02	1.66	5.47	3.80
Mitsubishi	Magna TM/TN/TP / Sigma / V3000	85-90	4.27	4.09	4.46	0.37
Mitsubishi	Magna TE/TF/TH/TJ / Verada KE/KF/KH/KJ / Diamante	96-03	3.47	3.24	3.71	0.48
Mitsubishi	Magna TR/TS / Verada KR/KS / V3000 / Diamante	91-96	3.65	3.48	3.84	0.36
Nissan	Skyline	83-88	4.12	3.78	4.49	0.71
Holden / Toyota	Apollo JM/JP / Camry / Sceptor	93-97	3.90	3.71	4.10	0.39
Toyota	Camry	98-02	3.72	3.46	4.00	0.54

Make	Model of Car	Years of Manufacture	Serious injury rate per 100 road users involved	Lower 90% Confidence Limit	Upper 90% Confidence Limit	Width of Confidence Interval
Toyota	Avalon	00-04	3.75	3.06	4.61	1.55
Toyota	Camry	02-04	2.88	2.12	3.91	1.79
Luxury Cars			3.23	3.15	3.31	0.17
Alfa Romeo	75	86-92	4.02	2.26	7.17	4.92
Audi	A4	95-01	3.03	2.13	4.32	2.19
Audi	A4	01-04	2.89	1.75	4.78	3.03
BMW	3 Series E30	82-91	3.54	3.13	4.01	0.88
BMW	3 Series E36	92-98	3.45	3.07	3.89	0.83
BMW	3 Series E46	99-04	2.97	2.36	3.73	1.36
BMW	5 Series E28	82-88	3.58	2.79	4.59	1.80
BMW	5 Series E34	89-95	3.60	2.84	4.57	1.74
BMW	5 Series E39	96-03	2.32	1.62	3.31	1.69
BMW	7 Series E23	82-88	2.41	1.42	4.10	2.68
BMW	7 Series E32	89-94	3.47	2.18	5.50	3.32
Citroen	BX	86-94	0.91	0.40	2.04	1.63
Ford	Fairlane Z & LTD F	82-87	3.92	3.62	4.25	0.63
Ford	Fairlane N & LTD D	88-94	3.45	3.10	3.84	0.74
Ford	Fairlane N & LTD D	95-98	3.89	3.26	4.65	1.39
Ford	Fairlane & LTD AU	99-02	3.31	2.42	4.52	2.10
Holden	Statesman/C04ice WB	82-85	6.27	4.49	8.76	4.27
Holden	Stateman/C04ice VQ	90-93	4.30	3.49	5.29	1.80
Holden	Stateman/C04ice VR/VS	94-98	3.86	3.38	4.39	1.01
Holden	Statesman/C04ice WH	99-03	2.69	1.95	3.70	1.75
Jaguar	XJ6	82-86	5.96	4.29	8.27	3.98
Jaguar	XJ6	87-94	2.85	1.93	4.23	2.30
Mazda	929 / Luce	82-90	4.29	3.85	4.78	0.93
Mazda	929 / Sentia / Efini MS-9	92-96	4.20	2.72	6.49	3.77
Mazda	Eunos 500	93-99	4.17	2.62	6.65	4.03
Mercedes Benz	C-Class W201	87-93	3.67	2.80	4.79	1.99
Mercedes Benz	C-Class W202	95-00	2.56	1.99	3.29	1.30
Mercedes Benz	E-Class W123	82-85	2.99	1.98	4.52	2.54
Mercedes Benz	E-Class W124	86-94	3.54	2.83	4.41	1.58
Mercedes Benz	E-Class W210	96-02	3.03	2.22	4.14	1.92
Mercedes Benz	S-Class W126	82-92	3.27	2.46	4.35	1.88
Mercedes Benz	S-Class C140	93-98	1.74	0.89	3.38	2.49
Mercedes Benz	A-Class W168	98-04	3.60	2.01	6.47	4.46
Nissan	Maxima	90-94	3.59	2.91	4.42	1.51
Nissan	Maxima / Cefiro	95-99	3.08	2.48	3.84	1.36
Nissan	Maxima	00-02	3.63	2.41	5.48	3.08
Honda	Legend	86-95	3.30	2.62	4.17	1.55
Honda	Accord	82-85	4.44	3.99	4.93	0.94
Honda	Accord	86-90	3.71	3.31	4.16	0.85
Honda	Accord	91-93	2.78	2.31	3.35	1.04
Honda	Accord	94-98	3.27	2.84	3.78	0.94
Honda	Accord	99-02	2.76	1.90	4.03	2.13
Peugeot	405	89-97	3.22	2.49	4.16	1.67
Peugeot	505	82-93	2.82	2.15	3.72	1.57

