

A sneak preview: results from new questions in the New Zealand Household Travel Survey

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Abstract

The New Zealand Household Travel Survey has now been in the field in a new 7 day, online, with GPS assistance, form for 2 years. Several new questions were introduced in the new form, to explore new areas beyond the land transport space and start establishing trends over time. These cover such areas as access and mobility, boating, and domestic flights. This paper presents preliminary results from the new questions, prior to release of the first two years of data.

Overall, seven percent of people aged 15 years and over reported not being able to access all the facilities that they wanted to. Seven percent of people said they experienced at least some difficulty in driving, being a passenger, using public transport or walking more than 500m unaided.

Over 30 percent of people aged over 15 years reported participating in recreational boating in the past year.

41 percent of people aged over 15 years reported flying domestically in the 12 months prior to participating in the survey. 25 percent reported flying domestically in the 3 months prior to surveying.

1. Introduction

As well as asking respondents about a 2-day period of travel, historically the New Zealand Household Travel Survey (HTS) has asked about transport areas less likely to be caught in a 2-day sample, but still of interest from a transport policy perspective. These included public transport and cycling use in the past year.

The survey finished in its previous form in 2014, and restarted in 2015, in a new online form, asking about a 7–day period of travel for all household members. The new survey offered those in the household aged 15 years and over the opportunity to use a GPS logger to assist them with the online travel diary, adding the potential of detailed GIS route data to the research tool set.

Questions about public transport and cycling in the last year were kept in the survey, and further questions added to address knowledge gaps identified in the Transport Domain Plan (Ministry of Transport, 2016) and to broaden the scope of the survey outside of mainly land based modes, to the wider transport system. These gaps concern domestic flights in the last year, recreational boating in the last year and difficulties in accessing different aspects of the transport system.

The HTS itself is designed to be a continuous survey, able to report on New Zealand travel patterns using multiple years of aggregated data. The survey is regionally stratified, so as to be able to report on national and broad regional trends. In the first survey year, regions were sampled in proportion to regional population, however the distribution was shifted in later years so as to ensure being able to report on all regions over time.

Preliminary results for the first year of surveying (as reported here) are weighted for household sample selection probability and non-response, size of household (compared to 2013 census distributions), and national age and gender distribution. As of mid September 2017¹, work is underway to produce a weighting methodology suitable for the shifted regional sampling in the second year of surveying. It is intended for the results of the first 2 years of surveying to be released by the end of the year.

The results discussed below are based on the first year of the new survey form, that is the 2015/2016 survey year, which covered October-November 2015 and February 2016 to November 2016. Of 3,530 eligible households invited to take part, 1,531 had all eligible household members complete the 7 day survey (a response rate of 43 percent), and a further 631 households had at least one member of the household fully complete the survey (taking the full or partial completion rate to 61 percent). This resulted in 4,205 people completing the survey.

Please note that the results presented in this paper are preliminary results only and may be subject to revision.

1.1 Survey sampling and methodology

2. Access

The Transport Domain Plan identified accessibility and reasons for why people don't travel as knowledge gaps². In order to contribute towards filling these gaps, it was decided to introduce a series of questions to ascertain if people had a long-term condition or health problem that prevented them from accessing various aspects of the transport system.

These included:

- driving a vehicle
- being a passenger in a vehicle
- independently using public transport
- independently walking 500m unaided

People were asked to indicate the degree of difficulty:

- No difficulty
- Slightly difficult/sometimes difficult
- Always difficult/can't
- Don't know
- Choose not to answer

For the purposes of this research, those experiencing difficulty which may prevent them travelling are those who selected "slightly difficult/sometimes difficult" and "always difficult/can't".

People were then asked about the proportion of facilities (shops, medical services, etc) that they want to go to, and that they can easily get to. Response options included:

- All of them
- Most of them
- Some of them
- Only a few of them
- None of them
- Don't know

¹ Time of revising paper

² Recommendations R2.4 and 2.7 (Ministry of Transport 2016)

- Choose not to answer

An example screen shot of what survey participants saw is shown in Figure 1.

Figure 1: Example screen shot of access questions

1 Introduction 2 Panelin 3 Cycling and Public Transport 4 Travel Via Air 5 Travel On Water 6 Self Drive 7 Licence Data 8 **Difficulty** 9 Present Employment Information 10 Employment Information 11 Education 12 Other Activity 13 Income 14 Respondent Burden 15 Thank You

Do you have a long-term condition or health problem that makes it difficult/prevents you from:

driving a vehicle?

being a passenger in a vehicle?

independently using public transport?

independently walking 500m unaided?

