



Department
for Transport

Collection of short walk data in the National Travel Survey Summary of 2015 research

Moving Britain Ahead



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Executive summary

- 1 In 2014, the Department for Transport ran a public consultation on the collection of short walk data in the National Travel Survey (NTS). This was based on results of an experiment carried out in 2013 which showed that short walks tend to be under-reported when collected on day 7 of the travel diary, compared to day 1.
- 2 We have now carried out further research into the recording of short walks in the NTS, as promised in our response to the consultation (published December 2014), including a repeat of the 2013 experiment and a cognitive study to understand how respondents complete the travel diary. We also commissioned the Office for National Statistics (ONS) to explore whether historic data could be weighted to maintain a consistent time series in the event of a change to day 1 recording of short walks.
- 3 The repeat experiment, which had the same design as that carried out in 2013, produced very similar results overall. This provides confidence that the difference observed in 2013 was real, rather than occurring by chance.
- 4 Although it is difficult to draw firm conclusions from the cognitive work, there is some evidence to suggest that certain factors affecting the non-recording of short walks are more likely to be prevalent when walks are recorded on day 7 than on day 1 of the diary. Consequently, the study recommended that short walks should be recorded on day 1.
- 5 The ONS work suggested that it would be possible to develop a methodology for weighting historic data to adjust for under-recording of short walks. They proposed that the best way to do this would be to collect more data to compare day 1 and day 7 recording during 2016.
- 6 As a result, **in 2016, the NTS sample will be split so that for half of households short walks will be collected on day 1 of the diary, and for the remaining half on day 7.** This data will be used to develop weights to uplift the day 7 sample so that NTS results for 2016 (published mid-2017) will be published as if short walks were collected on day 1.
- 7 Subject to the results of the approach taken in 2016, **we intend to collect data on short walks on day 1 for all households in the NTS from 2017 onwards.**

1. Background

Recording of walks in the National Travel Survey

- 1.1 The National Travel Survey (NTS) is a primary evidence source for forming travel policy within the Department for Transport. The Department is committed to maintaining the statistical quality of its official statistics especially the processes for producing statistics.
- 1.2 The NTS currently collects walking data via the seven-day travel diary. On days 1 to 6 of the travel diary, walks one mile and over are recorded by the respondent. Walks 50 yards or more and under one mile, which we define as 'short walks', are recorded on day 7 only to reduce the burden on the respondent.
- 1.3 In 2013, the NTS carried out an experiment looking at the timing for collection of short walk data in the seven-day travel diary to test whether there is a difference in recording short walks on day 1 of the diary instead of day 7. The results of this experiment (summarised in the [2014 consultation document](#)) suggested a difference in the reporting of short walks when recorded on day 1 instead of day 7.
- 1.4 Consequently, there was a need to consider changing the design of the NTS in regard to the collection of short walks data.

User consultation and response

- 1.5 In 2014, we consulted NTS users on a number of options for doing this. The public consultation ran during summer 2014, with a summary of the 17 responses received and the [Department's response](#) published in December 2014.
- 1.6 Overall, those users responding to the consultation favoured moving to an approach where short walks data is collected on day 1 of the travel diary (12 out of 17 responses, and 12 out of 13 who indicated a preferred option). However, the Department noted some comments that expressed concern about changing the NTS methodology based on a one-off experiment
- 1.7 As part of the response, the Department committed to undertake further research into short walk recording in the NTS before making a decision regarding 2016 data collection.
- 1.8 This document summarises the follow up work carried out in 2015, together with details of how short walk data will be collected in the NTS from 2016 onwards.

2. Summary of work done in 2015

2015 split sample experiment

- 2.1 To address concerns raised by some of those responding to the consultation that the results of the 2013 experiment were a one off, the same experiment was repeated in quarter 2 of 2015, using the same methodology.
- 2.2 A split sample approach was used in which approximately 25% of the Quarter 2 sample received travel records with short walks recorded on day 1 of the travel week and the remainder had short walks collected on day 7 (which is the current approach).
- 2.3 Results of the 2015 experiment are given in annex A. The key finding is that, as in 2013, for adults collecting details of short walks on day 1 of the travel week increased the reporting of the prevalence of short walks and the number of short walks reported
 - **28.6%** of adult respondents reported taking at least one short walk when reporting on day 1 compared with **20.9%** when reporting on day 7;
 - the average number of walks reported by all adults was **0.76** on day 1 compared with **0.55** for day 7.
- 2.4 These results are very similar to those for the 2013 experiment. For example, the equivalent figures for the first bullet were 29.1% and 20.3% in 2013 (for further comparison, refer to annex A).
- 2.5 Therefore, on the whole **the results of this experiment provide further evidence that short walks are under-recorded in the NTS**. In both experiments, the main issue was found to be that a larger proportion of people fail to report any short walks if collected on day 7.