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Peugeot	406	96-04	1.79	1.01	3.16	2.15
Rover	3500	82-87	3.46	1.97	6.06	4.09
Saab	900 Series	82-92	3.34	2.62	4.25	1.63
Saab	900/9-3	94-02	2.88	2.21	3.75	1.54
Saab	9000	86-97	2.44	1.81	3.28	1.48
Toyota	Crown / Cressida / Mark II	82-85	4.67	4.13	5.28	1.15
Toyota	Crown / Cressida / Mark II	86-88	4.15	3.34	5.15	1.81
Toyota	Cressida / Mark II	89-93	3.07	2.60	3.62	1.02
Lexus	ES300 / Windom	92-01	3.49	2.57	4.74	2.17
Lexus	LS400 / Celsior	90-00	4.00	2.44	6.56	4.11
Volvo	850/S70/V70/C70	92-04	3.83	3.19	4.58	1.39
Volvo	200 Series	82-93	3.16	2.75	3.62	0.87
Volvo	300 Series	84-88	3.50	2.20	5.56	3.36
Volvo	700/900 Series	84-92	3.09	2.59	3.69	1.10
Volvo	S40/V40	97-04	3.23	2.20	4.75	2.55
Volkswagen	Passat	98-04	2.50	1.46	4.27	2.81
Medium Cars			3.71	3.64	3.77	0.13
Daewoo	Espero	95-97	4.86	3.83	6.17	2.34
Daewoo	Leganza	97-04	4.22	3.11	5.72	2.62
Ford	Cortina	82-82	4.61	3.99	5.32	1.32
Ford	Mondeo	95-01	3.05	2.58	3.61	1.04
Holden	Camira	82-89	4.89	4.66	5.14	0.48
Holden	Vectra	97-03	3.06	2.63	3.55	0.92
Mitsubishi	Sigma / Galant / Sapporo / Lambda	82-84	4.27	4.04	4.51	0.47
Mitsubishi	Galant	95-96	3.87	3.28	4.56	1.27
Ford / Mazda	Telstar / 626 / MX6 / Capella	83-86	3.95	3.71	4.20	0.49
Ford / Mazda	Telstar / 626 / MX6 / Capella	88-91	3.85	3.55	4.18	0.63
Ford / Mazda	Telstar / 626 / MX6 / Capella / Cronos	92-97	3.30	3.01	3.62	0.60
Mazda	626	98-02	3.77	3.13	4.54	1.41
Nissan	Pintara	86-88	4.18	3.81	4.58	0.77
Nissan / Ford	Pintara / Corsair / Bluebird	89-92	4.33	4.04	4.64	0.59
Nissan	Bluebird	82-86	4.55	4.31	4.81	0.50
Nissan	Bluebird	93-97	3.03	2.58	3.57	0.98
Subaru	1800 / Leone / Omega / 4WD Wagon	82-93	4.14	3.83	4.47	0.64
Subaru	Liberty / Legacy	89-93	3.61	3.29	3.96	0.67
Subaru	Liberty / Legacy / Outback	94-98	3.48	2.99	4.05	1.07
Subaru	Liberty / Legacy / Outback	99-03	2.96	2.42	3.62	1.20
Toyota	Corona	82-88	4.33	4.12	4.55	0.43
Toyota	Camry	83-86	4.11	3.70	4.55	0.85
Holden / Toyota	Apollo JK/JL / Camry / Vista	88-92	3.91	3.74	4.08	0.34
People Movers			4.14	3.97	4.31	0.33
Chrysler	Voyager	97-04	3.39	2.20	5.23	3.03
Ford	Spectron	86-90	4.54	2.54	8.12	5.58

Make	Model of Car	Years of Manufacture	Serious injury rate per 100 road users involved	Lower 90% Confidence Limit	Upper 90% Confidence Limit	Width of Confidence Interval
Mitsubishi	Nimbus / Chariot / Spacewagon	85-91	4.11	3.28	5.14	1.85
Mitsubishi	Nimbus / Chariot	92-98	3.13	2.37	4.13	1.76
Mitsubishi	Nimbus	99-03	1.42	0.62	3.28	2.66
Mitsubishi	Starwagon / L300	83-86	6.50	5.92	7.15	1.23
Mitsubishi	Starwagon / Delica Starwagon	87-93	4.91	4.50	5.35	0.85
Mitsubishi	Starwagon / Delica Spacegear	95-98	3.80	3.15	4.59	1.44
Mitsubishi	Starwagon / Delica Spacegear	98-04	4.79	3.65	6.29	2.63
Kia	Carnival	99-04	2.34	1.52	3.62	2.10
Mazda	MPV	94-99	2.52	1.44	4.41	2.97
Nissan	Prairie	84-86	5.07	3.87	6.63	2.76
Nissan	Serena	92-95	2.68	1.62	4.44	2.83
Honda	Odyssey	95-00	3.24	2.24	4.67	2.43
Toyota	Tarago	83-89	5.20	4.76	5.67	0.91
Toyota	Tarago / Previa / Estima	91-99	3.20	2.77	3.69	0.92
Toyota	Tarago / Previa / Estima	00-04	3.14	1.98	4.99	3.01
Light Cars			4.27	4.19	4.35	0.16
Daihatsu	Charade	82-86	6.18	5.54	6.89	1.35
Daihatsu	Charade	88-92	4.82	4.45	5.21	0.76
Daihatsu	Charade	93-00	4.78	4.36	5.25	0.89
Daihatsu	Pyzar	97-01	3.41	2.18	5.33	3.16
Daihatsu	Sirion / Storia	98-04	3.86	3.05	4.89	1.84
Daihatsu	Mira	90-96	7.49	6.33	8.86	2.53
Daewoo	1.5i	94-95	3.40	2.24	5.16	2.92
Daewoo	Cielo	95-97	3.71	3.27	4.22	0.95
Daewoo	Lanos	97-03	4.38	3.91	4.90	0.99
Daewoo	Matiz	99-04	3.65	2.68	4.97	2.29
Ford	Festiva WD/WH/WF	94-01	4.71	4.42	5.01	0.60
Ford	Ka	99-04	3.98	2.72	5.82	3.11
Holden	Barina XC	01-04	3.36	2.56	4.41	1.85
Holden	Barina SB	95-00	4.20	3.82	4.62	0.80
Hyundai	Excel	86-90	5.37	4.88	5.91	1.03
Hyundai	Excel	90-94	4.49	4.20	4.80	0.60
Hyundai	Excel / Accent	95-00	4.41	4.20	4.64	0.44
Hyundai	Getz	02-04	7.25	5.48	9.60	4.13
Hyundai	Accent	00-04	3.90	3.39	4.50	1.11
Mitsubishi	Mirage / Colt	82-88	4.89	4.63	5.17	0.54
Kia	Rio	00-04	4.41	3.54	5.49	1.95
Ford / Mazda	Festiva WA / 121	87-90	4.79	4.42	5.19	0.77
Mazda	121 / Autozam Review	94-96	3.73	3.26	4.27	1.00
Mazda	121 Metro / Demio	97-02	3.18	2.68	3.78	1.10
Nissan	Micra	95-97	5.34	4.29	6.65	2.36
Honda	City	83-86	5.98	5.02	7.13	2.12
Peugoet	205	87-94	3.82	2.46	5.93	3.47
Peugeot	206	99-04	5.42	3.63	8.09	4.47
Subaru	Sherpa / Fiori / 700 / Rex	89-92	6.83	5.73	8.13	2.40
Suzuki	Swift	82-85	6.74	4.79	9.49	4.70
Holden / Suzuki	Barina / Swift / Cultus	86-88	5.67	5.20	6.18	0.98

