

3. Car Driver Survey: Description and Attitudes of Sample Population

3.1 Introduction

Early on in the multinomial logit modelling of the combined Auckland and Wellington data for the car driver survey, it became apparent that modelling for the two cities was better done separately due to the significantly varying nature of the population. Christchurch is somewhat unique again, thus we present the database description for the three cities individually. The discussion of the database information is quite detailed because, as may be expected, the characteristics of the respondents in our sample give some indication of how they are likely to respond to the stated choice experiment scenarios, particularly where different aspects of the scenarios do not impact on them.

3.2 Demographic and Contextual Data

We compared the demographic and other contextual data from our database with that of the Land Transport Safety Authority's 1998/99 Household Travel Survey to ascertain the validity of our sample. The Household Travel Survey (HTS) had full responses from 5367 households nationwide, including 747 Auckland households (2296 people), 333 Wellington households (839 people) and 434 households from Christchurch (1138 people). Basic demographic and contextual data (such as car ownership) was collected from the households sampled in the HTS and each household member completed a 2-day trip diary.

Aside from some differences in coding in responses, we found our sample to be quite similar in composition to that of the HTS.

3.2.1 Household Composition

We compared the household composition of our three-city database with the extrapolated version of the HTS database for New Zealand households where one member drove to work on a regular basis. It appears that the coding of defacto / married couples and adults living with other adults was different for the two surveys – if these categories are combined, then the Pinnacle Research database compares favourably to the more extensive HTS database.

Table 3-1 Household Composition (%)

	Auckland	Wellington	Christchurch	Total	HTS
	<i>n</i> = 250	<i>n</i> = 235	<i>n</i> = 250	<i>n</i> = 737	<i>n</i> = 5367
Single	7	12	10	10	10
Defacto/married couple	22	20	21	21	29
Single adult with other adults	10	14	12	12	6
Married with children under 18	32	33	37	34	41
Extended family, children under 18	7	4	3	5	
Married with children over 18	17	11	11	13	10
Single adult, children under 18	5	4	6	5	2

Some differences between the two samples may also occur due to the HTS request for a two-day trip diary for each household member – this would be much simpler to complete as a single adult or de facto/couple than in a family setting or flat-like situation with other adults.

3.2.2 Age Structure

We compared the age structure of our sample with the age structure of those in the HTS sample who drove to work between 6 and 10 a.m. on the weekday of the survey. We found that our sample was very similar in composition to that of the HTS nationwide estimates for age structure driving to work 6-10 a.m. on a weekday. The largest difference, for the 20-29 age group, probably reflects the tendency of this age group to be underrepresented in most surveys (we have not adjusted our results for this underrepresentation, whereas the larger HTS corrected frequencies for this age group upwards by around 28% by statistical weighting using Census results).

Table 3-2 Age Structure (%)

	Auckland	Wellington	Christchurch	Total Sample	HTS
15-19	4	3	4	4	3
20-29	18	18	16	17	22
30-39	28	25	25	26	28
40-49	30	26	33	30	26
50-59	15	20	18	18	16
60+	5	7	4	5	5

3.2.3 Gender

Overall, we had slightly more males responding to the survey (53%) than females (47%). It is usual for a greater proportion of women than men to cooperate with surveys, but the greater number of men at work more than counterbalanced that usual pattern in this case. In Wellington and Christchurch the respondents were very evenly distributed between male and female.

3.2.4 Employment Status

In the survey, we asked the respondent to indicate their employment status. About 62% of our sample is full-time employees.

Table 3-3 Employment Status (% - may not add to 100 due to rounding)

	Auckland	Wellington	Christchurch	Total Sample
Full-time employee	59	65	60	61
Part-time employee ¹	16	13	18	16
Self-employed	14	17	9	13
Student (full- & part-time)	10	4	12	8
Other	2	1	1	1

¹Part-time is defined as working less than 30 hours / week.

3.2.5 Household and Personal Income

Because the 1999 survey risked becoming intolerably long for respondents, we did not ask respondents from Auckland and Wellington about their personal and household income levels. However, the restructuring of the Christchurch survey allowed us to include these questions.

As shown in Table 3-4, respondents appeared to come from a reasonably diverse income groups.

