

Summary of the changes to the Bus Passenger Survey and their impact – Autumn 2015 wave

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Introduction

Two important changes were made to the Bus Passenger Survey (BPS) in Autumn 2015, compared to previous waves. These were:

- **Enhancements to the data collection method**

Until Autumn 2015, the BPS was administered as a paper self-completion questionnaire, which passengers were given as they boarded buses. In Autumn 2015 passengers were offered the choice either to take a paper questionnaire as previously, or to provide their email address, after which they would receive a link to a tailored version of the survey online, via email (usually within two to three days). In both cases the questionnaire asked about the journey being made at the time of recruitment, and both versions had the same questions. This change followed previous pilot work on the BPS, and the National Rail Passenger Survey (NRPS), and the successful implementation of this method on the Tram Passenger Survey (TPS). The move was anticipated to help make the survey more inclusive by making it attractive and accessible to more passenger groups, as well as generally to improve the image of the survey

- **Refinements to the sampling and weighting**

- Prior to Autumn 2015, the bus trips on which fieldworkers recruited respondents were sampled with probability proportional to the estimated number of passengers on board each bus (the 'passenger value', or PV). This estimate was largely based on an assumption that longer bus trips carry more passengers throughout their duration. For Autumn 2015, following a review by an independent consultant, modelling was undertaken to provide a much more accurate passenger value for each bus trip (PV2). This more accurate estimate takes into account not only the journey duration, but the area (or area type) in which the bus runs, the journey day-part¹, and the operator².
- Additionally, in previous waves, fieldworkers had been instructed to make outward and return journeys for a period of three hours, starting with the specific bus trip selected in the sampling process. In Autumn 2015, following the independent review, this was altered so that the selected bus trip effectively fell at the mid-point of a fieldworker's shift rather than at the start. This adjusted all fieldwork slightly forward to more accurately reflect the times at which bus trips, and therefore passenger journeys, are being made.
- Thirdly, a day-part weight was applied to the results along with age and gender weights, to correct for any imbalances in response by these variables. Previously, weights by age and gender had been used, but not by day-part.
- The effect of these changes was to place more (and more accurate) emphasis on morning peak times in particular.

This document summarises the impact of these changes to the survey method, on the profile of who responds to the survey, and on the results. This is a summary of a more detailed analysis which is given in the full Methodology Report for the Autumn 2015 wave.

¹Day-parts are weekday morning peak (06:00 – 08:59), weekday off-peak (before 06:00, 09:00 – 16:29, or after 18:59), weekday evening peak (16:30 – 18:59) and weekends.

²One of the 'big 5' operators, or 'other'.

Impact of changes to survey method on respondent profile

Pilot and other work had indicated that moving to the dual paper/online method could improve response from groups which are typically under-represented (younger males, and linked to this, commuters and fare-paying passengers), thus improving the overall quality of the survey sample. A comparison of paper and online respondents for Autumn 2015 showed that indeed the online survey did attract much higher response from these groups.

However, a relatively small proportion (8 per cent) of all respondents took the online option, meaning that the overall sample profile was dominated by paper respondents. In practice, this meant that the overall sample profile was very similar to that seen in 2014, and a similar level of weighting was required to address the imbalance in response rate from certain groups. Nevertheless, the online option clearly showed the potential to improve representation of harder-to-engage groups, and so continued efforts to encourage greater take-up of the online survey will be made. Following further in-depth analysis of survey response, as well as pilot work on the dual method in the NRPS, a number of learnings have been identified which could increase this online take-up (these are described in the full report).

While greater take-up of the online option will be needed in future to realise its potential, the changes to the sampling and weighting to place more emphasis on early morning (especially morning peak) journeys *did* result in a much higher proportion of peak time journeys contributing to the overall sample. In 2014, 24 per cent of journeys in the (weighted) dataset took place at peak times; in 2015 this rose to 32 per cent. The 2015 survey profile was a good reflection of the times when passenger journeys were made, according to the PV2 models.