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Holden / Suzuki	Barina / Swift / Cultus	89-99	4.69	4.43	4.96	0.52
Suzuki	Hatch / Alto	82-84	7.86	6.72	9.19	2.47
Suzuki	Alto	85-00	7.52	5.78	9.78	4.00
Suzuki	Ignis	00-02	3.56	2.13	5.96	3.83
Toyota	Starlet	96-99	4.16	3.70	4.67	0.97
Toyota	Echo	99-04	3.68	3.19	4.25	1.06
Volkswagen	Polo	96-00	2.82	1.92	4.14	2.22
Small Cars			3.77	3.71	3.83	0.11
Alfa Romeo	33	83-92	4.00	3.08	5.21	2.14
Chrysler	Neon	96-99	2.24	1.46	3.42	1.96
Daihatsu	Applause	89-99	4.02	3.53	4.58	1.05
Daewoo	Nubira	97-03	3.42	2.91	4.03	1.12
Ford	Laser	91-94	3.98	3.75	4.22	0.47
Ford	Laser	95-97	4.10	3.67	4.58	0.91
Ford	Escort	82-82	2.56	1.68	3.91	2.22
Ford	Focus	02-04	3.85	2.62	5.67	3.05
Fiat	Regata	84-88	4.32	2.86	6.51	3.65
Holden	Gemini	82-84	4.55	4.22	4.91	0.69
Holden	Gemini RB	86-87	4.94	4.11	5.94	1.83
Holden	Astra TR	96-98	3.09	2.44	3.90	1.46
Holden	Astra TS	98-04	3.06	2.72	3.45	0.73
Hyundai	Elantra	00-04	3.96	3.01	5.20	2.19
Hyundai	S Coupe	90-96	4.18	3.41	5.11	1.70
Hyundai	Lantra	91-95	4.18	3.59	4.88	1.29
Hyundai	Lantra	96-00	3.79	3.37	4.27	0.90
Mitsubishi	Lancer / Mirage CA	89-90	3.85	3.51	4.21	0.70
Mitsubishi	Lancer / Mirage CB	91-92	3.75	3.20	4.38	1.18
Mitsubishi	Lancer / Mirage CC	93-95	3.78	3.46	4.13	0.67
Mitsubishi	Lancer / Mirage CE	96-03	3.89	3.64	4.16	0.52
Mitsubishi	Cordia	83-87	5.48	4.87	6.16	1.30
Mitsubishi	Lancer CG	02-03	3.17	1.82	5.52	3.70
Mitsubishi	Lancer CH	03-04	7.02	4.39	11.25	6.86
Ford / Mazda	Laser / 323 / Familia	82-88	4.67	4.52	4.82	0.30
Mazda	323 / Familia / Lantis	90-93	3.56	3.24	3.92	0.69
Mazda	323 / Familia / Lantis	95-98	3.80	3.37	4.29	0.92
Ford / Mazda	Laser / 323	99-03	3.41	2.99	3.88	0.89
Mazda	3	03-04	1.09	0.34	3.52	3.19
Holden / Nissan	Astra / Pulsar / Langley	84-86	5.05	4.76	5.35	0.59
Holden / Nissan	Astra / Pulsar / Vector / Sentra	88-90	4.42	4.18	4.68	0.51
Nissan	Pulsar / Vector / Sentra	92-95	3.68	3.38	4.00	0.63
Nissan	Pulsar / Vector / Sentra	96-99	4.00	3.66	4.37	0.70
Nissan	Stanza	82-83	4.91	3.76	6.40	2.64
Nissan	Pulsar	00-04	4.24	3.72	4.84	1.11
Honda	Civic	82-83	4.35	3.68	5.15	1.48
Honda	Civic / Ballade / Shuttle	84-87	5.15	4.69	5.66	0.98
Honda	Civic / Shuttle	88-91	4.11	3.75	4.50	0.74
Honda	Civic	92-95	3.85	3.49	4.24	0.75