Table 3-4 Income, Christchurch only (% - may not add to 100 due to rounding)

	Personal	Joint*
	<i>n = 252</i>	<i>n = 252</i>
\$10,000 or under	16	10
\$10,001 to \$20,000	11	7
\$20,001 to \$30,000	20	11
\$30,001 to \$40,000	17	14
\$40,001 to \$50,000	10	13
\$50,001 to \$70,000	11	18
\$70,001 to \$100,000	4	13
\$100,001 or more	1	6
Refused/don't know	11	10

* Joint income of respondent and partner (if exists) before tax.

3.2.6 Driving to Work

The survey was targeted towards people who had driven their cars to work before 10 a.m. at least two times in the previous week. In fact, 81% of the respondents in our sample drove their car at least 4 days per week to work, as is shown in Table 3-5 below.

Table 3-5 Driving to Work (%)

No of days driving to work before 10 a.m.	Total Sample
One day	0.2
Two days	12
Three days	8
Four days	16
Five days	64

Whereas most people used their own or another vehicle owned by their household to drive themselves to work, 11% of the sample drove company vehicles. Christchurch had slightly fewer respondents driving company cars (9%) compared to Auckland (11%) and Wellington (12%). This figure is significantly lower than the 20% (Auckland) and 17% (Wellington) who drove company vehicles to work in the HTS. Thus, given the lower response rate for our survey than for the HTS, this may warn of some bias in our sample (i.e., that drivers of company cars disproportionately avoided our survey).

3.2.7 Parking at Work or Place of Study

Table 3-6 reveals the differences between Auckland, Wellington and Christchurch as to where people park while at work or their place of study. In Auckland, more respondents had access to employer-provided parking (63%) than in Wellington (47%) and Christchurch (54%), whereas more people in Christchurch and Wellington parked on street, free and without a time limit (29% and 21%, respectively) than did in Auckland (13%). Wellington had much higher levels of people parking in public off-street car park building and at paid on-street parks than did Christchurch or Auckland, perhaps reflecting the success of Wellington Regional Council's campaign to cut down on the amount of free, all-day parking in the heart of Wellington City.

We did not compare our results with the HTS database, as the definitions for parking for the two studies were distinctly different.

Table 3-6 Where mainly parked while at work / study over previous month (%)

Q12 In the last month, where did you mainly park your vehicle at work or the educational institution you attend?

Where Parked	Auckland	Wellington	Christchurch	Total Sample
Employer- provided car park	63	47	54	55
Car park provided by a business (not employer)	8	5	4	6
Public off-street parking (building/lot)	7	12	4	8
On-street, free & no time limit	13	21	29	21
On-street paid (meter, coupon)	1	6	1	2
Other (incl. unknown, residential property, free with time limit, etc)	8	9	8	8

Not surprisingly, the different parking behavior is reflected in the amount of money people pay for parking in the three cities (see Table 3-7). Wellington had many fewer respondents saying that they had paid nothing for parking the previous week (58%) than did Auckland (76%) and Christchurch (73%). Far fewer people in Auckland paid up to \$10 per week for their parking (13%) than did in either Christchurch (22%) or Wellington (25%). Nearly 9% of Wellingtonians paid between \$12 and \$20 per week for their parking – compared with 1% in Auckland and 3% in Christchurch.

Table 3-7 Amount Paid for Parking in Previous Week (% - may not add to 100 due to rounding)

Q14. In the past week, how much did you personally pay for parking?

Amount Paid	Auckland	Wellington	Christchurch	Total Sample
Nothing	76	58	73	69
\$1-10	13	25	22	20
\$12-20	1	9	3	4
\$21 and over	6	8	2	5
Unknown	4	0	0	1

3.2.8 Using the Car During Working Hours

Over half of our respondents (52%) had not used their cars during working hours in the week prior to the survey. Nearly one-third (30%) of the respondents had used their car on at least three days of the previous week for work-related business, such as delivering goods or visiting clients. The remainder (18%) used their vehicle 1-2 days in the previous week. Auckland and Wellington demonstrated a similar usage pattern while drivers in Christchurch were much less likely to use their car for business-related trips during working hours as shown in Table 3-8

Table 3-8 Using the Car during Work Hours (% - may not add to 100 due to rounding)

Q21 Some people drive as part of their work, to deliver things or visit customers, for example. In the past week, how many days did you drive your car for work or study purposes? This excludes driving to or from work?