How many of the facilities (such as shops, schools, post shops, libraries and medical services) that you want to go to, can you easily get to?

[Previous](#) [Next](#)

2.1. Results

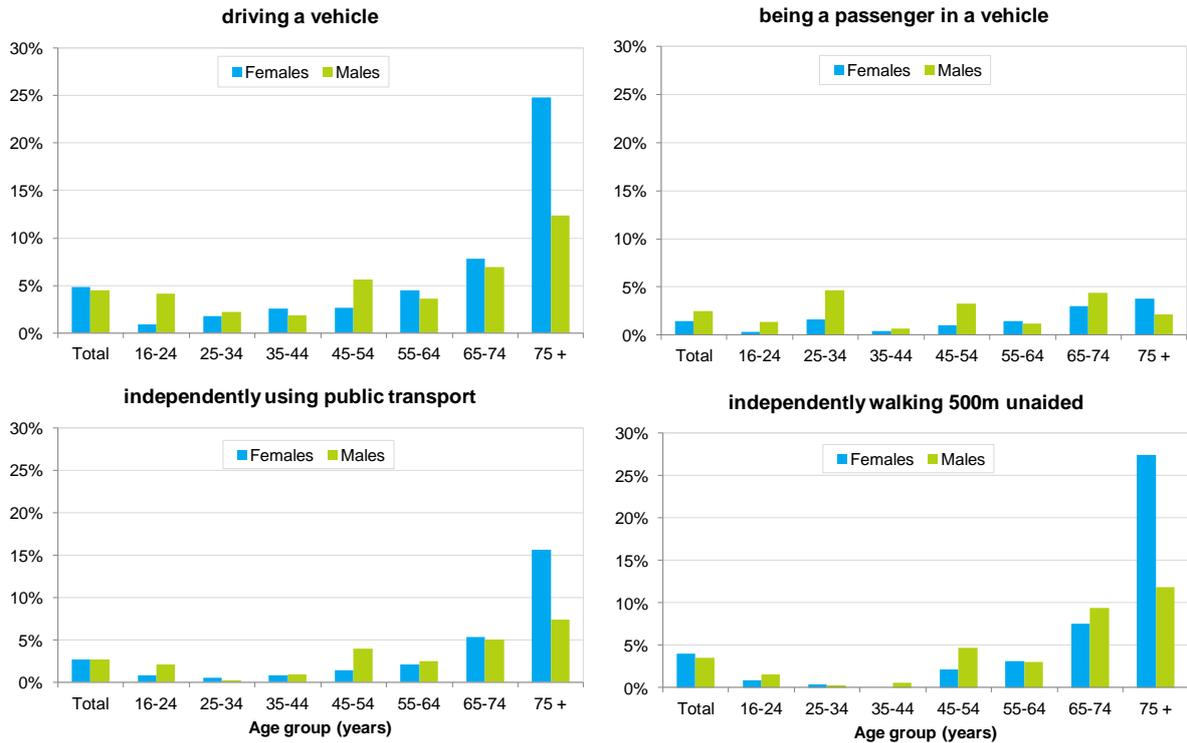
The results of the survey relating to access are shown in figure 2. Overall, only 7 percent of people aged 15 years and over reported not being able to access all the facilities that they wanted to. 7 percent said they experienced at least some difficulty in driving, being a passenger, using public transport or walking more than 500m unaided. However, 67 percent of the people experiencing difficulties reported still being able to access all the facilities they wanted to.

5 percent of people aged 15 and over reported difficulties that prevented them driving a vehicle, and 2 percent reported difficulties being a passenger in a vehicle. 3 percent reported difficulties in independently using public transport, and 4 percent reported difficulty in independently walking 500m unaided.

These proportions increase markedly over the age of 65, with around one in five people over the age of 75 reporting difficulties with being a driver and a similar proportion with difficulties in independently walking 500m unaided. Marked differences were also observed by gender, with far more women than men over 75 reporting difficulties that prevented them from driving (25 percent for women versus 12 percent for men). 27 percent of women over 75 reported difficulties in walking 500m unaided, compared to 11 percent of men.

While more men over 75 reported difficulties in these categories (12 percent each for driving and walking) than the proportion aged over 15 years, it is unclear to what extent the more marked gender differences observed in the older population may reflect a difference between genders in the willingness to admit difficulties.