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Honda	Civic	96-00	3.16	2.77	3.59	0.82
Honda	Civic	01-04	2.90	2.08	4.04	1.96
Honda	Concerto	89-93	4.09	3.24	5.15	1.91
Peugeot	306	94-01	2.38	1.84	3.06	1.22
Peugeot	307	01-04	1.79	0.82	3.88	3.06
Proton	Wira	95-96	4.47	3.64	5.48	1.84
Renault	19	91-96	3.62	2.27	5.75	3.48
Rover	Quintet	82-86	3.73	2.52	5.52	3.00
Subaru	Impreza	93-00	4.45	3.98	4.97	0.99
Subaru	Impreza	01-04	2.51	1.73	3.62	1.89
Suzuki	Baleno / Cultus Crescent	95-02	3.14	2.49	3.96	1.47
Toyota	Corolla	82-84	4.18	3.94	4.44	0.50
Toyota	Corolla	86-88	4.39	4.17	4.61	0.44
Toyota / Holden	Corolla / Nova	89-93	4.06	3.88	4.24	0.36
Toyota / Holden	Corolla / Nova	94-97	3.65	3.44	3.88	0.44
Toyota	Corolla	98-01	3.26	2.92	3.64	0.73
Toyota	Corolla	02-04	3.51	2.99	4.13	1.13
Toyota	Tercel	83-88	4.73	3.57	6.26	2.68
Toyota	Corolla 4WD Wagon	92-96	4.78	3.23	7.08	3.85
Volkswagen	Golf	82-94	5.05	3.39	7.53	4.15
Volkswagen	Golf	95-98	3.60	2.76	4.70	1.94
Volkswagen	Golf / Bora	99-04	2.52	1.91	3.33	1.42
Sports Cars			3.94	3.81	4.08	0.27
Alfa Romeo	GTV	82-84	8.51	5.57	13.02	7.46
BMW	Z3 E36	97-03	4.73	2.96	7.56	4.60
Ford	C04i	89-94	4.28	3.61	5.08	1.47
Ford	Probe	94-98	5.16	3.29	8.10	4.81
Holden	Calibra	94-97	3.63	2.64	5.00	2.36
Holden	Monaro	01-04	7.70	5.50	10.77	5.27
Hyundai	Coupe	96-00	4.98	3.94	6.30	2.36
Mitsubishi	Starion	82-87	7.79	5.62	10.81	5.19
Mazda	RX7	82-85	5.27	4.15	6.69	2.53
Mazda	RX7	86-91	3.03	2.14	4.30	2.16
Mazda	MX5 / Eunos Roadster	89-97	4.21	3.13	5.66	2.53
Mazda	MX5 / Eunos Roadster	98-04	1.85	0.89	3.84	2.95
Mazda	Eunos 30X / Presso / MX-3 / Autozam AZ-3	90-97	3.12	2.08	4.68	2.60
Nissan	300ZX / Fairlady Z	90-95	4.51	3.44	5.92	2.48
Nissan	Gazelle / Silvia	84-86	5.32	4.38	6.48	2.10
Nissan	Exa	83-86	7.67	6.13	9.60	3.47
Nissan	Exa	87-91	5.00	3.59	6.97	3.38
Nissan	NX/NX-R	91-96	6.39	5.17	7.89	2.72
Nissan	200SX / Silvia	94-02	3.68	2.83	4.79	1.96
Honda	CRX	87-91	5.50	4.43	6.85	2.42
Honda	CRX	92-98	4.63	3.11	6.90	3.79
Honda	Prelude	82-82	3.10	1.83	5.24	3.42
Honda	Prelude	83-91	4.01	3.65	4.41	0.76
Honda	Prelude	92-96	3.95	3.30	4.72	1.42

Make	Model of Car	Years of Manufacture	Serious injury rate per 100 road users involved	Lower 90% Confidence Limit	Upper 90% Confidence Limit	Width of Confidence Interval
Honda	Prelude	97-02	2.72	1.87	3.94	2.07
Honda	Integra	86-88	4.05	3.34	4.90	1.56
Honda	Integra	90-92	3.61	2.85	4.57	1.72
Honda	Integra	93-01	2.97	2.32	3.81	1.49
Renault	Feugo	82-87	2.63	1.76	3.95	2.19
Toyota	Celica	81-85	4.11	3.63	4.65	1.02
Toyota	Celica	86-89	4.21	3.66	4.85	1.18
Toyota	Celica	90-93	4.29	3.72	4.94	1.22
Toyota	Celica	94-99	4.32	3.52	5.29	1.77
Toyota	Celica	00-04	3.91	2.83	5.40	2.57
Toyota	Supra	82-90	6.19	4.82	7.95	3.13
Toyota	MR2	87-90	6.01	4.46	8.10	3.64
Toyota	MR2	91-00	4.37	2.91	6.56	3.65
Toyota	Paseo / Cynos	91-99	4.28	3.56	5.13	1.57

APPENDIX 5

PRESENTATION OF TOTAL SECONDARY SAFETY, CRASHWORTHINESS AND AGGRESSIVITY FOR CONSUMER INFORMATION

TOTAL SECONDARY SAFETY, CRASHWORTHINESS AND AGGRESSIVITY

Victoria and NSW Data (1987-2004), Queensland, Western Australia and New Zealand Data (1991-2004)

MAKE	MODEL	YEARS OF MANUFACTURE	TOTAL SECONDARY SAFETY					CRASHWORTHINESS	AGGRESSIVITY
			At least 15% better than average	At least better than average but not 15% better than average	Not significantly different from average	At least worse than average but not 15% worse than average	At least 15% worse than average	++ = Much better than average + = Better than average o = Average x = Worse than average xx = Much worse than average	
Compact Four Wheel Drive Vehicles								o	+
Daihatsu	Feroza / Rocky	89-97						o	o
Daihatsu	Rocky / Rugger	85-98						xx	x
Daihatsu	Terios	97-04						o	+
Holden	Cruze	02-04							
Kia	Sportage	98-03							o
Ford / Mazda	Escape / Tribute	01-04							
Nissan	X-Trail	01-04						o	
Lada	Niva	84-99						o	o
Honda	CR-V	97-01						++	+
Honda	CR-V	02-04						+	o
Honda	HR-V	99-02						o	x
Landrover	Freelander	98-04							
Subaru	Forester	97-02						++	++
Subaru	Forester	02-04						++	
Suzuki	Vitara / Escudo	88-98						o	o
Suzuki	Grand Vitara	99-04							
Holden / Suzuki	Drover / Sierra / Samurai / SJ410 / SJ413	82-99						xx	o
Toyota	RAV4	94-00						+	o
Toyota	RAV4	01-04						+	o
Medium Four Wheel Drive Vehicles								++	x
Daewoo / Ssangong	Musso	98-02							
Holden / Isuzu	Jackaroo / Bighorn	82-91						+	xx

