DOMESTIC TRAVEL SURVEY
TECHNICAL DESCRIPTION

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JUNE 2008

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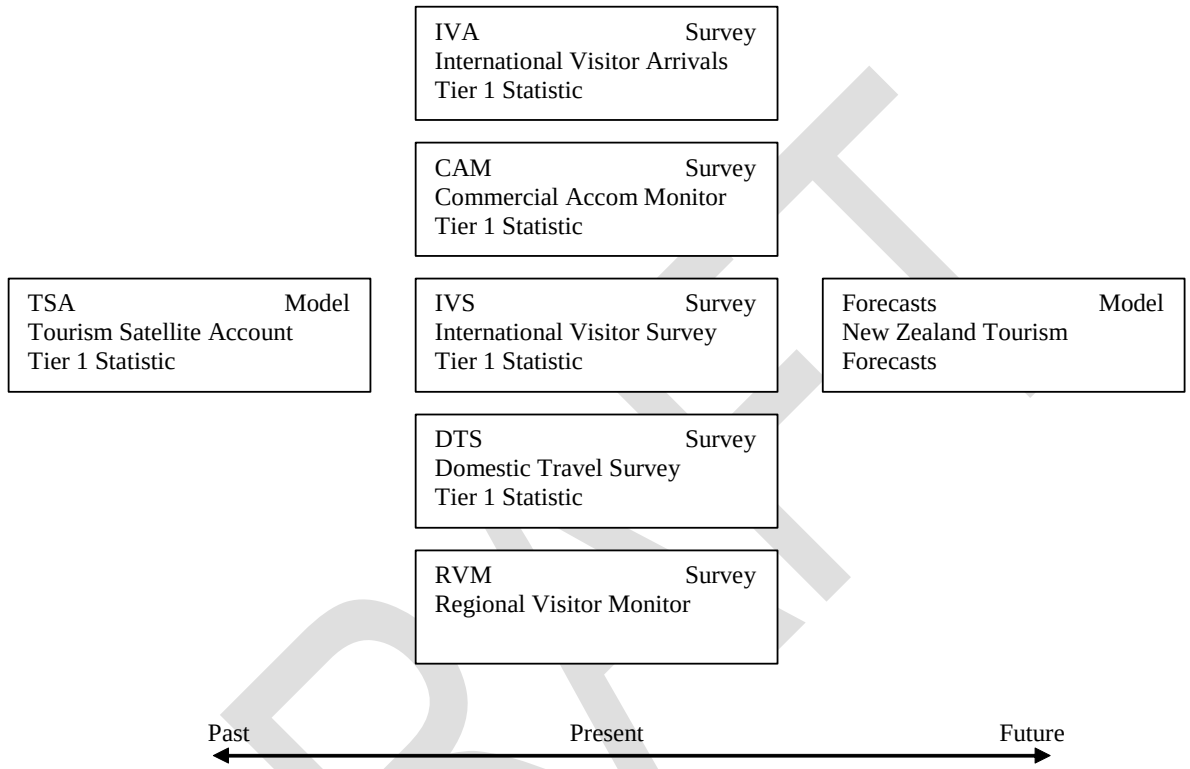
1. Background

1.1. Purpose

The Domestic Travel Survey (DTS) provides information on the domestic travel activity by New Zealanders. The DTS is part of the core tourism dataset managed by the Ministry of Tourism (TMT).



1.2. History

The DTS has been conducted in New Zealand since 1983. There was no survey during the period 1991 to 1998.

Up to 1989-90 the DTS measured overnight trips only. For 1999-00 the Foundation for Research Science and Technology (FRST) provided funding to develop a new domestic travel survey which included data on day trips (as well as overnight trips).

In 2001, the Office of Tourism and Sport (now the Ministry of Tourism) secured government funding for ongoing collection of domestic travel statistics. The survey was conducted by Consumer Link Ltd, with data analysis by Gravitas Research and Strategy Ltd.

The Nielsen Company have been responsible for running the DTS from September 2002 to June 2008.

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From July 2008 the Ministry will directly manage the DTS and the data collection will be outsourced to OCIS.

1.3. Responsibility

From 1 July 2008 the Ministry of Tourism will be fully responsible for all processes of the Domestic Travel Survey and only the data collection will be outsourced. The Ministry analyses and disseminates the survey results.

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2. Objectives

2.1. Survey Objectives

The purpose of the Domestic Travel Survey (DTS) is to provide accurate, quarterly information on the number and type of trip, characteristics, behaviour and expenditure of domestic visitors.

In particular;

- To measure the amount of expenditure of domestic visitors,
- To determine the activities domestic visitors participate in, the transport and accommodation types used, and places visited,
- To provide data for determining tourism expenditure in the Tourism Satellite Account,
- To provide demographic information about domestic visitors and their reasons for travelling,
- To provide data about residents who haven't travelled in New Zealand recently and their reasons for not travelling.

2.2. Data Collection

The DTS is an ongoing[1] telephone based survey undertaken using Computer Assisted Interviewing (CATI). Results from the survey are reported on a quarterly basis.

The questionnaire contains five main parts:

- Screener questions for eligibility
- General trip data (for all trips undertaken)
- Detailed trip data (for the two most recent day and overnight trips)
- Expenditure data (for the two most recent day and overnight trips)
- Respondent data including demographics

Respondents report on day trips undertaken in the last week and overnight trips undertaken in the last four weeks. Approximately 60% of respondents report no trips undertaken in the recall period. The two most recent day and overnight trips are selected to collect detailed data including expenditure and activity information.

2.3. Main Outputs

[1] The DTS does not interview on public holidays or in the period between Christmas and New Years Day (22 December to 2 January).

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A range of data is collected from domestic travellers, including day trips, overnight trips, nights away, places stayed, accommodation used, main reason of trips, transport used, activities undertaken and expenditure on trip.

The main outputs from the DTS are:

- Estimates of total annual and quarterly expenditure of domestic trips in New Zealand.
- Estimates of total and quarterly number of domestic trips in New Zealand.

The main breakdowns from the DTS are:

- Type of trip (day or overnight)
- Main purpose of visit
- Region visited
- Region of origin
- Accommodation types used
- Transport types used
- Activities participated in and attractions visited
- Demographic information
- Satisfaction

2.4. Unit

- The selection unit is the household and individual.
- The collection unit is the individual, trip or visit.
- The analysis unit is the individual, trip or visit.

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3. Population

5.1. Target Population

The target population is the New Zealand non-institutionalised, usually resident population.

Exclusions from the target population are:

- Long term residents of retirement homes, hospitals and psychiatric institutions
- Inmates of penal institutions
- Overseas visitors who expect to be usually resident in New Zealand for less than 12 months

5.2. Survey Population

The survey population is the New Zealand on-shore, non-institutionalised, usually resident population aged 15 years and over, living in private households that have a (non-mobile) listed phone for private use.

5.3. Sample Frame

The sample frame is residential telephone numbers listed in the electronic white pages which are working and not fax or business numbers.

5.4. Coverage

The survey population does not include the following people:

- Aged under 15 years
- Do not live in a household with a landline telephone for private use
- Have an unlisted telephone number
- Only have access to a mobile telephone

<u>Aged Under 15</u>

People aged less than 15 years old are not surveyed for practical reasons. It is unlikely that they would be able to complete the survey.

<u>No Private Telephone</u>

People who do not have access to a telephone for private use cannot be selected for the survey. The 2006 Census [2] estimates that 91.6% of households have access to a telephone.

[2] Statistics New Zealand. (2007) *Quick Stats National Highlights, Revised 9 August 2007, 2006 Census*

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Unlisted Telephone Number

People whose telephone number is not listed in the electronic white pages cannot be selected for the survey. It is unknown what proportion of telephone numbers is unlisted.

