

Partially responding households in the National Travel Survey

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Introduction

Each year on the National Travel Survey (NTS) about 7 per cent of households in the initial sample participate in some but not all parts of the survey. They are known as partially responding households. In recent years, data from these households have not been used in any way.

The rate of full co-operation has fallen steadily throughout the 1990s, while the rate of partial response has remained roughly constant. The response rate in 1998 was 65 per cent, compared with 80 per cent in 1990. As a possible aid in tackling this problem, it was decided to investigate whether data from partially responding households could be included, to supplement the data from those households that co-operate in full. This paper is a summary of the analysis carried out. A full paper, with tables and further analysis, is available at:

http://www.statistics.gov.uk/nsbase/methods_quality/quality_review/transport.asp

The paper is based on data from 1995, 1996, and 1998, since a full dataset is not available for partial responses from 1997. There are 1,064 partially responding households in the 1995/96/98 dataset, about 11 per cent of the number of full responses for these years. The large majority (75 per cent) of these partial responses were due to incomplete travel diaries within the households.

Extent of partial response

Some 74 per cent of individuals in this database recorded no mileage during the travel week, compared with only 4 per cent in the database of full responses (*Table F.1*). It is clear from this table that the majority of the 'incomplete' diaries in the database of partial responses were not filled in at all.

Table F.1 Personal travel mileage during travel week: GB: 1995/96/98

	Percentage of all individuals					
	Partially responding households			Fully responding households		
	Male	Female	All persons	Male	Female	All persons
No mileage	76	71	74	4	5	4
Under 30 miles (not nil)	6	8	7	18	23	21
30 to under 100 miles	7	10	9	30	36	33
100 miles and over	11	10	10	48	36	42
All individuals	100	100	100	100	100	100
Number of individuals	1,596	1,499	3,095	10,787	11,749	22,536

The implication for the use of the partial response data is that there will be little value in adding diary data from these households to the main database, as there is

little information about actual travel behaviour. However, the partial responses may still be of some use – to increase the sample size on household, individual and vehicle variables. There follows an analysis of data at these levels.

Characteristics of the partially responding population

Household characteristics

Those households composed of more people than average were much more likely to give only a partial response. Thirty-two per cent of partially responding households were composed of four or more persons, compared with 20 per cent of fully responding households. This is possibly due to an increasing chance of at least one person failing to complete a diary as household size increases. Furthermore, households containing single people formed 47 per cent of the partially responding households and 37 per cent of the fully responding households, possibly because people may be more likely to respond fully if they are not the only person taking part.

London households were most likely to give responses that were partial. Fifteen per cent of responses from households in London were partial, compared with 10 per cent of those in Great Britain as a whole. Within Inner London, 18 per cent of responses were partial.

Sixty-one per cent of partially responding households were headed by someone who works full time, compared with 51 per cent of fully responding households. There was a lower proportion of households headed by retired and permanently sick people amongst the partial responses, 19 per cent, compared with 32 per cent of fully responding households.

There was a large variation in the categories of the ACORN socio-demographic classification that were represented more in each of the two databases. The general indications were that those living in less affluent areas and those with busy lifestyles were more likely to give a partial response, while those with steady lifestyles were more likely than average to give a full response.

Characteristics of individuals in partially responding households

There were slightly more males in partially responding households (52 per cent compared with 48 per cent in fully responding households), and there was a higher proportion of full responses from households of married and widowed people.

Partially responding households contained a higher proportion of young adults (7 per cent in the age group 17–29) than fully responding households (4 per cent). 33 per cent of individuals in the fully responding households were over 50, compared with 20 per cent in partially responding households. People over 50 are less likely to be working and may have had more time to respond.

Vehicle data

Partially responding households had a lower proportion of new cars (4 per cent were 1 year old or less, compared with 8 per cent) and a higher proportion of cars over five years old (67 per cent compared with 63 per cent).

A higher proportion of vehicles in partially responding households have high

average annual mileage than those in fully responding households. This suggests that partially responding households may have had different travel behaviour from fully responding households.

Journey data

Consideration of the small amount of journey data that was available indicated a greater proportion of journeys for commuting and fewer for shopping, compared with the data from fully responding households. However, it is difficult to know how well this represents the behaviour of partially responding households, since the data are mainly incomplete.

Summary of characteristics

In broad terms, partially responding households seem to have the following characteristics:

- they are composed of individuals who are either less affluent or likely to lead particularly busy lifestyles;
- they are larger than an average household;
- they tend to be in large metropolitan areas, especially London;
- individuals are more likely to be male, younger and single;
- vehicles are likely to be older and do higher mileage during the year.

Effects of using household, individual and vehicle data from partially responding households

Data from partially and fully responding households were combined to produce tables of car ownership, frequency of bus services, usual means of travel to work, fuel types for vehicles, and company car summary. All of these tables showed very little or no change from those produced using only data from the fully responding households.

However, there were some changes to statistics on driving licences when the data from partially responding households were included (*Table F.2*). These changes were still relatively small, but indicated a slightly higher proportion of young males having driving licences. This is because of the extra numbers of young males who respond only partially, and suggests that deriving this table from a dataset consisting of both partial and full responses may actually improve results slightly.

Table F.2 Full car driving licence holders by age and sex: GB: 1995/96/98

	Percentage of all individuals							
	17–20	21–29	30–39	40–49	50–59	60–69	70 and over	All adults
Full responses only								
All adults	43	73	82	82	75	63	38	53
Males	48	79	88	91	88	82	63	61
Females	37	68	76	74	63	45	21	45
Full and partial responses								
All adults	44	73	82	81	75	63	38	54
Males	50	79	88	90	88	82	63	63
Females	37	67	76	73	63	45	21	46

Conclusions

Most households that respond only partially do so as the result of one or more people failing to complete travel diaries.

Although there were some differences in household characteristics, some questionnaire-based data from the partially responding households could be added to the main database. This would increase the useful sample size for some areas of interest, e.g. household variables such as frequency of bus services and car ownership, and individual variables such as driving licences.

Despite the differences in the household types, adding the partial response data does not result in many changes in the main statistical outputs. This is because the differences in the smaller quantity of data are not large enough to affect the much larger standard dataset. This indicates that the bias from omitting the partial responses has not been great, at least in terms of household, individual and vehicles variables.

However, less is known about the bias resulting from the omission of households that do not respond at all. Work is now being carried out to investigate the effects of weighting the survey to account for non-response. Early results have indicated that any differences in outputs will not be large, and it is likely that the survey outputs will be produced on a weighted basis in the future. Details of this work and the final conclusions will be made available in due course.

It is planned to include data from the partially responding households when the 2001 data are brought on stream. Consultation within the recently completed National Statistics Quality Assurance Review of the NTS indicated widespread customer support for this development.