MAKE	MODEL	YEARS OF MANUFACTURE	TOTAL SECONDARY SAFETY					CRASHWORTHINESS	AGGRESSIVITY
			At least 15% better than average	At least better than average but not 15% better than average	Not significantly different from average	At least worse than average but not 15% worse than average	At least 15% worse than average	++ = Much better than average + = Better than average o = Average x = Worse than average xx = Much worse than average	
Holden / Isuzu	Jackaroo / Bighorn	92-97						o	o
Holden / Isuzu	Jackaroo / Bighorn	98-02						o	o
Holden	Frontera / Mu	95-03							
Hyundai	Santa Fe	00-04							
Mitsubishi	Pajero	82-90						o	xx
Mitsubishi	Pajero	92-99						++	x
Mitsubishi	Pajero NM / NP	00-04						+	
Mitsubishi	Challenger	98-04						o	
Jeep	Cherokee XJ	96-00						+	o
Jeep	Wrangler	96-04							
Land Rover	Defender	92-04						o	o
Land Rover	Discovery	91-02						+	o
Nissan	Pathfinder / Terrano	88-94						o	x
Nissan	Pathfinder / Terrano	95-02						+	o
Toyota	Landcruiser Prado	96-03							
Toyota	Landcruiser Prado	03-04							
Large Four Wheel Drive Vehicles								++	xx
Ford	Bronco	82-87							
Ford	Explorer	00-01						o	o
Jeep	Grand Cherokee	96-99							
Jeep	Grand Cherokee	99-04							
Mercedes Benz	M-Class W163	98-04							
Nissan	Patrol / Safari	82-87						o	xx
Nissan / Ford	Patrol / Maverick / Safari	88-97						++	xx
Nissan	Patrol / Safari	98-04						++	xx
Land Rover	Range Rover	82-94						++	xx
Land Rover	Range Rover	95-02							
Toyota	Landcruiser	82-89						o	xx
Toyota	Landcruiser	90-97						++	xx
Toyota	Landcruiser	98-04						++	xx
Commercial Vehicles- Vans								o	xx

MAKE	MODEL	YEARS OF MANUFACTURE	TOTAL SECONDARY SAFETY					CRASHWORTHINESS	AGGRESSIVITY
			At least 15% better than average	At least better than average but not 15% better than average	Not significantly different from average	At least worse than average but not 15% worse than average	At least 15% worse than average	++ = Much better than average + = Better than average o = Average x = Worse than average xx = Much worse than average	
Daihatsu	Handivan	82-90						xx	+
Daihatsu	Hi-Jet	82-90						xx	
Daihatsu	Handivan / Cuore	99-03							
Ford	Falcon Panel Van	82-95						o	o
Ford	Falcon Panel Van	96-99						++	o
Ford	Transit	95-00						o	o
Ford	Transit	01-04							
Holden	Shuttle / WFR Van	82-87						xx	o
Mercedes Benz	Vito	99-04							x
Mercedes Benz	Sprinter	98-04							
Honda	Acty	83-86						o	+
Holden / Suzuki	Scurry / Carry	82-00						xx	o
Toyota	Hiace/Liteace	82-86						xx	xx
Toyota	Hiace/Liteace	87-89						x	xx
Toyota	Hiace/Liteace	90-95						o	xx
Toyota	Hiace/Liteace	96-04						+	xx
Volkswagen	Caravelle / Transporter	88-94							
Volkswagen	Caravelle / Transporter	95-04						++	xx
Commercial Vehicles- Utes								+	x
Ford / Nissan	Falcon Ute / XFN Ute	82-95						o	x
Ford	Falcon Ute	96-99						+	x
Ford	Falcon Ute AU	00-02						++	x
Ford	Falcon Ute BA	03-04						o	
Ford	Ford F-Series	82-92						o	xx
Holden	Commodore Ute VG/VP	90-93						o	o
Holden / Isuzu	Rodeo / Pickup	82-85						o	o
Holden / Isuzu	Rodeo / Pickup	86-88						o	o
Holden / Isuzu	Rodeo / Pickup	89-95						o	xx
Holden	Rodeo	96-98						+	x
Holden	Rodeo	99-02						+	x
Holden	WB Series	82-85						x	x