No. of days using car during work hours	Auckland	Wellington	Christchurch	Total Sample
None at all	50	49	59	52
1-2 days per week	18	19	15	17
3+ days per week	33	32	26	30

In Christchurch, we asked all respondents whether or not it would be practical to use taxis or public transport for the work-related business trips they are currently using their car for. Excluding those for whom the question was not applicable (in that they don't use their car for business during working hours), 21% replied that it would be practical, while 75% said that it would not be practical. When asked why it would not be practical to use public transport or taxis, there were three main responses:

- A private (which may be company-owned) vehicle is required because of the need to carry and deliver goods and/or samples (sales representatives), people or other equipment as part of the trade (plumbers, builders, couriers, and lawn mowing business)
- Time – unable to fit in with passenger transport schedules and passenger transport trips take much longer than car trips

- Cost – frequent use of taxis or passenger transport viewed as too expensive compared to using car.

Others observed that public transport did not go where they needed to go.

In the Auckland and Wellington survey, we included the same questions but they were linked to the response to the question “what is your main reason for not choosing to use public transport?” Hence, we had a small sub-sample of respondents (n=60) for the two cities. Generally, these respondents used their cars at least 3 days per week for work-related business, and 90% of them (54 respondents) said it would not be practical to use passenger transport or taxis for these trips. The reasons they gave for saying this were the same as those given in the Christchurch sample.

3.2.9 Trip-making Habits

3.2.9.1 Number of stops between home and work

Most people (74%) drove straight from home to work or place of study in the morning without making any stops along the way. One-fifth of the drivers (19%) made one stop, while 5% made 2 stops on the way from home to work / study place. As is shown in Table 3-9, there was some variation between the three cities, insofar as Aucklanders had a greater tendency to make one stop on the way to work than did people living in Wellington or Christchurch.

Women were much more likely to make one or two stops on the way to their work or study than were men – 29% of women made one or two trips before work compared with 19% of men. The majority of trips before work were related to parental responsibilities: of the 208 stops made on the way to work by our sample population, 122 (59%) were to drop children off, either to caregivers or to school.

Table 3-9 Number of Stops on the Way to Work (%)

No. of Stops before Work	Auckland	Wellington	Christchurch	Total Sample
0	70	76	76	74
1	22	15	18	19
2	4	5	4	5
3	0	0	1	.3
Missing data	4	4	1	3

3.2.9.2 Number and Purpose of Trips between 5 a.m. and 10 p.m.

Table 3-10 shows that 24% of our sample made two trips in between 5 a.m. and 10 p.m. on the day under observation in the survey – generally, speaking this was from home to work to home. Over one-third (36%) made 3 to 4 trips in that timeframe. A significant proportion (21%) made 7 or more trips. Christchurch shows a much different pattern than Auckland and Wellington, with far fewer drivers making only 2 trips between 5 a.m. and 10 p.m. (17%), and significantly more (40%) making 3 to 4 trips. A small number drove to work before 5 a.m. or returned after 10 p.m. and hence could record 1 trip in the day.

Overwhelmingly, those people who were making greater than 4 trips between 5 a.m and 10 p.m. on the day in question were using their cars for work-related business. Indeed, the majority (58%) of those making 7 or more trips were using their cars for work-related trips at least three days per week.

Table 3-10 Total Number of Trips between 5 a.m. and 10 p.m. on the Day of the Trip Diary (% - may not add to 100 due to rounding)

	Auckland	Wellington	Christchurch	Total Sample
1	0	2	0	0.5
2	29	27	17	24
3-4	34	34	40	36
5-6	19	15	20	18
7 or more	18	23	23	21

After work-related trips, the most common reasons for a trip were to drop off / pick up children, either from school or other childcare arrangements, to shop or for recreational (including sport and fitness) and other leisure activities.

There was no significant difference between men and women in the number of trips made, although it is clear that women did more of the trips related to dropping off and picking up children.

3.2.9.3 Trips and the toll "cordon"

The exact location of the cordons for Auckland, Wellington and Christchurch are shown in Appendix D. The Auckland cordon area was much broader than that in Wellington or Christchurch, where it was restricted largely to the CBD. In Wellington and Christchurch, 97% and 98% of the respondents, respectively, lived *outside* the cordon devised for the purposes of this study. By contrast, only 57% of Auckland respondents lived *outside* the cordon.