Mobile Telephone Access Only

People who only have access to a mobile telephone cannot be selected for the survey. It is unknown what proportion of people only has access to a mobile phone.

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4. Sample Design

4.1. Sample Size

The DTS has an overall sample size of approximately 15,000 New Zealand residents per year and 1,250 per month.

Although domestic travel is highly seasonal, the sample size is allocated evenly over the year so that the work is constant for the interviewers.

4.2. Stratification

The DTS is a stratified, two stage sample.

1. Within each stratum a random selection of household telephone numbers is selected from the electronic white pages.

2. Within each household an individual aged 15 years or older is randomly selected to participate in the survey.

The DTS is stratified by month and region of origin. There are 35 regions.

4.3. Allocation

Regional Allocation

The sample was allocated proportionally to the population in each region in 1999. This means that larger regions have a larger sample size than smaller regions and has not adjusted for changes regional distribution of the population.

The following table shows the monthly sample sizes by region. These have remained unchanged since 1999.

Region of Origin	Monthly Sample Size	Region of Origin	Monthly Sample Size
Whangarei	24	Nelson	21
Other Northland	22	Blenheim	14
Greater Auckland	341	Other Nelson-Marlborough	6
Other Auckland	34	Westport	4
Hamilton	54	Greymouth	5
Other Waikato	53	Hokitika	3

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Tauranga	39	Christchurch	111
Rotorua	21	Timaru	14
Other BOP	26	Other Canterbury	49
Gisborne	15	Dunedin	42
Other Gisborne	1	Other Otago	18
Levin	10	Invercargill	21
Palmerston North	35	Other Southland	11
Wanganui	16		
Other Central	7		
New Plymouth	24		
Other Taranaki	14		
Napier/Hastings	41		
Other Hawkes Bay	10		
Wellington	119		
Masterton	9		
Other Wellington	16		

Quota Allocation

Weekly and monthly quotas are set by age and gender. The following table shows the cumulative weekly quotas required by age and gender. The age and gender quotas are independent of the regional quotas i.e. quotas are not set by age, gender *and* region.

Age Group	Gender	Week 1	Week 2	Week 3	Week 4
15 – 24 years	Male	27	54	81	110
	Female	27	54	81	109
25 – 34 years	Male	27	54	81	108
	Female	30	60	90	119
35 – 44 years	Male	30	60	90	121
	Female	33	66	99	131
45 – 54 years	Male	26	52	78	104
	Female	27	54	81	107
55 – 69 years	Male	25	50	75	99
	Female	26	52	78	102
70 + years	Male	15	30	45	58
	Female	20	40	60	82
Total		313	625	939	1,250

Monthly regional quotas and daily total quotas are also set.

4.4. Sample Selection

Household Selection

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Household telephone numbers are randomly selected from the electronic white pages in proportion to the number of listed, residential telephone numbers for that strata / region.

Respondent Selection

Within each household, one eligible person is selected to participate in the survey using the "last birthday" method . No substitution is allowed.

Respondent Screening

Selected respondents are screened based on their age and gender and if the quota for that age and gender has already been met the respondent is not eligible for the survey.

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5. Weighting

The DTS weighting methodology has been largely unchanged since 1999. The DTS calculates:

- Person weights
- Trip weight
- Expenditure weights

A multi stage weighting process is used:

- Pre-weighting based on ethnicity, household size.
- Person weighting based on region, gender, age and income.
- Trip weighting for day and overnight trips.
- Expenditure weighting for day and overnight trips.

Note that weighting is undertaken using one year [3] of data due to the small size of the sample compared to the large number of weighting variables.

5.1. Pre-Weighting

This stage of weighting calculates a pre-weight for each respondent based on their ethnicity, household size.

Ethnicity by Household Size Weight

The ethnicity by household size weight adjusts the distribution of the sample to match the distribution of the population by ethnicity and household size. This accounts for the selection of one adult per household and the under-representation of ethic minorities in the sample.

The ethnicity by household size weight, *EW* for group *g* is calculated as:

$$EW_g = \frac{N_g}{N} \Big/ \frac{n_g}{n}$$

where *g* is the ethnicity by household size group

N_g = population size for group *g*

[3] The one year period is from the end of the third month of the processing quarter back one calendar year e.g. for Q1 2008 the data used is interviews between the period 01/04/07 to 31/03/08.

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N = population size

n_g = sample size for group g

n = sample size

The population is the census usually resident population, aged 15 years and over on 2006 census night. This information is broken down by ethnicity and household size.

The ethnicity by household size groups are defined in the following table. There are 25 groups.

Ethnicity	Household Size
Maori Only	One Adult
Pacific Peoples Only	Two Adults
Asian Only	Three Adults
European / MELAA [4] / Other Ethnicity Only	Four Adults
Two or More Groups	Five or More Adults

Pre-Weight

The pre-weight, *PW* for respondent *i* in ethnicity by household size *g* is:

$$PW_{gi} = EW_g$$

5.2. Person Weighting

Each respondent is assigned a person weight based on their region of origin, gender, age and income. The person weight is used to calculate person based estimates e.g. number of people not taking trips.

Region by Gender by Age by Income Weight

A region by gender by age by income weight is calculated to adjust the distribution of the sample to match the distribution of the population by region, gender, age and income.

The region by gender by age by income weight, *RW* for group *h* is calculated as:

$$RW_h = \frac{N_h}{N} \Big/ \frac{n_h}{n}$$

[4] Middle Eastern / Latin American / African

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where h is the region by gender by age by income group

N_h = population size for group h

N = population size

n_h = sample size for group h

n = sample size

The sample size for group h is the sum of the pre-weight for group h.

$$n_h = \sum_{i=1}^{n_h} PW_{hi}$$

The population is the estimated resident population aged 15 years and over during the current reference period.

The population size for group h is an estimate of the population based on data from the last census adjusted for annual and quarterly population growth. The data is obtained from the Statistics New Zealand Census of Population and Dwellings and population estimates.

$$N_h = N_{Ch} \times AF_h \times QF$$

where AF_h = annual growth factor from last census for group h

QF = quarterly growth factor from year ended June

N_{Ch} = population size for group h at last census

The annual growth factor estimates the population growth between the year ended June and the last census. The population estimates for the year ended June are only available by region, gender and age (i.e. not including income). Therefore the annual growth factor assumes a constant rate of change for each income group.

$$AF_h = N_{Ah} / N_{Ch}$$

where N_{Ah} = population size for group h at year ended June

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The quarterly growth factor estimates the population growth between the current year end and the year ended June. The population estimate for the current year end is an overall population estimate and the quarterly growth factor assumes constant growth for all groups.

$$QF = N_Q / N_A$$

where N_Q = population size at current year end.

The region by gender by age by income groups are defined in the following table. There are 720 groups.

Region [5]	Gender	Age	Income [6]
Auckland	Male	15 – 24 years	Under $20,000
Bay of Plenty	Female	25 – 34 years	$20,000 - $40,000
Canterbury		35 – 44 years	$40,000 +
Gisborne		45 – 54 years	Not Reported
Hawkes Bay		55 – 64 years	
Manawatu		65 + years	
Marlborough			
Nelson / Tasman			
Northland			
Otago			
Southland			
Taranaki			
Waikato			
Wellington			
West Coast			

Due to the large number of weighting cells compared to the size of the sample there are often cells that contain no respondents. In this situation adjacent weighting cells will be collapsed using the following rules:

- Weighting cells are collapsed by income, age and gender (in that order)
- Weighting cells are not collapsed across region

Person Weight

[5] Region of origin.
[6] Personal income (before tax) per annum.