MAKE	MODEL	YEARS OF MANUFACTURE	TOTAL SECONDARY SAFETY					CRASHWORTHINESS	AGGRESSIVITY
			At least 15% better than average	At least better than average but not 15% better than average	Not significantly different from average	At least worse than average but not 15% worse than average	At least 15% worse than average	++ = Much better than average + = Better than average o = Average x = Worse than average xx = Much worse than average	
Holden	Commodore Ute VR/VS	94-00						+	x
Holden	Commodore VU Ute	00-02						o	x
Holden	Commodore VY/VZ Ute	02-04						o	xx
Holden	Rodeo	03-04						++	o
Kia	Ceres	92-00						o	o
Ford / Mazda	Courier / B-Series / Bounty	98-02						o	o
Nissan	720 Ute	82-85						o	o
Nissan	Navara	86-91						o	x
Nissan	Navara	92-96						+	x
Nissan	Navara	97-04						+	x
Subaru	Brumby	82-92						xx	o
Suzuki	Mighty Boy	85-88						xx	+
Toyota	4Runner/Hilux	82-85						o	xx
Toyota	4Runner/Hilux	86-88						o	xx
Toyota	4Runner/Hilux	89-97						o	xx
Toyota	Hilux	98-02						+	xx
Toyota	Hilux	03-04							xx
Large Cars								+	+
Ford	Falcon XE/XF	82-88						o	x
Ford	Falcon EA / Falcon EB Series I	88-Mar 92						+	x
Ford	Falcon EB Series II / Falcon ED	Apr 92-94						+	x
Ford	Falcon EF/EL	94-98						++	x
Ford	Falcon AU	98-02						++	o
Ford	Taurus	96-98						o	o
Ford	Falcon BA	02-04						+	o
Holden / Toyota	Commodore VN/VP / Lexcen	89-93						o	+
Holden / Toyota	Commodore VR/VS / Lexcen	93-97						++	o
Holden	Commodore VT/VX	97-02						++	x
Holden	Commodore	02-04						++	o

MAKE	MODEL	YEARS OF MANUFACTURE	TOTAL SECONDARY SAFETY					CRASHWORTHINESS	AGGRESSIVITY
			At least 15% better than average	At least better than average but not 15% better than average	Not significantly different from average	At least worse than average but not 15% worse than average	At least 15% worse than average	++ = Much better than average + = Better than average o = Average x = Worse than average xx = Much worse than average	
	VY/VZ								
Holden	Commodore VB-VL	82-88						x	o
Hyundai	Sonata	98-01						o	o
Hyundai	Sonata	89-97						o	o
Hyundai	Grandeaur / XG	99-00							
Mitsubishi	Magna TM/TN/TP / Sigma / V3000	85-90						x	o
Mitsubishi	Magna TE/TF/TH/TJ / Verada KE/KF/KH/KJ / Diamante	96-03						+	o
Mitsubishi	Magna TR/TS / Verada KR/KS / V3000 / Diamante	91-96						+	o
Nissan	Skyline	83-88						o	o
Holden / Toyota	Apollo JM/JP / Camry / Sceptor	93-97						+	o
Toyota	Camry	98-02						++	x
Toyota	Avalon	00-04						+	x
Toyota	Camry	02-04						+	o
Luxury Cars								++	+
Alfa Romeo	75	86-92							
Audi	A4	95-01						o	o
Audi	A4	01-04							
BMW	3 Series E30	82-91						+	o
BMW	3 Series E36	92-98						+	o
BMW	3 Series E46	99-04						++	o
BMW	5 Series E28	82-88						o	o
BMW	5 Series E34	89-95						o	o
BMW	5 Series E39	96-03						++	o
BMW	7 Series E23	82-88							
BMW	7 Series E32	89-94							
Citroen	BX	86-94							
Ford	Fairlane Z & LTD F	82-87						o	o
Ford	Fairlane N & LTD	88-94						+	o

MAKE	MODEL	YEARS OF MANUFACTURE	TOTAL SECONDARY SAFETY					CRASHWORTHINESS	AGGRESSIVITY
			At least 15% better than average	At least better than average but not 15% better than average	Not significantly different from average	At least worse than average but not 15% worse than average	At least 15% worse than average	++ = Much better than average + = Better than average o = Average x = Worse than average xx = Much worse than average	
	D								
Ford	Fairlane N & LTD D	95-98						o	o
Ford	Fairlane & LTD AU	99-02						o	o
Holden	Statesman/Caprice WB	82-85						o	
Holden	Stateman/Caprice VQ	90-93						o	o
Holden	Stateman/Caprice VR/VS	94-98						o	o
Holden	Statesman/Caprice WH	99-03						++	o
Jaguar	XJ6	82-86						o	xx
Jaguar	XJ6	87-94						+	o
Mazda	929 / Luce	82-90						o	o
Mazda	929 / Sentia / Efini MS-9	92-96						+	
Mazda	Eunos 500	93-99							
Mercedes Benz	C-Class W201	87-93						o	o
Mercedes Benz	C-Class W202	95-00						+	+
Mercedes Benz	E-Class W123	82-85						o	
Mercedes Benz	E-Class W124	86-94						+	o
Mercedes Benz	E-Class W210	96-02						+	o
Mercedes Benz	S-Class W126	82-92						o	o
Mercedes Benz	S-Class C140	93-98							
Mercedes Benz	A-Class W168	98-04							
Nissan	Maxima	90-94						o	o
Nissan	Maxima / Cefiro	95-99						+	o
Nissan	Maxima	00-02							
Honda	Legend	86-95						++	o
Honda	Accord	82-85						x	++
Honda	Accord	86-90						+	o
Honda	Accord	91-93						+	++
Honda	Accord	94-98						+	o
Honda	Accord	99-02						+	o
Peugeot	405	89-97						o	o
Peugeot	505	82-93						+	o
Peugeot	406	96-04						++	