Figure 2: Percentage of population by age and gender who have difficulties that sometimes or always prevent them:



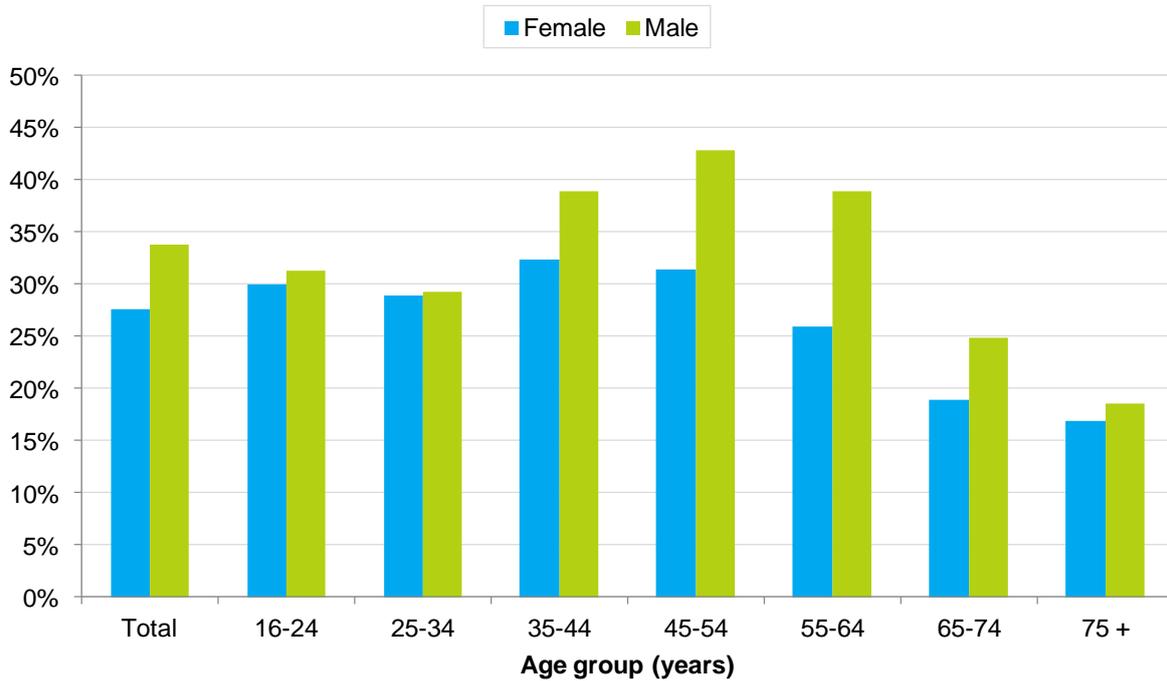
3. Boating

In order to get an indication of levels of recreational boat use in the general NZ population, the new survey introduced a question around recreational boat use in the last 12 months. People were asked:

In the last 12 months, that is since [date 12 months ago] until today, have you/has [FirstName] been on a boat or surfboard for recreation? This includes jetskis, kayaks, rafts, windsurfers.

Overall, over 30 percent of people aged over 15 years old reported recreational boating activity in the past year. This is comparable to the 29 percent of New Zealanders aged 18 years and over who reported being involved in recreational boating either as an owner or an active user of a recreational vessel in a survey on behalf of Maritime NZ in 2014 (Kalafaletis, Magill, and Buchanan 2014).

Figure 3: Percentage of the population who have participated in boating in the past year (2015-2016)



As these are preliminary results, full confidence intervals have not yet been calculated, so it is difficult to comment on the significance of any differences by age and gender amongst the survey population. As a first order approximation using sample sizes (a method known to overestimate the confidence intervals in this style of sampling)³, at the 95 percent level, males were more likely to have done recreational boating in the past year (34 percent) than females (28 percent). 45-64 year old males were also significantly more likely than females of the same age to have done recreational boating in the past year. This is shown in Figure 3.

³ Historically the HTS has required jack-knife re-sampling techniques to calculate confidence intervals (due to the nature of the sampling stratification), but the methodology for doing this with the new dataset is still being established.

4. Flights

The Transport Domain Plan identified person-centric data about domestic air travel as a data gap.⁴ In addition, frequency of inter-regional transport was identified as an area of interest, with a view to extending the survey outside the usual land based transport areas.