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The person weight, *W* for respondent *i* in region by gender by age by income group *h* is the region by gender by age by income weight multiplied by the pre- weight.

$$W_{hi} = PW_i \times RW_h$$

The person-weights are adjusted so that $\sum_{h=1}^{H}\sum_{i=1}^{n} W_{hi} = n$.

Final Person Weight

The final person weight rates up the sample to the population.

$$FW_i = W_i \times \frac{N}{n}$$

5.3. Trip Weighting

Each trip is assigned a weight and is based on the person weight and a trip factor. Trip weights are used for trip and visit based estimates e.g. number of trips.

Trip Factors

Trip factors are applied to account for the recall periods being less than a year. This effectively weights up each respondents' answers to represent a full years worth of trips.

The standard recall period is 1 week for day trips and 4 weeks for overnight trips. However, interviewing does not take place during the period between Christmas and New Year's Day and for interviews conducted in January the recall period is extended to 3 weeks for day trips and 5 weeks for overnight trips

The day trip factor, *DF* is calculated as:

$$DF = \begin{cases} \frac{365}{DR} & \text{not leap year} \\ \frac{366}{DR} & \text{leap year} \end{cases}$$

where the day trip recall period *DR* is:

- 7 days
- 21 days for interviews conducted during the first 10 CATI days of January

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The overnight trip factor, *OF* is calculated as:

$$OF = \begin{cases} \frac{365}{OR} & \text{not leap year} \\ \frac{366}{OR} & \text{leap year} \end{cases}$$

where the overnight trip recall period *OR* is:

- 28 days
- 35 days for interviews conducted during the first 28 CATI days of January

Note that trip factors are based on the day of interview and not the date of return (from the trip).

Trip Weight

The trip weight, *TW* for respondent *i* and trip *t* is the final person weight multiplied by the trip factor.

$$TW_{it} = \begin{cases} FW_i \times DF_t & \text{Day Trips} \\ FW_i \times OF_t & \text{Overnight Trips} \end{cases}$$

Final Trip Weight

A trip smoothing factor is applied to reduce the impact of respondents who undertake a large number of trips. The final trip weight, *FTW* for respondent *i* and trip *t* is:

$$FTW_{it} = TW_{it} \times SF_t$$

where SF_t = trip smoothing factor for trip *t*

5.4. Expenditure Weighting

The expenditure weight is used for expenditure based estimates e.g. expenditure on trips. It is equal to the final trip weight without the trip smoothing factor applied

$$EW_{it} = TW_{it}\,.$$

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6. Outliers

Outlier treatment is undertaken to take account of very high instances of trips made and extreme expenditure values.

6.1. Trip Outliers

A trip outlier (or smoothing) process is used to reduce the impact of respondents that take a large number of (weighted) trips.

In deciding on the outlier treatment method a number of distribution checks were made and the effect of alternative methodologies evaluated. It became clear that in nearly all cases, weighted trip outliers were mostly created by large weights, often associated with a modest number of trips.

While needing to smooth the extremes in weighted trip counts it was not considered to be desirable to adjust the weights as this would affect other estimate e.g. expenditure estimates. Neither can the number of trips be manipulated directly because of system issues. Therefore a trip smoothing factor is used.

Trip Outlier Detection

Trip outliers are identified as those weighted trip counts by trip purpose that exceeds the 99th percentile of the distribution of all weighted trip counts by all trip purposes.

$$w_{pti}x_{pti} > 99\text{th percentile of all } w_{ti}x_{ti}$$

where w_{pti} = trip weight for respondent *i* with trip type *t* and purpose *p*

x_{pti} = number of trips for respondent *i* with trip type *t* and purpose *p*

w_{ti} = trip weight for respondent *i* with trip type *t*

x_{ti} = number of trips for respondent *i* with trip type *t*

The trip type and purpose are defined in the following table.

Trip Type	Trip Purpose
Day Trip	Business
Overnight Trip	Holiday
	Visiting Friends / Relatives
	Other

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Trip Outlier Treatment

Trip outliers are treated by reducing the weighted trip count to the 95th percentile. The trip smoothing factor, *SF* is calculated as:

$$SF_{pti} = \frac{95\text{th percentile of all } w_{ti}x_{ti}}{w_{pti}x_{pti}}$$

6.2. Expenditure Outliers

See section 9.6 for expenditure outlier detection and treatment details.

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7. Estimation

The key estimates calculated from the DTS include quarterly estimates of:

- Total expenditure
- Total expenditure by type of trip (day and overnight)
- Total expenditure by purpose of visit

- Number of trips by type (day and overnight)
- Number of trips by purpose of visit

Person based estimates are attributed to the quarter in which the respondent was interviewed. This allows comparisons with people that did not make any trips.

Trip based estimates are attributed to the quarter in which the respondent *returned* from their trip. This is the case even though the respondent may have started their trips in a previous quarter.

7.1. Weighting

Each respondent is assigned a person weight. The person weights are used for person based estimates e.g. number of people not taking trips.

Respondents that have undertaken trips are also assigned a trip weight and expenditure weight. The trip weight is used for trip and visit based estimates e.g. number of trips, number of visits. The expenditure weight is used for expenditure based estimates e.g. total expenditure.

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7.2. Estimates

Population	Subpopulation
Counts $\hat{I} = \sum_{i=1}^{n} w_i$ w_i = weight for respondent *i* *n* = sample size Examples: • Number of trips • Number of visits	Counts $\hat{I}_k = \sum_{i=1}^{n_k} w_i$ w_i = weight for respondent *i* n_k = sample size for subpopulation *k* Examples • Number of people not taking trips • Number of overnight trips
Totals $\hat{X} = \sum_{i=1}^{n} w_i x_i$ w_i = weight for respondent *i* x_i = value for respondent *i* *n* = sample size Examples: • Total expenditure in NZ • Total number of nights in NZ	Totals $\hat{X}_k = \sum_{i=1}^{n_k} w_i x_{ki}$ w_i = weight for respondent *i* x_{ki} = value for respondent *i* in subpopulation *k* n_k = sample size for subpopulation *k* Examples: • Total expenditure by holiday visitors • Total number of nights in Auckland region
Means $\hat{\bar{X}} = \frac{\sum_{i=1}^{n} w_i x_i}{\sum_{i=1}^{n} w_i}$ w_i = weight for respondent *i* x_i = value for respondent *i* *n* = sample size Examples: • Average expenditure per trip • Average nights per trip	Means $\hat{\bar{X}}_k = \frac{\sum_{i=1}^{n_k} w_i x_{ki}}{\sum_{i=1}^{n_k} w_i}$ w_i = weight for respondent *i* x_{ki} = value for respondent *i* in subpopulation *k* n_k = sample size for subpopulation *k* Examples: • Average expenditure per person by holiday visitors • Average nights per person in Auckland region

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Population	Subpopulation
	Proportions $\hat{P}_k = \frac{\sum_{i=1}^{n_k} w_i}{\sum_{i=1}^{n} w_i}$ w_i = weight for respondent *i* n_k = sample size for subpopulation *k* n = sample size Examples • Proportion of people not taking trips • Proportion of overnight trips
Ratios $\hat{R} = \frac{\sum_{i=1}^{n} w_i x_i}{\sum_{i=1}^{n} w_i y_i}$ w_i = weight for respondent *i* x_i = value *x* for respondent *i* y_i = value *y* for respondent *i* n = sample size Example: • Average expenditure per night	Ratios $\hat{R}_k = \frac{\sum_{i=1}^{n_k} w_i x_{ki}}{\sum_{i=1}^{n_k} w_i y_{ki}}$ w_i = weight for respondent *i* x_{ki} = value *x* for respondent *i* in subpopulation *k* y_{ki} = value *y* for respondent *i* in subpopulation *k* n_k = sample size for subpopulation *k* Example: • Average expenditure per night by holiday visitors

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8. Processing

8.1. CATI Edits

All data is captured over the telephone using CATI. This allows checks to be performed during the interview. This has the advantage of being able to query the respondent directly about unusual or unlikely responses and reduce the need to edit the data back in the office.