Cognitive study of short walk recording

- 2.6 To develop a better understanding of how NTS respondents complete the travel diary, a cognitive study was carried out by NatCen Social Research (NatCen), who are the contractor for the NTS.
- 2.7 The results of this study are published separately, but the conclusions, based on 30 cognitive interviews are repeated below.
- 2.8 The results from the 2013 experiment on the NTS suggests that recording all short walks on Day 7 rather than Day 1 produces a significantly lower estimate of the number of short walks undertaken. Evidence from this study suggests that this might be the result of a combination of the following factors, however some of these also relate to missing walks from day 1 respondents:
 - Confusion over whether the short walk should be included– this was an issue for Day 1 and Day 7 participants

- Lack of understanding of how to record round trips and composite journeys (e.g. home to the shops, to a friend's, then home)– again, this was a problem for both Day 1 and Day 7 participants
- Not seeing the instruction about recording all walks or forgetting about the instruction – particularly an issue for Day 7
- Adoption of cognitive biases either consciously or subconsciously to make the diary recording task easier, such as making up definitions about how long a walk should be before it counts as one that needs to be recorded – cognitive biases appear to be more prevalent among Day 7 than Day 1.

2.9 **The study concluded by recommending moving the recording of all short walks data collection to day 1 of the diary.** The participants in the cognitive study appeared to omit less short walks when they recorded them on day 1 rather than day 7. The reasons found for this consistently related to issues surrounding cognitive biases, as well as recall errors and errors in task comprehension. Furthermore, by asking participants to record an additional element, i.e., the short walks, on day 1 the dangers of survey fatigue would be avoided (as far as possible), allowing for a more accurate recording of the short walks.

Weighting historic short walks data

- 2.10 The majority of those users responding to the consultation in 2014 and favouring a switch to day 1 recording for short walks also favoured an approach where historic results were weighted to maintain a consistent time series of walk data (8 of 12 respondents in favour of weighting, with others appreciating the benefits but unsure as to whether these justified the work involved).
- 2.11 As a result, the ONS methodology advisory service were commissioned to explore the potential for calculating a sufficiently robust weight.
- 2.12 A full report on this work is available separately. In summary, the work found that it is possible to develop a methodology, using logistic regression models, to adjust for under-reporting of short walk trips on day 7 of the travel diary. This model involves comparing data from the split sample experiment for those reporting short walks on day 1 and day 7.
- 2.13 **The ONS report supported the reweighting of the historic data as the best approach to maintaining a consistent time series of walking data from the NTS.** This is in line with the views of the majority of users responding to the consultation, as noted above.
- 2.14 However, ONS noted that as the experiments in 2013 and 2015 were both carried out during Q2, the main question mark regards applicability to other times of year. As a result, **the report recommends that it would be advisable to derive weights from a parallel data collection for a full year split 50:50 between day 1 and day 7 collection.** This would also have the advantage of providing more data for the calculation of more sophisticated weights.

3. Short walk data collection in the 2016 NTS

- 3.1 Taking all the evidence together (from both experiments and the cognitive study), we believe that there is now sufficient evidence to be sure that short walks are under-recorded in the NTS currently, and that this would be improved by changing to record short walks on day 1 rather than day 7 of the travel diary.
- 3.2 We also believe that, based on the ONS work, it should be possible to calculate weights to uplift the historic data on walking to be consistent with that collected with short walks on day 1.
- 3.3 However, we also note the point made by ONS that further data to allow calculation of better, more robust weights would be beneficial.
- 3.4 As a result, **in 2016 data on short walks will be collected on day 1 for half of households in the NTS, and on day 7 for the other half.** This data will be used to calculate weights which will be used to uplift the short walks day 7 cases to the level of day 1, and it is intended that when the 2016 NTS results are published the levels of walking will be adjusted so that they are as if all data were collected on day 1.
- 3.5 Alongside this, historical data would be uplifted both for published time series and also at the individual record level so that users of the raw NTS data (e.g. as available from the UK Data Service) will be able to apply a similar weighting where desired.
- 3.6 Subject to the 50:50 split in 2016 being successful, we intend to switch to collecting data on short walks on day 1 for all household from 2017 onwards.
- 3.7 We hope that the proposed changes, when implemented, will ensure that the NTS continues to be produced to a level of quality that meets users' needs in future.
- 3.8 We continue to welcome feedback or questions in relation to the collection of walking data, or any other aspect of the NTS – please email us at national.travelsurvey@dft.gsi.gov.uk or phone 020 7944 3097.

Annex A: Summary of 2015 experiment

A.1 This annex provides a summary of the results of the 2015 NTS short walks experiment. Since 2002, DfT has commissioned NatCen Social Research (NatCen) as the contractor for the NTS. NatCen carried out the short walk experiment between April and June 2015 and have produced the analysis in this annex.

Adults

A.2 For adults, the effect of the change to day 1 recording was large and consistent with the 2013 findings. Collecting details of short walks on day 1 of the travel week increased the reporting of the prevalence of short walks and the number of short walks reported (Table 1):

- **28.6%** of adult respondents reported taking at least one short walk when reporting on day 1 compared with **20.9%** when reporting on day 7;
- the average number of walks reported by all adults was **0.76** on day 1 compared with **0.55** for day 7.