In the style of the historical survey questions about public transport and cycling use in the past year, and past month, questions were added about domestic flights in the past year and past 3 months. People who had flown in the past year were asked about their last flight: origin and destination airports, purpose of travel, main travel mode for getting to the airport, and if it was a return flight or connecting to international travel. Figure 4 shows a screen shot of the questions as seen by participants.

Figure 4: Screen shot of domestic flight questions

The screenshot displays a survey progress bar at the top with 15 steps. Step 4, 'Travel Via Air', is highlighted in green. Below the progress bar is a form with several questions about domestic flights, each with a dropdown menu. The questions are:

- In the last 12 months, that is since 18-Oct-2015 until today, **have you** flown between two New Zealand airports? (Yes)
- Thinking about the last 3 months, how often **have you** flown between two New Zealand airports? (Not at all)
- Thinking about the last time **you** flew out of town to another New Zealand airport. Which airport did **you** depart from? (Gisborne Airport)
- Was it? (A return flight?)
- Which main travel mode did **you** use to get to the airport? (Motor vehicle (you drove))
- What was the destination New Zealand airport **you** travelled to? (Auckland Domestic Airport)
- Were **you** connecting to an overseas flight? (Yes)
- What was the main purpose of **your** trip? (Visiting friends / relatives)

At the bottom of the form are 'Previous' and 'Next' buttons.

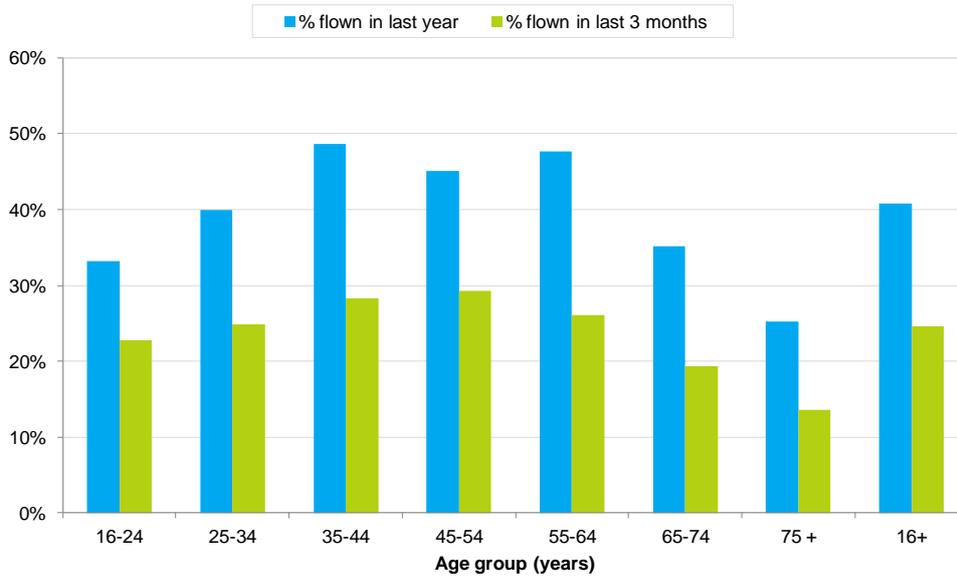
4.1. Results

Overall, 41 percent of people have flown domestically in the 12 months prior to participating in the survey. 25 percent have flown domestically in the 3 months prior to surveying.

In general, people aged 35-64 are more likely to have flown domestically in the past year and 16-24 year olds and those over 65 are less likely to have (Figure 5). There is no statistically significant difference by gender in the initial analysis.