Validation and Range Checks

Validation checks ensure that the interviewer enters the correct type of data (e.g. numeric) and range checks ensure that the data is within an expected range.

For example,

- If a code is required then the code entered is listed on the code frame.
- If a single response is required then only one response is entered.
- If a date is required then it is a valid date.

Consistency Checks

Consistency checks ensure that the responses to different questions are consistent.

For example,

- Sum of the number of nights stayed in each location is equal to the total number of nights on the trip.
- The number of children household is not greater than the total number of people in the household.

Interviewer Comments

Interviewers are asked to record any comments on the interview after it has been completed. Comments can include unusual or inconsistent responses or changes that need to be made to the data that the interviewer could not do during the interview. These are reviewed back in the office and changes made where necessary.

8.2. Imputation Edits

Imputation edits replace missing, refused or unknown responses with a likely response based on other responses to the interview.

Age

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Respondents that refuse to provide their detailed age group have their age imputed from the screener age group.

Trip Month

Respondents that don't know the month in which they returned from their trip have this imputed with the month of interview.

Location

If the overnight place on the trip cannot be coded or is unknown then it is set to the main trip destination.

If the one hour stop or day trip place (for an overnight trip) cannot be coded or is unknown then it is set to the overnight place stayed.

8.3. Coding

Other - Specify

Post coding is undertaken for 'Other – Specify' responses (e.g. locations, accommodation, activities and attractions, ethnicity) where the response is examined and coded back to an existing code as appropriate.

Location Coding

If the name of a location visited is not known, respondents are probed for information about the location (e.g. a beach one hour west of Auckland) and research is undertaken by coders to determine the most likely location.

8.4. Suspended Cases

Day Trips less than 40km

Day trips where less than 40km has been travelled one way from home (and 80km return) are removed from the sample as they do not meet the definition of a day trip.

Uncoded Location

If the location cannot be determined following research or edit imputations, the respondent is removed from the sample.

8.5. Constructed and Derived Variables

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Ranked Transport

Respondents can report more than one mode of transport on their trip. The ranked transport mode is derived from the following prioritised transport list. This is used to calculate the transport expenditure.

Priority	Transport Type	Priority	Transport Type
1	Airline	13	Scheduled Coach Service
2	Private Plane	14	Private Boat Yacht
3	Helicopter	15	Cruise Ship
4	Private Car / Van	16	Other Commercial Ferry / Boat
5	Rental Car / Van	17	Hitchhiking
6	Company Car / Van	18	Bicycle
7	Motorbike	19	Taxi / Limousine / Car Tour
8	Private Campervan	20	Shuttle Bus
9	Rental Campervan	21	Walking / Tramping
10	Coach Tour / Tour Coach	22	Other Unspecified
11	Backpacker Bus	23	Don't Know
12	Train	24	Refused

Where the respondent has reported travel by inter-island ferry it will also be included as one of the main transport modes.

Distance

The distance travelled by respondents between two locations is measured 'as the crow flies' using geocodes associated with each location.

The distance between two locations *x* and *y* is calculated as:

$$D(x,y) = 0.0013 \times \sqrt{[e(x) - e(y)]^2 + [n(x) - n(y)]^2}$$

where e = easting

n = northing

8.6. Classifications and Definitions

The classifications and definitions used are consistent with:

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- UNWTO International Recommendations on Tourism Statistics
- SNZ Standard Classifications
- Other TMT Core Tourism Datasets

8.7. Non Response

Respondents that are eligible but refuse to participate in the survey or do not provide a usable response are not included in the sample. Due to the use of quota sampling there is no non response adjustment.

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9. Expenditure Modelling

Expenditure information is collected on the two most recent day and overnight trips from each respondent. Expenditure is collected for the following items:

- Accommodation
- Food and Beverage (including Alcohol)
- Alcohol
- Recreation, Entertainment and Attractions
- Gifts and Souvenirs
- Gambling
- Other Shopping
- Transport

The expenditure for all day trips is modelled using the average expenditure per day for each expenditure item. The expenditure for all overnight trips is modelled using the average expenditure per night for each expenditure item.

Note that expenditure modelling is undertaken using one year of data due to the size of the sample [7].

9.1. Group Expenditure

Respondents are given the option to either report their expenditure on each item for themselves or for their travel party. All group expenditure is adjusted by the number of adults in the travel party to represent individual expenditure.

The expenditure per person for item *x* for selected trip *i* is calculated as:

$$x_i = \frac{x_i^*}{s_i}$$

where x_i^* = reported expenditure for item *x* for selected trip *i*

s_i = number of adults in the travel party for selected trip *i*

[7] The one year period is from the last day a trip can be reported for the quarter being processed back one calendar year e.g. for Q1 2008 the data used is trips between the period 01/04/07 to 31/03/08.

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9.2. Overnight Trip Expenditure

The average expenditure per night for expenditure item *x* in expenditure group *g* is calculated as:

$$\bar{x}_g = \frac{\sum_i x_{gi}}{\sum_i y_{gi}}$$

where x_{gi} = expenditure on item *x* for selected overnight trip *i* in expenditure group *g*

y_{gi} = number of nights for selected overnight trip *i* in expenditure group *g*

The expenditure on item *x* for overnight trip *j* in expenditure group *g* is estimated by:

$$\hat{x}_{gj} = y_{gj} \times \bar{x}_g$$

where y_{gj} = number of nights for overnight trip *j* in expenditure group *g*

The expenditure groups vary for each expenditure item. The following table shows the expenditure groups used for overnight trips.

Accommodation, Food and Alcohol Expenditure Groups (35 groups)

Accommodation Type	Party Size (including children)
Hotel	One Person
Motel	Two People
Backpacker	Three People
Caravan	Four People
Hosted	Five or More People
Other Commercial Accommodation	
Private Accommodation	

Recreation, Gifts, Gambling and Other Expenditure Groups (12 groups)

Destination [8]	(Personal) Income
Metropolitan Destination	Less than $20,000 pa
Major Provincial Destination	$20,000 to $40,000 pa
Minor Provincial Destination	Greater than $40,000 pa
	Don't Know / Refused

[8] *Metropolitan* – Auckland, Wellington, Christchurch
Major Provincial – Waikato, Bay of Plenty, Hawkes Bay, Manawatu-Wanganui
Minor Provincial – Northland, Gisborne, Taranaki, Marlborough, Tasman, West Coast, Southland

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9.3. Day Trip Expenditure

The average expenditure per trip for expenditure item *x* in expenditure group *g* is calculated as:

$$\bar{x}_g = \frac{1}{n_g} \sum_i x_{gi}$$

where x_{gi} = expenditure on item *x* for selected day trip *i* in expenditure group *g*

n_g = sample size for selected day trips in expenditure group *g*

The expenditure on item *x* for day trip *j* in expenditure group *g* estimated by:

$$\hat{x}_{gj} = \bar{x}_g$$

The expenditure groups vary for each expenditure item. The following table shows the expenditure groups used for day trips.