Forty-four percent of the sample had not entered the cordon area prior to 10 a.m. in the previous week. Again, Table 3-11 reveals a notable difference between the three cities – 53% of those in Auckland had not entered the cordoned area, in contrast to 31% of Wellington respondents. Christchurch drivers were more like those in Auckland as 47% had not entered the central city area prior to 10 a.m. in the previous week. Not surprisingly, Wellington drivers were also far more likely to have crossed the cordon on a daily basis before 10 a.m., as 54% had crossed it three or more times in the previous week, compared with 38% in Auckland and 40% in Christchurch.

Table 3-11 Cordon-Crossing Behaviour (%)

Q9b In the past week, about how many times did you enter the central city before 10 a.m. on weekdays?

No. of Times "Cordon" Crossed before 10 a.m. in previous week	Auckland	Wellington	Christchurch	Total Sample
0	53	31	47	44
1-2	9	15	13	12
3-6	34	47	34	38
7 or more	4	7	6	6

3.2.9.4 Driving Children to School

As observed earlier, many of the stops before work are likely to be to drop children off to school. Just over one-fifth (22%) of the respondents had dropped children to school on their way to work in the previous week. The majority of these drove children to school at least 4 days per week, as can be seen in Table 3-12 below.

Table 3-12 Dropping Children off to School

No. of days children dropped off to school in previous week	n=161*
	%
One day	24
Two days	8
Three days	11
Four days	13
Five days	44

*Subsample: excludes those not driving children to school.

Women were more likely than men to be dropping children off to school - 60% of the drivers dropping off children were women.

We also asked Christchurch drivers for their reasons for driving their child/ren to school. The main reasons, from most frequent to least frequent, were:

- Already going out in the car at that time
- Child/ren too young
- Concerned about child/ren being exposed to the weather¹
- Live too far from school
- Believe it is unsafe for children to walk or cycle to school.

¹ The Christchurch fieldwork occurred in the late autumn in May 2001.

In the Auckland and Wellington survey, similar questions had been placed as follow-on questions to a given response to the question “why is it unlikely you’d use public transport?” As a result, we only had a very small number of respondents answer the question and cannot comment on any results for these two cities.

3.2.10 Cycling Ownership and Use (Christchurch only)

In recognition of Christchurch’s flat terrain, and generally wider and quieter streets, we were encouraged to specifically consider the possibility for cycling as a mode of travel to and from work. As noted in Section 2, we altered the scenarios to include provision for increased cycle lane availability and added two attitudinal statements related to cycling. Furthermore, we collected some basic data on current levels of cycle ownership and use by the drivers who responded to our survey.

We found that 56% of the respondents owned bicycles in “good working order.” Only 4% of the drivers had cycled one or two days to work / study in the previous week and 2% had cycled 3 or more days.

3.3 Attitudinal Information

As noted in Section 2.3.18, the Auckland and Wellington survey included six attitudinal statements that were rated on a 5-point Likert scale. These attitudinal statements were chosen from 40 statements originally considered for inclusion in the survey. The number of statements was limited due to the overall length of the questionnaire and concerns about response rates.

Four of the six statements focused on aspects of passenger transport:

1. I feel it is safe to ride on passenger transport.
2. Even if buses or trains were free, I wouldn’t use them.
3. I feel it is safe to wait at a bus stop / train or ferry station during the day.
4. I’d use passenger transport more if I could be sure it would arrive at my destination on time.

The remaining two were about car use:

5. If someone could organize it, I would be happy to share a ride with other people who work near me.
6. I value the convenience of driving my car – I can do what I want, when I want.

Due to the restructuring of the Christchurch survey, we were able to include two additional attitudinal statements regarding cycling:

7. I’d bike to work or study at least once a week if: all traffic on those roads was restricted to 30 km/h.
8. I’d bike to work or study at least once a week if: I had a good bike, and there were good cycle lanes off the road all along my route to work / study, and there was a secure place to lock up my bike at work / study.

A summary of the responses to each of these statements is given below.

3.3.1 Safety of Passenger Transport

As indicated above, there are two statements reflecting respondent's attitudes towards safety of passenger transport. One statement addressed feeling safe *while waiting* for passenger transport services to arrive at a stop or station during the day and the second addressed feeling safe *while riding on* passenger transport services. Seventy-seven percent (77%) of the respondents in our sample either agreed or strongly agreed with *both* statements. Examining the statements individually, 86% agreed or strongly agreed with each one.