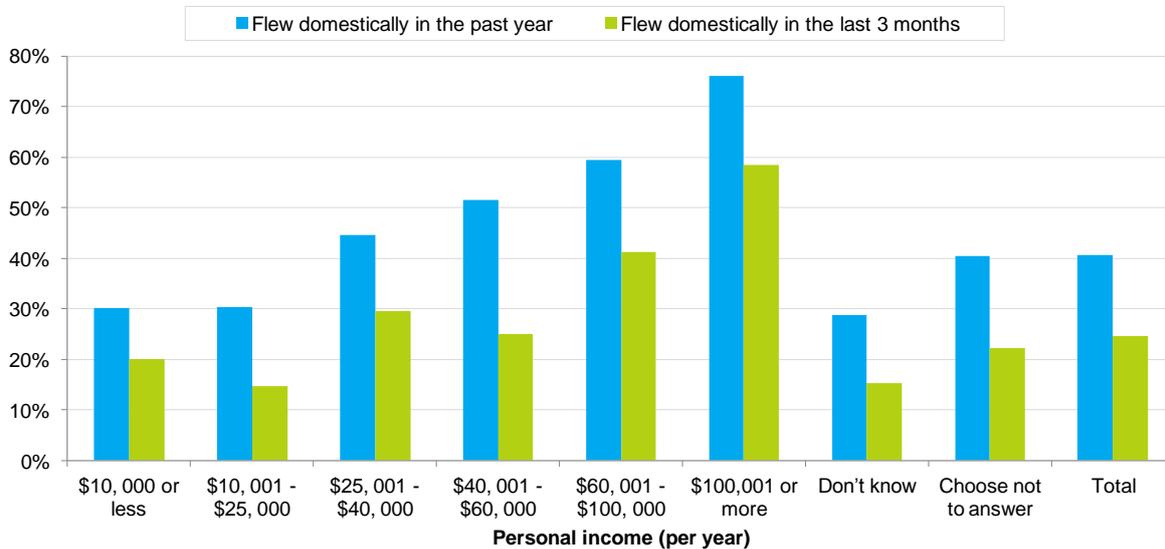
⁴ Recommendation R2.9 (Ministry of Transport 2016)

Figure 5: Percentage of the population who have flown domestically in the past year and in the past 3 months by age (2015-2016)



People with higher personal income are more likely to have flown in the past year (Figure 6).

Figure 6: Percentage of the population who have flown domestically in the past year and in the past 3 months by personal income (2015-2016)



Note: Don't know or Choose not to answer includes 40% of respondents

Using \$60,000 per annum as a cut-off, a little over a third (36 percent) of people earning \$60,000 or less have flown domestically in the past year, compared with nearly two thirds (65 percent) of people who have earned over \$60,000. One in five (20 percent) people earning \$60,000 or less have flown domestically in the past 3 months, compared to nearly half (47 percent) of people who earned over \$60,000.

5. Discussion

While it is interesting to see the preliminary results in the initial exploratory phase, it will be even more useful to observe and track trends over time. It is anticipated that more detailed analysis will be undertaken as the sample size grows and as error estimation methods are refined.

As well as establishing levels, these new questions (along with some of the old questions retained) allow the potential future targeting of survey respondents. Contact details from willing participants in the HTS are retained so they can be contacted for invitation to participate in further small surveys. In this way, surveys can be targeted to specific subsets of people who might otherwise be difficult to filter out from the main population. Until now, this targeting has only been done for a survey looking at Auckland participants, but surveys could easily be rolled out to target recreational boat users, cyclists, or those who fly frequently (among others).

The introduction of GIS path data also opens the analysis options available. With polling at approximately 20 second intervals, the first year of survey data includes over 3.5 million waypoints, which is a wealth of data to be explored in future.

As with the historical survey, the data can be made available to researchers upon request. It is hoped in future the survey data will be used by a wider range of researchers, with more of the results being disseminated to a range of audiences, and forming an important evidential base for policy decisions to help New Zealanders thrive.

6. Conclusion

With the addition of several new questions, the New Zealand Household Travel Survey continues to address a series of fundamental research questions for the transport sector in terms of how, when and why people travel. Several Transport Domain Plan knowledge gaps have been identified and progress is being made in filling them, with the introduction of questions around access and mobility, and domestic flights at the person level. A question about recreational boating has also been introduced. This expands the survey beyond the traditional land based modes, to examine more of the wider transport network.

Preliminary results from the first year of surveying indicate that overall, 7 percent of people aged 15 years and over reported being unable to access all the facilities they wanted to. 7 percent said they experienced at least some difficulty in driving, being a passenger, using public transport or walking more than 500m unaided.

Over 30 percent of people aged over 15 reported having done recreational boating in the past year.

41 percent of people aged over 15 reported flying domestically in the 12 months prior to participating in the survey. 25 percent reported flying domestically in the 3 months prior to surveying.

These new questions have bolstered the survey and provide a start on which to build future research, and we look forward to continuing to collect a rich dataset, growing deeper as time goes on, and being used by a wide range of transport and other sector researchers.

References

- Kalafaletis, Emanuel, Katrina Magill, and Sarah Buchanan. 2014. "Rates of Participation in Recreational Boating 2014." Research NZ.
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