Food, Alcohol, Recreation, Gifts and Other Expenditure (15 groups)

Main Destination	Trip Reason and (Personal) Income
Metropolitan Destination	Business
Major Provincial Destination	Non Business and Less than $20,000
Minor Provincial Destination	Non Business and $20,000 to $40,000
	Non Business and $40,000 plus
	Non Business and Don't Know / Refused

Gambling Expenditure (3 groups)

Main Destination
Metropolitan Destination
Major Provincial Destination
Minor Provincial Destination

9.4. Transport Expenditure

<u>All Forms of Transport (excluding Ferry, Hitchhiking, Cycling and Unspecified)</u>

The average transport expenditure (excluding ferry, hitchhiking, cycling and other unspecified) per kilometre in transport expenditure group *g* is calculated as:

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$$\bar{x}_g = \frac{\sum_i x_{gi}}{\sum_i y_{gi}}$$

where x_{gi} = expenditure on transport for selected trip *i* in transport expenditure group *g*

y_{gi} = distance travelled for selected trip *i* in transport expenditure group *g*

The expenditure on transport for trip *j* in transport expenditure group *g* and is estimated by:

$$\hat{x}_{gj} = y_{gj} \times \bar{x}_g$$

where y_{gj} = distance travelled for trip *j* in transport expenditure group *g*

The transport expenditure groups for transport expenditure are shown in the following table.

Domestic / Other Air Transport Expenditure (2 groups)

Transport Mode	Trip Reason
Domestic / Other Air	Business
	Non Business

Private / Company Car / Campervan Transport Expenditure (10 groups)

Transport Mode	Trip Reason	Party Size
Private Car	Business	One Person
	Non Business	Two People
		Three People
		Four People
		Five or More People

Other Transport Expenditure

Transport Mode
Rental Car
Bus / Tour Coach
Train
Motorbike
Other Land Transport
Other Sea Transport

Inter-Island and Commercial Ferry

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Transport expenditure on inter-island or commercial ferry for trip *j* in transport expenditure group *g* is estimated by:

$$\hat{x}_{gj} = c_g$$

where c_g = fixed ferry price per person for transport expenditure group *g*

The ferry price per person is updated once a year based on one-way fares for the Inter-Islander ferry and return fares for Fuller Ferries to their main Auckland destinations (Devonport, Bayswater and Birkenhead).

The transport expenditure groups for inter-island and commercial ferry expenditure are shown in the following table.

Inter-Island or Commercial Ferry Expenditure (7 groups)

Main Transport Mode	Other Transport Mode	Party Size	Ferry Price per Person (2007)
Inter-Island Ferry	Car	One Person	$192
		Two People	$124
		Three People	$102
		Four People	$90
		Five or More People	$84
Inter-Island Ferry	Not Car	All	$55
Commercial Ferry	All	All	$9

Free Transport

The following forms of transport are assumed to have no costs associated with them.

- Hitchhiking and Cycling
- Other Unspecified Transport

Ranked Transport Mode

Respondents can report more than one mode of transport on their trip. The transport cost is derived from the ranked mode of transport.

Only those respondents that use a single mode of (ranked) transport on their trip are used in the calculation of the average transport expenditure.

9.5. Imputation

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If the response to any of the following variables is missing, the value is imputed as one.

- Number of People in Travel Party
- Number of Adults in Travel Party
- Number of Nights in Accommodation Type

If the response to any of the expenditure variables is don't know, the value is imputed as zero. There is no direct imputation for item non response for expenditure.

9.6. Expenditure Outliers

An expenditure outlier process is used to reduce the impact of extreme expenditure values which may distort the average expenditure factors. The expenditure outlier process does not remove the impact of low expenditure values which can also distort the average expenditure factors.

Expenditure outliers are identified for the following expenditure items:

- Food and Beverage (including Alcohol)
- Alcohol
- Recreation, Entertainment and Attractions
- Gifts and Souvenirs
- Gambling
- Other Shopping

Outliers are not identified for accommodation and transport expenditure. The top accommodation and transport expenditure values are reviewed manually and only treated if they are considered to be extreme.

Note that expenditure outlier treatment is undertaken using the selected trips from the current processing quarter. This is different to the expenditure modelling with uses selected trips from one year.

<u>Overnight Trip Expenditure Outlier Detection</u>

Overnight trip expenditure outliers are identified as those values where the difference in the (unweighted) average overnight trip expenditure is greater than $5.

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The average overnight trip expenditure for expenditure item *z* is calculated as:

$$\bar{z}^{O} = \frac{1}{n}\sum_{i=1}^{n} z_i$$

where $z_i = \frac{x_i}{y_i \times s_i}, \quad z_i > 0$

and x_i = expenditure on item *x* for selected overnight trip *i*

y_i = number of nights for selected overnight trip *i*

s_i = number of adults in travel party for selected overnight trip *i*

n = number of selected overnight trips

The average overnight trip expenditure excluding selected overnight trip *k* for expenditure item *z* is calculated as:

$$\bar{z}_k^{O} = \frac{\sum_{i=1}^{n} z_i - z_k}{n-1}$$

where $z_k = \frac{x_k}{y_k \times s_{ki}}, \; z_k > 0$

Then the difference in average overnight trips expenditure excluding selected overnight trip *k* for expenditure item *z* is:

$$d_k^{O} = \bar{z}_k^{O} - \bar{z}^{O}$$

Overnight trip expenditure outliers are identified for expenditure item *z* if:

$$d_k^{O} < 5$$

Day Trip Expenditure Outlier Detection

Day trip expenditure outliers are identified as those values where the difference in the (unweighted) average day trip expenditure is greater than $5.

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The average day trip expenditure for expenditure item *z* is calculated as:

$$\bar{z}^{D} = \frac{1}{n}\sum_{i=1}^{n} z_i$$

where $z_i = \frac{x_i}{s_i}, \qquad z_i > 0$

and x_i = expenditure on item *x* for selected day trip *i*

s_i = number of adults in travel party for selected day trip *i*

n = number of selected day trips

The average day trip expenditure excluding selected day trip *k* for expenditure item *z* is calculated as:

$$\bar{z}_k^{D} = \frac{\sum_{i=1}^{n} z_i - z_k}{n-1}$$

where $z_k = \frac{x_k}{s_{ki}}, \qquad z_k > 0$

Then the difference in average day trip expenditure excluding selected day trip *k* for expenditure item *z* is:

$$d_k^{D} = \bar{z}_k^{D} - \bar{z}^{D}$$

Day trip expenditure outliers are identified for expenditure item *z* if:

$$d_k^{D} < 5$$

Expenditure Outlier Treatment

Expenditure outliers are treated by excluding them from the calculation of the average expenditure factors used for the expenditure modelling.

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10. Data Reliability

10.1. Sources of Error

The estimates derived from the survey are based on a sample of households and individuals within households. Somewhat different figures might have been obtained if a complete census had been taken. The variability of a survey estimate due to the random nature of the sample selection is measured as its *sampling error*.

Errors that are not related to sampling may occur at almost every stage of the survey process. Interviewers may misunderstand instructions, respondents may make errors in answering questions as a result of recall problems, data may be coded or entered incorrectly and errors may be introduced in the processing or tabulation of data. These are examples of *non sampling errors*.

10.2. Sample Error

If the sample is assumed to be a stratified random sample of households, then the estimate of x (e.g. number of trips, total expenditure) is calculated as:

$$\hat{X} = \sum_{t=1}^{T} \sum_{h=1}^{H_t} \sum_{i=1}^{m_{th}} \frac{M_{th}}{m_{th}} x_{thi}$$

where x_{thi} = value of x for household i in stratum h in week t

M_{th} = number of households in population in stratum h in week t

m_{th} = number of households in stratum h in week t

Note that x_{thi} is estimated by multiplying the number of adults in the household by the average response of the selected adult over the recall period (4 weeks for overnight trips and 1 week for day trips).