Impact of changes to survey method on results

Of course, it is important to understand any impact that these differences may have on the results to the survey: intuitively, we might expect to see that younger people, fare payers and / or those travelling at peak times might be less satisfied with bus journeys than those travelling in quieter times and with free or subsidised tickets. There is also a potential for the data collection method itself to impact on how positive or negative someone is in their answers.

Indeed there were some decreases in passenger satisfaction between 2014 and 2015; for example overall journey satisfaction dropped slightly from 87 per cent to 86 per cent³, and other key measures also dropped by one or two percentage points. It is therefore worthwhile to check whether these results are 'real' or influenced by the change in survey method.

We found that online respondents do appear to be more negative than those who completed the survey on paper, and that people travelling at peak times are more negative than those travelling at weekends or off-peak times. We therefore concluded that:

- The greater emphasis on peak-time journeys in the sample does appear to have slightly depressed satisfaction scores in 2015 (in fact the analysis showed that scores would have decreased anyway, but the stronger influence of peak time journeys will have exaggerated this a little). This is felt to be an acceptable outcome since it is a better reflection of real passenger journeys, and because this method will be repeated in future waves this effect will only have happened once, in this Autumn wave.
- The impact of introducing an online element required further review, since as described earlier, the ambition will be to increase the contribution that online responses make to the survey overall in future. This means that any impact on a step change in satisfaction results may not be 'contained' within the Autumn 2015 wave.

³These example results are for PTEs only. PTEs were all included in both years' surveys and therefore enable a fair comparison. They also represent a large proportion of the overall survey in each year.

Analysis was conducted to show that the main reason that online respondents are more negative is because they are younger, more likely to be fare payers, travelling to work, and so on. On their own these findings would be acceptable since the online element can provide a better representation of passengers, and even if this was to improve further in future waves it would ultimately also be controlled for with weights.

However the analysis did also indicate that, even when controlling for these factors, online respondents were still a little more negative overall. In fact, we investigated what the impact would have been if *all* of the survey responses were made with paper questionnaires, and online had not been an option. The full dataset from Autumn 2015 has been re-run to exclude all online responses, and has been re-weighted to correct for this. Thus the 'paper only' results are a direct equivalent of the actual published results in terms of the age, gender and day-part profile of the sample, and the main distinguishing factor between them is the presence or absence of an online contribution. The table below shows some key results⁴:

	As published <i>(using both online and paper surveys)</i>	Paper surveys only
Overall journey satisfaction	86%	86%
Value for money rating (fare payers only)	65%	66%
Satisfaction with on-bus journey time	84%	84%
Satisfaction with punctuality	74%	75%

This analysis further confirms that, although very minimal, the results for the Autumn 2015 BPS could have been very slightly more positive if the online option had not been available and all respondents had taken part with paper questionnaires. Thus the introduction of an online element will have generated slightly lower satisfaction scores on average than in previous years.

As a final confirmation of this effect, we have conducted 'key driver' analysis to help determine whether or not there is a relationship between the method of survey completion and how positive or negative a respondent is. The results from the analysis are below, and show the influence of data collection method compared to some other variables.

Variable	F	Sig
Age	307.725	.000
Data collection method	70.206	.000
Gender	29.367	.000
Local Transport Authority area	8.191	.000

Where Sig is less than 0.05, this variable has a significant relationship with overall journey satisfaction; in other words all of the variables in this table have an impact on how people answer the question – including the data collection method. The 'F' value is an indication of how influential each of these variables is, relative to each other. Consistent with the other findings above, this analysis proves that data collection method is linked to how positive or negative a respondent is, but that this effect is weaker than the impact of age in particular.

⁴PTEs only as earlier. Only some key measures are shown here, but analysis of all ratings measures continues this trend, with typically one percentage point difference between paper-only and the published results, and always the slightly higher result in the paper-only data set.

Of course the contribution of online surveys was very small in this wave, so the effect of the data collection change is quite minimal overall. The much bigger impact in this wave comes from the steps to include more peak time journeys in the sample.

While these method changes are likely to have had potential to affect satisfaction ratings this wave – and, if more respondents take part online in the future (as is the intention), the effect of the data collection method could also grow – it is felt that overall the changes are a constructive move for the longer term since they make the survey more inclusive and a better representation of real passenger journeys.

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