Not surprisingly, women felt a little less safe. But these gender differences were not particularly large. Aucklanders felt the least safe waiting in the daytime (81% agreed or strongly agreed) while people from Wellington felt the most safe (90%). Comparing demographic groups (age, employment, household structure) did not reveal any other marked differences.

3.3.2 Use of "Free" Passenger Transport

Nineteen percent (19%) either agreed or strongly agreed that they would not use passenger transport "even if buses or trains were free." We found that those agreeing with this statement are more likely to:

- Be self-employed
- Drive a company-owned car
- Use their car for work-related business (other than driving to and from work) at least 3 times per week.

Conversely, 69% of our sample disagreed or strongly disagreed with the statement, implying that if passenger transport *was free*, they would consider using it. The people disagreeing with the statement were more likely to be students or part-time employees.

3.3.3 Use of "Timely" Passenger Transport

Forty-one percent of our sample agreed or strongly agreed with the statement "I'd use public transport more if I could be certain it would arrive at my destination on time." This suggests that the uncertainty or unreliability of public transport in their area is a hindrance to their potential use of passenger transport. There are not many identifying characteristics of people who were more likely to agree with this statement: students were slightly more likely to agree. As the need to use the car for business trips during work hours increased (i.e. from not using it to 1 – 2 times per week to greater than 3 times per week), the respondent was less likely to agree with the statement.

It is reasonable to surmise that those who need to use their car during work hours for business will be less able to use passenger transport even if it was operating in a timely manner. Students may also have more flexibility about arrival and departure times than would a full-time or part time worker.

3.3.4 Ride-sharing

When asked how they felt about ride-sharing (car pooling) with someone who worked near them, 54% of our sample agreed or strongly agreed that they would be happy to share a ride if someone could organise it. Those disagreeing with the statement are more likely to:

- Be self-employed
- Drive company cars
- Use their car for work-related business 3 or more days per week
- Make more trips per day in their car (compared with those who agreed).

The greater the need for the car to make work-related business trips and the greater the number of the trips in day, the more likely it is that a respondent will disagree with the statement. There is also a distinctive trend with respect to age, the older a respondent is the less likely they are to agree to the concept of ride sharing.

3.3.5 Valuing the Convenience of the Car

An overwhelming 92% agreed or strongly agreed with the statement “I value the convenience of driving my car – I can do what I want, when I want. Only 2% disagreed with the statement, and the remaining 5% stated they were neutral.

3.3.6 Cycling in Traffic-Calmed Conditions

As indicated above, for the Christchurch survey we added two further attitudinal statements to do with cycling. The first of these statements asked respondents to consider the statement “I’d bike to work or study at least once a week if all traffic on those roads was restricted to 30 km per hour.” Sixty-eight percent (68%) said that they disagreed or strongly disagreed with this statement and only 11% agreed or strongly agreed. The remainder (21%) neither agreed nor disagreed.

Interestingly, we found no distinct groups of respondents who agreed or disagreed with the statement, implying that those who might be attracted to cycling could equally be from any age group, be full-time or part-time employed or a student, be male or female, and so on. The only significant factor we found was that those who already owned a bicycle in good working order were somewhat more likely to agree with the statement, $t(249) = 1.71, p = .04$, one-tailed.

3.3.7 Cycling in “Ideal” Conditions

The second statement we added in the Christchurch survey created what we think of as close to “ideal” cycling conditions:

I’d bike to work or study at least once a week if: I had a good bike, and there were good cycle lanes off the road all along my route to work / study, and there was a secure place to lock up my bike at work / study.

Nearly one-half (46%) of the Christchurch sample disagreed or strongly disagreed with this statement, while just over one-third (35%) agreed or strongly agreed. As with the other cycling statement, there were no clearly identifiable groups of people who were either more likely to agree or disagree. Those who own a bicycle in good working order were more likely to agree with the statement than those who did not, $t(249) = 2.07$, $p = .02$, one-tailed, suggesting that what prohibits these potential cyclists from riding to work at present is either the absence of good cycle lanes or a secure place to park their bike or a combination of both factors.