The estimated variance of x is calculated as:

$$Var\left(\hat{X}\right) = \sum_{t=1}^{T} \sum_{h=1}^{H_t} \frac{M_{th}^2}{m_{th}} s_{th}^2$$

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where $s_{th}^2 = \frac{\sum_{i=1}^{m_{th}} \left(x_{thi} - \bar{x}_{th}\right)^2}{m_{th}}$

The relative sample error of *x* is calculated as:

$$RSE\left(\hat{X}\right) = z_{\alpha/2} \frac{\sqrt{Var\left(\hat{X}\right)}}{\hat{X}}$$

where

$z_{\alpha/2}$ = confidence coefficient (e.g. 1.96 for a 95% confidence level)

Sample Error Model

The relative sample errors have been modelled for the number of overnight trips, number of day trips and the number of nights as a function of the estimate.

$$RSE\left(\hat{X}\right) = a\hat{X}^{b}$$

where the model parameters a and b are shown the following table.

Parameter	Overnight Trips	Day Trips	Nights
a	5761.8	18243	14596
b	-0.4456	-0.4716	-0.4586

Expenditure Modelling Error

The expenditure data is also subject to errors associated with the expenditure modelling process. These model errors are not accounted for in the sampling error estimates.

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11. References

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12. Appendix

12.1. Questionnaire Structure

DTS Questionnaire Structure - New

Last updated 12 June 2008

Loop - repeats until no other trips/ visits/ nights etc

Section A: Qualifying respondent

Q10	Verify location
Q21	Month of your birthday
Q21A	Anyone had birthday since yours
Q21B	Aged 15 years or more
Q21C	Usual resident of household
Q22	Good time to talk to respondent
Q22A	*If no* - Record time to call back
Q24	Age group
Q25	Gender *(recorded)*
Q209	Lived in NZ last 12 months
Q210	*If no* - intend to live in NZ last 12 months
Q208	Dwelling type

Section B: Number of trips taken

Q186	Overaseas trips in last year		
Q187	*If yes* - how many		
Q58A	Have you made any **overnight** trips in last week. If no, go to Q58A		
Q26	*If yes* - Number of overnight trips made in last four weeks. If = 1, go to Q33. If >1, go to Q26A.		
Q33	Main destination of trip (go to Q34 or Q37)	Q26A	Where did you go? (text string to go into Q86). Go to Q37
Q34	If other, places code frame		
Q37	Return date. Go to Q58A	Q37	Return date. Go to Q26A & repeat for all overnight trips
Q58A	Have you made any **day** trips in last week. If no, go to Sctn C or G		
Q27	*If yes* - How many day trips made in last week. If = 1, go to Q52. If >1, go to Q27A.		
Q52	Main destination of trip (go to Q53 or Q57)	Q27A	"Where did you go?" (text string to go into Q86). Go to Q57
Q53	If other, places code frame		
Q57	Return date. Go to next section	Q57	Return date. Go to Q27A & repeat for all overnight trips

If made 0 overnight and day trips

Section C: Detailed Day Trip (for 2 most recent day trips)

Q71	Main reason for **day** trip
Q71A	Specify other
Q74	Travel party
Q74A	Specify other
Q73	*If 2+* number of people travelled with
Q75	Number of people travelled with age 15+
Q86	Main destiantion (if not already collected in Q52)
Q87	If other, places code frame
Q88	Transport to get there
Q88A	Specify other
Q114	Activities/attractions
Q114A	Specify other
Q126	Transport to return home
Q126A	Specify other
Q289	Return weekday/wknd/holiday (if date not given in Q58)
Q290	Month returned from trip (if date not given in Q58)
Q143	Satisfaction of quality of trip
Q155	Transport expenditure introduction
	If transport type used (Q88/Q126) = Private plane; Private car/van; Rental car/van; Company car/van; Private campervan/motorhome/RV; Rental campervan/motorhome/RV; Motorbike; Private yacht/boat
Q158	Fuel amount ($) for each above transport type used
Q158A	Does amount include other members of travelling party
Q158B	*If Yes* , How many people included in that amount
	If transport type used (Q88/Q126) = Airline; Scheduled coach service between cities/towns; Backpacker bus; Shuttle bus; Coach tour/tour coach; Taxi/Limousine/car tour; Tram; Cook Strait Ferry; Other commercial ferry/boat; Cruise ship; Bicycle; Hitchhiking; Walking/tramping; Helicopter
Q158C	Amount spent ($) on this trip in to travel by (each transport type used)
Q158D	Does amount include other members of travelling party
Q158E	*If Yes* , How many people included in that amount
	If transport type used (Q88/Q126) = Rental car/van; Rental campervan/motorhome/RV; Motorbike
Q158F	In addition to fuel cost, amount ($) spent on each transport type
Q158G	Does amount include other members of travelling party
Q158H	*If Yes* , How many people included in that amount
Q161	Confirm total transport expenditure (not adjusted)
Q164	Other spending intro
Q165	F&B amount ($)
Q165A	Does amount include other members of travelling party
Q165B	*If Yes* , How many people included in that amount
Q166	Recreation, entertainment & attractions amount ($)
Q166A	Does amount include other members of travelling party
Q166B	*If Yes* , How many people included in that amount
Q167	Gifts/souviners amount ($)
Q167A	Does amount include other members of travelling party
Q167B	*If Yes* , How many people included in that amount
Q168	Gambling & Casino amount ($)
Q168A	Does amount include other members of travelling party
Q168B	*If Yes* , How many people included in that amount
Q169	Other shopping amount ($)
Q169A	Does amount include other members of travelling party
Q169B	*If Yes* , How many people included in that amount
Q170	Alcohol amount ($)
Q170A	Does amount include other members of travelling party
Q170B	*If Yes* , How many people included in that amount
Q173	Confirm total expenditure (for all expenditure amounts given)
Q101	Expenditure accuracy
Q101A	*If trip purpose business* , how much of total expenditure was personal & business (% or $)
Q101B	Is business expenditure private or public sector, or both
Q101C	If both, how much was public and private sector (% or $)

If any $ amount exceeds $10,000, hard edit clarifying expenditure amount

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Section D: Other Day Trips (for all remaining reported day trips)

Q71	Main reason for **day** trip
Q71A	Specify other
Q74	Travel party
Q74A	Specify other
Q73	*If 2+* number of people travelled with
Q75	Number of people travelled with age 15+
Q86	Main destination
Q87	If other, places code frame
Q88	Transport to get there
Q88A	Specify other
Q126	Transport to return home
Q126A	Specify other
Q290	Month returned from trip (if date not given in Q58)

Section E: Detailed Overnight Trips (for 2 most recent overnight trips)