MAKE	MODEL	YEARS OF MANUFACTURE	TOTAL SECONDARY SAFETY					CRASHWORTHINESS	AGGRESSIVITY
			At least 15% better than average	At least better than average but not 15% better than average	Not significantly different from average	At least worse than average but not 15% worse than average	At least 15% worse than average	++ = Much better than average + = Better than average o = Average x = Worse than average xx = Much worse than average	
Rover	3500	82-87							
Saab	900 Series	82-92						o	++
Saab	900/9-3	94-02						+	o
Saab	9000	86-97						++	o
Toyota	Crown / Cressida / Mark II	82-85						o	o
Toyota	Crown / Cressida / Mark II	86-88						o	o
Toyota	Cressida / Mark II	89-93						+	o
Lexus	ES300 / Windom	92-01						o	o
Lexus	LS400 / Celsior	90-00							
Volvo	850/S70/V70/C70	92-04						+	x
Volvo	200 Series	82-93						+	o
Volvo	300 Series	84-88						o	
Volvo	700/900 Series	84-92						++	o
Volvo	S40/V40	97-04						o	o
Volkswagen	Passat	98-04						++	
Medium Cars								+	++
Daewoo	Espero	95-97						x	o
Daewoo	Leganza	97-04						o	o
Ford	Cortina	82-82							o
Ford	Mondeo	95-01						++	o
Holden	Camira	82-89						xx	o
Holden	Vectra	97-03						++	o
Mitsubishi	Sigma / Galant / Sapporo / Lambda	82-84						x	+
Mitsubishi	Galant	95-96						o	o
Ford / Mazda	Telstar / 626 / MX6 / Capella	83-86						o	+
Ford / Mazda	Telstar / 626 / MX6 / Capella	88-91						o	o
Ford / Mazda	Telstar / 626 / MX6 / Capella / Cronos	92-97						+	+
Mazda	626	98-02						o	o
Nissan	Pintara	86-88						o	o
Nissan / Ford	Pintara / Corsair / Bluebird	89-92						x	o

MAKE	MODEL	YEARS OF MANUFACTURE	TOTAL SECONDARY SAFETY					CRASHWORTHINESS	AGGRESSIVITY
			At least 15% better than average	At least better than average but not 15% better than average	Not significantly different from average	At least worse than average but not 15% worse than average	At least 15% worse than average	++ = Much better than average + = Better than average o = Average x = Worse than average xx = Much worse than average	
Nissan	Bluebird	82-86						xx	+
Nissan	Bluebird	93-97						+	+
Subaru	1800 / Leone / Omega / 4WD Wagon	82-93						x	+
Subaru	Liberty / Legacy	89-93						+	o
Subaru	Liberty / Legacy / Outback	94-98						+	o
Subaru	Liberty / Legacy / Outback	99-03						++	o
Toyota	Corona	82-88						x	+
Toyota	Camry	83-86						o	o
Holden / Toyota	Apollo JK/JL / Camry / Vista	88-92						o	o
People Movers								x	x
Chrysler	Voyager	97-04						+	x
Ford	Spectron	86-90							
Mitsubishi	Nimbus / Chariot / Spacewagon	85-91						o	o
Mitsubishi	Nimbus / Chariot	92-98						o	o
Mitsubishi	Nimbus	99-03							
Mitsubishi	Starwagon / L300	83-86						xx	xx
Mitsubishi	Starwagon / Delica Starwagon	87-93						x	xx
Mitsubishi	Starwagon / Delica Spacegear	95-98						o	o
Mitsubishi	Starwagon / Delica Spacegear	98-04						o	o
Kia	Carnival	99-04						++	o
Mazda	MPV	94-99							
Nissan	Prairie	84-86						o	o
Nissan	Serena	92-95							
Honda	Odyssey	95-00						o	o
Toyota	Tarago	83-89						xx	o
Toyota	Tarago / Previa / Estima	91-99						+	o

MAKE	MODEL	YEARS OF MANUFACTURE	TOTAL SECONDARY SAFETY					CRASHWORTHINESS	AGGRESSIVITY
			At least 15% better than average	At least better than average but not 15% better than average	Not significantly different from average	At least worse than average but not 15% worse than average	At least 15% worse than average	++ = Much better than average + = Better than average o = Average x = Worse than average xx = Much worse than average	
Toyota	Tarago / Previa / Estima	00-04							
Light Cars								xx	++
Daihatsu	Charade	82-86						xx	+
Daihatsu	Charade	88-92						xx	++
Daihatsu	Charade	93-00						xx	++
Daihatsu	Pyzar	97-01						o	+
Daihatsu	Sirion / Storia	98-04						o	++
Daihatsu	Mira	90-96						xx	+
Daewoo	1.5i	94-95						o	
Daewoo	Cielo	95-97						o	++
Daewoo	Lanos	97-03						x	o
Daewoo	Matiz	99-04						o	o
Ford	Festiva WD/WH/WF	94-01						xx	++
Ford	Ka	99-04						o	
Holden	Barina XC	01-04						o	++
Holden	Barina SB	95-00						x	+
Hyundai	Excel	86-90						xx	o
Hyundai	Excel	90-94						xx	+
Hyundai	Excel / Accent	95-00						xx	+
Hyundai	Getz	02-04						xx	o
Hyundai	Accent	00-04						x	+
Mitsubishi	Mirage / Colt	82-88						xx	+
Kia	Rio	00-04						o	o
Ford / Mazda	Festiva WA / 121	87-90						xx	++
Mazda	121 / Autozam Review	94-96						o	++
Mazda	121 Metro / Demio	97-02						o	++
Nissan	Micra	95-97						xx	o
Honda	City	83-86						xx	o
Peugoet	205	87-94						o	
Peugeot	206	99-04							
Subaru	Sherpa / Fiori / 700 / Rex	89-92						xx	+