A.3 As in 2013, there was only a small difference in the average number of short walks reported for those that reported any: 2.67 on day 1 compared with 2.62 on day 7 (in 2013, the averages were 2.58 and 2.68 respectively). Also, there was no change in the average distance of the short walks reported: 0.38 miles for both groups (0.37 miles in 2013).

A.4 Looking at short walks by purpose (Table 1) shows that there is no single purpose associated with this increase – increases were reported for all the main purpose codes.

Table 1: Reporting of short walks by purpose

	2015			2013		
	Day 1	Day 7	% Increase	Day 1	Day 7	% Increase
Any short walk reported						
Business	6.6%	5.1%	30%	5.5%	4.3%	27%
Shopping	4.8%	3.6%	35%	7.1%	5.0%	41%
Personal business	20.8%	14.8%	41%	22.8%	15.3%	49%
Social	8.2%	4.7%	76%	6.3%	5.3%	20%
Holiday	6.0%	3.9%	51%	5.1%	2.6%	95%
All adults	28.6%	20.9%	37%	29.1%	20.3%	43%
Number of short walks reported						
Business	0.02	0.01	102%	0.01	0.02	-37%
Shopping	0.15	0.12	31%	0.17	0.12	42%
Personal business	0.10	0.06	74%	0.12	0.07	81%
Social	0.16	0.10	58%	0.14	0.11	24%
Holiday	0.07	0.05	57%	0.06	0.03	67%
All adults	0.76	0.55	39%	0.75	0.54	38%

Note: Commuting, Education and Escort Education are not shown because of the small number of short walks reported.

As shown in Table 2, the difference in reporting for short walks for adults was greater when the trip consisted only of a short walk than when the short walk was part of a multi-stage trip (i.e. included other modes besides walking). The observed smaller drop in the reporting for multi-stage trips from day 1 to day 7 (from 0.25 to 0.20) is larger than in 2013 (from 0.21 to 0.20). Therefore it could be argued that the under-reporting of short walks when reporting on 7 rather than day 1 primarily affects those trips that consisted solely of short walks and to a lesser extent those when the short walk was part of a multi-stage trip.

Table 2: Reporting of short walks by whether short walk only or multi-stage trip

	2015			2013		
	Day 1	Day 7	% Increase	Day 1	Day 7	% Increase
Any short walk reported						
Short walk only	21.3%	14.4%	48%	22.4%	14.4%	55%
Multi-stage trip	10.2%	8.0%	27%	8.6%	7.5%	16%
All adults	28.6%	20.9%	37%	29.1%	20.3%	43%
Number of short walks reported						
Short walk only	0.51	0.35	47%	0.54	0.34	59%
Multi-stage trip	0.25	0.20	25%	0.21	0.20	4%
All adults	0.76	0.55	39%	0.75	0.54	41%

Children

- A.5 The results for children show a similar picture (Table 3). Overall, **41.9%** of children reported taking at least one short walk when reporting on day 1 compared with **32.3%** when reporting on day 7 (an increase of 30%). The observed increase is larger compared to 2013, particularly for older children aged 5 to 15 (in 2013, changing the day on which short walks are collected made no difference to the reporting of short walks for children aged 5 to 15).
- A.6 Note that ideally it would have been informative to have used finer age ranges, but (as was also the case in 2013) the number of short walks reported would have been too small for reliable analysis. For example, in the 11 to 15 age range only 25 children reported any short walks of those that completed the travel diary on day 1 (21 in 2013). These relatively small samples of children for day 1 may be a reason why the 2013 and 2015 results are different.

Table 3: Reporting of short walks for children by age group

	2015			2013		
	Day 1	Day 7	% Increase	Day 1	Day 7	% Increase
Any short walk reported						
Children: aged 0 to 4	36.0%	28.6%	26%	41.5%	30.4%	36%
Children: aged 5 to 15	45.9%	34.1%	35%	34.2%	33.9%	1%
All children	41.9%	32.3%	30%	36.8%	32.7%	13%
Number of short walks reported						
Children: aged 0 to 4	0.89	0.82	9%	1.04	0.72	44%
Children: aged 5 to 15	0.87	0.69	26%	0.71	0.76	-7%
All children	0.88	0.73	20%	0.82	0.74	11%

Response rate

- A.7 As in 2013, impact on response rates of collecting short walks data on day 1 was investigated. Due to the fact that a potentially burdensome element of the diary completion (recording short walks) was to be recorded first, there was a possibility this could put people off before they finished the diary.
- A.8 However, there was no observable difference in response across the two groups. The fully productive household response rate was 58.2% when the short walk information was collected on day 7 and 58.4% when it was collected on day 1 (in 2013, the response rates were 62.9% and 62.5% respectively).