Q71	Main reason for **overnight** trip
Q71A	Specify other
Q74	Travel party
Q74A	Specify other
Q73	*If 2+* number of people travelled with
Q75	Number of people travelled with age 15+
Q79	Number of nights away from home (if DK, go to Q79A)
Q79A	Record Departure Date. Calculate number of nights with Return Date (Q38).
Q79B	Confirm number of nights away from home (go back to Q79A if not correct)
Q86	Place stay overnight
Q87	If other, places code frame
Q102	How many nights in Q86
Q124	Other place overnight (*If Yes go to Q86)*
Q89	Any/*other* plus stops on way to Q86
Q91	*If Yes* - place 1hour+ stop on way
Q92	If other, places code frame
Q92A	Transport to get to 1hr+ stop
Q92B	Specify other
Q93	Attractions/activities place hour plus stop on way
Q93A	Specify other
Q88	Transport to get Q86
Q88A	Specify other
Q103	Accommodation type in Q86 (multiple response)
Q103A	Specify other
Q107	Number of nights at accommodation in Q103
Q109	Accommodation amount ($) (each accomm type used)
Q108	Does amount include other members of travelling party
Q108A	*If Yes* , How many people included in that amount
Q114	Activities/attractions place stay overnight
Q114A	Specify other
Q115	Any/*other* day trips while staying in Q86 *(only asked if staying 2+ nights)*
Q118	Main destination of day trip
Q119	If other, places code frame
Q119A	Transport to get to day trip
Q119B	Specify other
Q120	Activities/attractions day trip
Q120A	Specify other
Q128	Any/*other* Stops hour plus on return home
Q130	*If Yes* - place hour plus stop on return home
Q131	If other, places code frame
Q131A	Transport to get there
Q132	Activities/attr place hour plus stop on return home
Q132A	Specify other
Q126	Transport to return home
Q126A	Specify other
Q289	Return weekday/wknd/holiday (if date not given in Q38)
Q290	Month returned from trip (if date not given in Q38)
Q143	Satisfaction of quality of trip
Q151	*If answered Q109* , confirm total accomm expenditure (non adjusted).
	If transport type used = Private plane; Private car/van; Rental car/van; Company car/van; Private campervan/motorhome/RV; Rental campervan/motorhome/RV; Motorbike; Private yacht/boat
Q158	Fuel amount ($) for each above transport type used
Q158A	Does amount include other members of travelling party
Q158B	*If Yes* , How many people included in that amount
	If transport type used (Q88/Q126) = Airline; Scheduled coach service between cities/towns; Backpacker bus; Shuttle bus; Coach tour/tour coach; Taxi/Limousine/car tour; Tram; Cook Strait Ferry; Other commercial ferry/boat; Cruise ship; Bicycle; Hitchhiking; Walking/tramping; Helicopter
Q158C	Amount spent ($) on this trip in total to travel by (each transport type used)
Q158D	Does amount include other members of travelling party
Q158E	*If Yes* , How many people included in that amount
	If transport type used = Rental car/van; Rental campervan/motorhome/RV; Motorbike
Q158F	In addition to fuel cost, amount ($) spent on each transport type
Q158G	Does amount include other members of travelling party
Q158H	*If Yes* , How many people included in that amount
Q161	Confirm total transport expenditure (not adjusted)
Q164	Other spending intro (see paper copy)
Q165	F&B amount ($)
Q165A	Does amount include other members of travelling party
Q165B	*If Yes* , How many people included in that amount
Q166	Recreation, entertainment & attractions amount ($)
Q166A	Does amount include other members of travelling party
Q166B	*If Yes* , How many people included in that amount
Q167	Gifts/souviners amount ($)
Q167A	Does amount include other members of travelling party
Q167B	*If Yes* , How many people included in that amount
Q168	Gambling & Casino amount ($)
Q168A	Does amount include other members of travelling party
Q168B	*If Yes* , How many people included in that amount
Q169	Other shopping amount ($)
Q169A	Does amount include other members of travelling party
Q169B	*If Yes* , How many people included in that amount
Q170	Alcohol amount ($)
Q170A	Does amount include other members of travelling party
Q170B	*If Yes* , How many people included in that amount
Q173	Confirm total expenditure (for all expenditure amounts given)
Q101	Expenditure accuracy
Q101A	*If trip purpose business,* how much of total expenditure was personal & business (% or $)
Q101B	Is business expenditure private or public sector, or both
Q101C	If both, how much was public and private sector (% or $)

Loop repeated for each overnight place (Q86)

If any $ amount exceeds $10,000, hard edit clarifying expenditure amount

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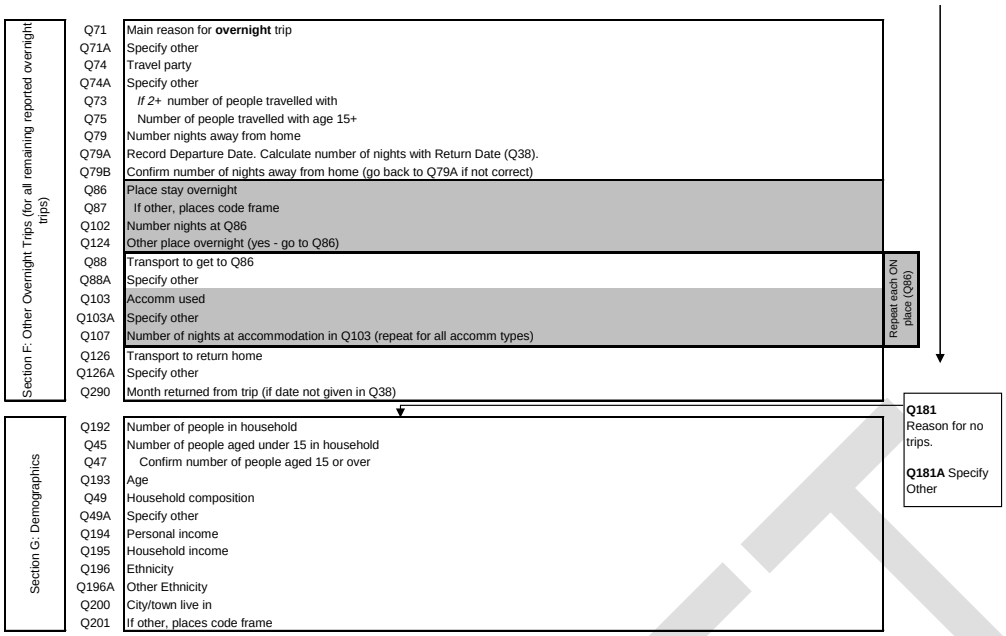
Section F: Other Overnight Trips (for all remaining reported overnight trips)
Q71 Main reason for **overnight** trip
Q71A Specify other
Q74 Travel party
Q74A Specify other
Q73 *If 2+* number of people travelled with
Q75 Number of people travelled with age 15+
Q79 Number nights away from home
Q79A Record Departure Date. Calculate number of nights with Return Date (Q38).
Q79B Confirm number of nights away from home (go back to Q79A if not correct)
Q86 Place stay overnight
Q87 If other, places code frame
Q102 Number nights at Q86
Q124 Other place overnight (yes - go to Q86)
Q88 Transport to get to Q86
Q88A Specify other
Q103 Accomm used
Q103A Specify other
Q107 Number of nights at accommodation in Q103 (repeat for all accomm types)
Repeat each ON place (Q86)
Q126 Transport to return home
Q126A Specify other
Q290 Month returned from trip (if date not given in Q38)
Q181 Reason for no trips.
Q181A Specify Other
Section G: Demographics
Q192 Number of people in household
Q45 Number of people aged under 15 in household
Q47 Confirm number of people aged 15 or over
Q193 Age
Q49 Household composition
Q49A Specify other
Q194 Personal income
Q195 Household income
Q196 Ethnicity
Q196A Other Ethnicity
Q200 City/town live in
Q201 If other, places code frame

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12.2. Definitions

Domestic Visitor	A domestic visitor is a person residing in a country, who travel to a place within that country outside their usual environment for a period not exceeding 12 months, and whose main purpose of visit is other than the exercise of an activity remunerated from within the place visited
Resident in a Country	A person is considered to be a resident in a country if the person has lived for most of the past year (12 months) in that country, or has lived in that country for a shorter period and intends to return within 12 months to live in that country.
Trip	A trip is any travel, including recreational and business trips a respondent made around New Zealand outside the area in which they usually work or live in day to day. Any travel involving at least one night's stay is defined as a trip, or if no overnight stay is involved, a minimum of 40km one way (80km return) or travel by aeroplane or commercial ferry service.
Overnight Trip	An overnight trip is defined as a trip made in New Zealand, but outside the area in which the respondent usually lives or works day to day, which involves a minimum of one night away from home. Data is collected on trips from which the respondent had returned in the last four weeks, which were less than 12 months long.
Overnight Visit	An overnight visit is defined as a location where one or more night was spent on an overnight trip.
Nights	Nights or person nights, refers to the number of nights spent away from home on an overnight trip. One person spending four nights away from home generates four (person) nights.
Day Trip	A day trip is defined as a trip made within one day, outside the area in which the respondent usually lives or works day to day, involving travel of at least 40km one way (80km return), or travel by aeroplane or commercial ferry service. Data is collected on day trips made within the last seven days.
Selected Trip	To minimise interview length, expenditure and activity data is collected from respondents only relating to the two most recent day and overnight trips (each respondent has up to four selected trips in which more detail is asked).
Main Destination	The main destination of a trip is the place in which the traveller spends the longest time or the farthest place they travel to from the origin (if they spend equal amounts of time in two places). Each trip has only one main destination.