MAKE	MODEL	YEARS OF MANUFACTURE	TOTAL SECONDARY SAFETY					CRASHWORTHINESS	AGGRESSIVITY
			At least 15% better than average	At least better than average but not 15% better than average	Not significantly different from average	At least worse than average but not 15% worse than average	At least 15% worse than average	++ = Much better than average + = Better than average o = Average x = Worse than average xx = Much worse than average	
Suzuki	Swift	82-85						xx	
Holden / Suzuki	Barina / Swift / Cultus	86-88						xx	++
Holden / Suzuki	Barina / Swift / Cultus	89-99						xx	++
Suzuki	Hatch / Alto	82-84						xx	o
Suzuki	Alto	85-00						xx	
Suzuki	Ignis	00-02						o	
Toyota	Starlet	96-99						x	+
Toyota	Echo	99-04						o	++
Volkswagen	Polo	96-00						o	o
Small Cars								x	++
Alfa Romeo	33	83-92						o	++
Chrysler	Neon	96-99						o	+
Daihatsu	Applause	89-99						o	+
Daewoo	Nubira	97-03						o	+
Ford	Laser	91-94						o	+
Ford	Laser	95-97						o	+
Ford	Escort	82-82							++
Ford	Focus	02-04						o	o
Fiat	Regata	84-88						o	
Holden	Gemini	82-84						xx	+
Holden	Gemini RB	86-87						x	o
Holden	Astra TR	96-98						+	o
Holden	Astra TS	98-04						+	+
Hyundai	Elantra	00-04						o	o
Hyundai	S Coupe	90-96						x	++
Hyundai	Lantra	91-95						o	o
Hyundai	Lantra	96-00						o	o
Mitsubishi	Lancer / Mirage CA	89-90						o	+
Mitsubishi	Lancer / Mirage CB	91-92						o	o
Mitsubishi	Lancer / Mirage CC	93-95						o	++
Mitsubishi	Lancer / Mirage CE	96-03						o	+
Mitsubishi	Cordia	83-87						xx	x
Mitsubishi	Lancer CG	02-03							

MAKE	MODEL	YEARS OF MANUFACTURE	TOTAL SECONDARY SAFETY					CRASHWORTHINESS	AGGRESSIVITY
			At least 15% better than average	At least better than average but not 15% better than average	Not significantly different from average	At least worse than average but not 15% worse than average	At least 15% worse than average	++ = Much better than average + = Better than average o = Average x = Worse than average xx = Much worse than average	
Mitsubishi	Lancer CH	03-04							
Ford / Mazda	Laser / 323 / Familia	82-88						xx	++
Mazda	323 / Familia / Lantis	90-93						o	++
Mazda	323 / Familia / Lantis	95-98						o	++
Ford / Mazda	Laser / 323	99-03						o	+
Mazda	3	03-04							
Holden / Nissan	Astra / Pulsar / Langley	84-86						xx	+
Holden / Nissan	Astra / Pulsar / Vector / Sentra	88-90						x	+
Nissan	Pulsar / Vector / Sentra	92-95						o	+
Nissan	Pulsar / Vector / Sentra	96-99						o	+
Nissan	Stanza	82-83						o	o
Nissan	Pulsar	00-04						o	o
Honda	Civic	82-83						x	++
Honda	Civic / Ballade / Shuttle	84-87						xx	+
Honda	Civic / Shuttle	88-91						x	+
Honda	Civic	92-95						o	o
Honda	Civic	96-00						o	++
Honda	Civic	01-04						o	o
Honda	Concerto	89-93						o	o
Peugeot	306	94-01						++	o
Peugeot	307	01-04							
Proton	Wira	95-96						o	o
Renault	19	91-96						o	
Rover	Quintet	82-86						o	
Subaru	Impreza	93-00						o	o
Subaru	Impreza	01-04						o	o
Suzuki	Baleno / Cultus Crescent	95-02						o	++
Toyota	Corolla	82-84						xx	++
Toyota	Corolla	86-88						x	+
Toyota /	Corolla / Nova	89-93						x	+

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Holden									
Toyota / Holden	Corolla / Nova	94-97						o	++
Toyota	Corolla	98-01						++	+
Toyota	Corolla	02-04						o	o
Toyota	Tercel	83-88						o	o
Toyota	Corolla 4WD Wagon	92-96						o	
Volkswagen	Golf	82-94						x	
Volkswagen	Golf	95-98						o	o
Volkswagen	Golf / Bora	99-04						++	o
Sports Cars								o	+
Alfa Romeo	GTV	82-84						x	
BMW	Z3 E36	97-03							
Ford	Capri	89-94						x	+
Ford	Probe	94-98							
Holden	Calibra	94-97						o	o
Holden	Monaro	01-04							xx
Hyundai	Coupe	96-00						xx	o
Mitsubishi	Starion	82-87						xx	
Mazda	RX7	82-85						x	o
Mazda	RX7	86-91						o	o
Mazda	MX5 / Eunos Roadster	89-97						o	o
Mazda	MX5 / Eunos Roadster	98-04							
Mazda	Eunos 30X / Presso / MX-3 / Autozam AZ-3	90-97						o	o
Nissan	300ZX / Fairlady Z	90-95						o	x
Nissan	Gazelle / Silvia	84-86						x	o
Nissan	Exa	83-86						xx	x
Nissan	Exa	87-91						o	o
Nissan	NX/NX-R	91-96						xx	o
Nissan	200SX / Silvia	94-02						o	o
Honda	CRX	87-91						xx	o

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Honda	CRX	92-98						o	
Honda	Prelude	82-82							
Honda	Prelude	83-91						o	o
Honda	Prelude	92-96						o	o
Honda	Prelude	97-02						++	o
Honda	Integra	86-88						o	+
Honda	Integra	90-92						+	o
Honda	Integra	93-01						+	o
Renault	Feugo	82-87						o	++
Toyota	Celica	81-85						o	o
Toyota	Celica	86-89						o	o
Toyota	Celica	90-93						o	o
Toyota	Celica	94-99						o	o
Toyota	Celica	00-04							o
Toyota	Supra	82-90						x	xx
Toyota	MR2	87-90						xx	
Toyota	MR2	91-00						o	
Toyota	Paseo / Cynos	91-99						o	o