

Case article Tripping up in travel surveys

Date January 2010

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Dr Sandy Ochojna is an independent survey research advisor. Between 1986 and 2008 he was the Manchester-based director of several well-known international market research companies; for the ten years prior to that he was Passenger Manager at Strathclyde Passenger Transport Executive in Glasgow. From time to time he feels compelled to set down his thoughts on topical survey issues.

No doubt because there has always been so much data publicly and freely available in the sector, public transport survey research has long been in the vanguard of consumer behaviour analysis, demand modelling and forecasting, and economic evaluation. Concepts such as demand generation and redistribution, latent demand, intervening opportunities, and even consumer surplus have long been part of the transport researcher's vocabulary. But perhaps because of our easily-assumed familiarity with these fairly complex constructs some of the fundamental units of analysis are starting to be mis-used, or used sloppily.

'A rose is a rose is a rose'

...or is it? Gertrude Stein may be correct as far as flowers are concerned, but we certainly can't be so sure when reading about 'trips' in many travel survey reports. And when you realise just how much money is at stake when councils and operators assess concessionary fare reimbursement payments, or when monitoring bodies track passenger satisfaction to calculate service delivery bonuses, or indeed when ticket packages and price levels are being set, then to have any element of confusion in this fundamental unit of analysis must cause some distress.

And a trip is a trip is a....

...well, in some reports it can be whatever you want it to be! The core issue is one of definition; what do we mean by a 'trip', and is it interchangeable with 'passenger' or 'customer' or 'user'? Unfortunately the answer is sometimes 'yes' and sometimes 'no'!

In essence a trip – a journey between A and B – can be one taken many times by one passenger and one taken once in a blue moon by another passenger, and while the trip itself is the same A-B passage, such passengers are likely to be quite different in many many ways. So it boils down to a very simple question; what is the survey's prime purpose hence what is its base unit of analysis – the average trip or the average passenger?

In **household surveys** which seek representative samples of the population of a service or network catchment area there need be no confusion between a trip and a passenger.

Assuming that respondents -

- remember and refer to all their trips (even the shortest ones and the ones they think are not important)
- are fully aware of the difference between the constituent legs of a trip and its ultimate origin-destination
- remember to report trips 'there' and trips 'back', then

a 2 or 3-day retrospective travel diary can establish the relationship between each respondent and his or her trip making; with a representative sample accurate trip patterns emerge readily and the unit of analysis can be either the respondent or the trip. For travel behaviour the trip matrices are meaningful; for service perceptions, attitudes etc where the base unit is the decision maker – the respondent - then the 'average passenger' can be identified.

However, **many travel surveys are conducted on-mode or at stop/station** and it is here where problems are most likely to arise. In effect the practical in-field unit of sampling has shifted from the respondent to the trip, that is, from the decision maker to his/her subsequent behaviour. The critical impact of this is that the more often someone travels then the more likely they are to be interviewed. (And to confuse the matter further it is generally the case that the achieved fieldwork strike rate, the sampling fraction, is lowest in the busy peak

periods and highest in the quieter inter-peak periods.) If the survey data is not weighted or balanced to accommodate these fieldwork effects then some questionable conclusion may be drawn. For example if an unbalanced set of data finds that say 60% of respondents travel every day this does not mean that 60% of passengers are probably commuters; rather it states simply that 60% of the trips surveyed were made by commuters (and because they travel frequently they will constitute a lot less than 60% of customers).

Without the commensurate weighting the assessment of service provision and requirements will always be biased towards the views of the frequent traveller, and such users have quite different attitudes and needs to those of less frequent users. Commuters for example are more likely to look for frequent services while less frequent travellers tend to place more value on reliability, service information and value for money. In all, to assess service delivery and improvement on the basis of poorly weighted data can easily lead to misleading results.

And there's more...! With regard to service performance and satisfaction the respondent must be very clear about what trip he/she is being asked to assess. If it is the one they are currently making, then they are being asked to consider an experience which has not yet ended; if it is their most recent full trip, then the experience is fresh and complete, but the sampling and weighting must now take into account the fact that the sampled trip is not the same as the one being assessed.

'The longest journey starts with a single step'

While many technical aspects can be resolved by careful pre-survey sampling and fieldwork design, and its associated subsequent data weighting, the key to an effective travel survey is to decide at the outset what needs to be the **key unit of analysis**.

If it is the **passenger trip**, as say with concessionary fare reimbursement calculations, then a simple on-mode survey poses no problems as long as the survey journeys themselves have been sampled and weighted appropriately.

If it is the **operator trip** – service from A to B – then again a simple survey is adequate to produce the finding that say 75% of trip makers were satisfied with that specific journey.

But if we are looking at service provision in general, or options testing, or exploring attitudes or perceptions held by respondents, the users, **the average passenger**, then we need information on each respondent's frequency of travel so that the trip database can be converted meaningfully into its related respondent/passenger base.

All in all, the best way to avoid tripping up in travel surveys is to establish as the first step whether you are interested in people or the trips they make.

If you really want to tie yourself in knots, just get out any travel survey report and (re)read it very carefully noting how it defines a trip and which trips are involved, what it says about sampling and weighting, if anything, and how it uses and perhaps switches between terms such as trip, passenger, and respondent. It may well be all OK, but you will certainly see its results in a more focused light.

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