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Travel Sector	For overnight trips, a travel sector is defined as travel between two overnight stops. This includes travel from home to the first overnight stop and travel from the last overnight stop to home. For day trips, a travel sector is defined as between the origin and the main destination.
Tier 1 Statistic	Tier 1 statistics are a portfolio of key official statistics which departments use to advice and inform ministers, and which are of broad public interest.

12.3. Abbreviations

CATI	Computer Assisted Telephone Interviewing
DTS	Domestic Travel Survey
DK	Don't Know
IVS	International Visitor Survey
SNZ	Statistics New Zealand
TMT	Ministry of Tourism
UNWTO	World Tourism Organisation

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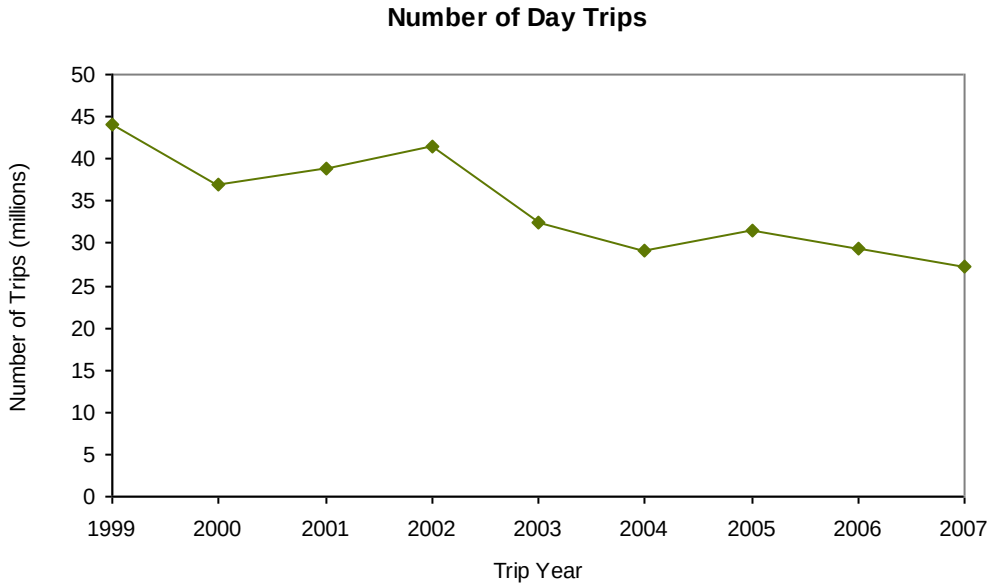
12.4. Survey Changes

Day Trip Definition

A day trip is defined as a trip made within one day, outside the area in which the respondent usually lives or works day to day, involving travel of at least 40km one way (80km return), or travel by aeroplane or commercial ferry service.

Prior to 2003 the 40km one way (80km return) criteria was not strictly adhered to and there was no survey process to exclude trips that did not meet the day trip criteria. In 2003, ACNielsen introduced a post survey process to measure the distance of each day trip and day trips which do not meet the 40km one way (80km return) criteria are removed from the sample.

The different treatment of day trips before and after 2003 has resulted in a structural break in the time series.



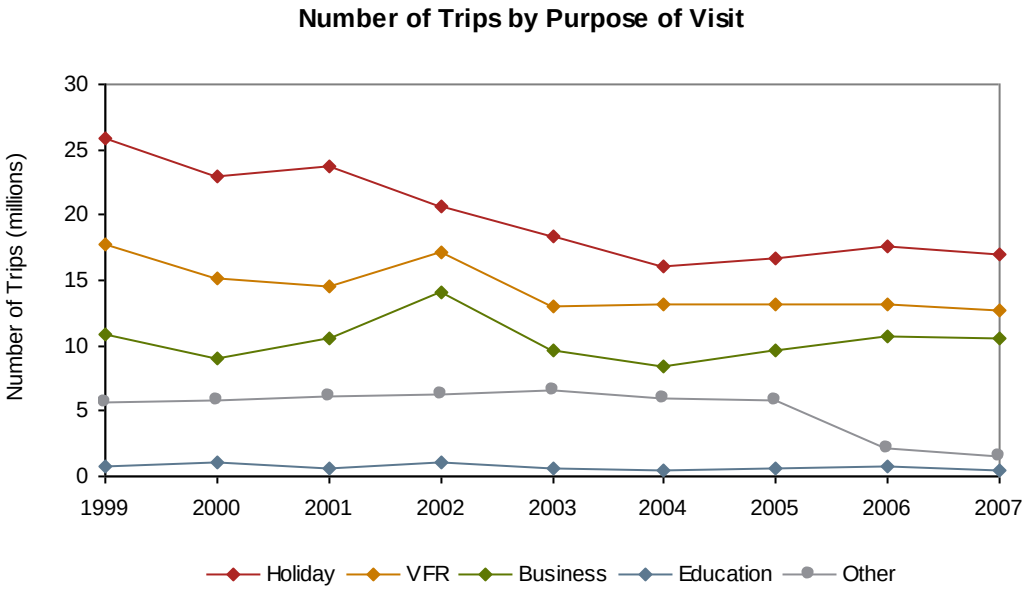
Classifications

In 2005 following recommendations from the Review of Core Tourism Datasets the classifications were changed to align them with other core tourism datasets (in particular the International Visitor Survey).

- Purpose of Visit
- Accommodation
- Transport

- Activities and Attractions
- Reason for not Travelling

This has resulted in some changes to the time series. For example, responses previous classified to “Other” purpose of visit are now classified to “Business”.



Questionnaire

In 2008 the questionnaire was significantly redesigned to further align it with the IVS, reduce the length of interview and improve the quality of the data collected.

- Aligning the DTS questionnaire structure to the questionnaire structure used for the IVS.
- Extending the detailed data collection from one trip to a maximum of two day and two overnight trips
- Removing questions that are not used in the analysis and aligning the classifications (again) with the IVS.
- Changing the respondent selection method based on the Kish grid to the “last birthday” method.

Weighting

In 2008 the following changes were made to the weighting methodology.

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- Using one year of data from the end of the *third* month of the processing quarter back one calendar year, rather than from the end of the *fourth* month of the processing quarter back one calendar year.

- Removing the interview week weight which adjusted for the variability in the number of interviews each week. The number of interviews per week is controlled through the setting of weekly quotas targets.

- Weighting to total response ethnicity population counts from the census rather than prioritised ethnicity population counts. Statistics New Zealand no longer reports using prioritised ethnicity[9].

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[9] Statistics New Zealand. (2007) *Statistical Standard for Ethnicity*