

Analysing the Impacts of a Guided Bus System using a Six-month Panel Survey

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When new transport systems are introduced or existing systems are modified it is found that travel demand responses are not instantaneous but evolve over time. Given the importance of behavioural change to transport policy it should be considered of high importance to understand and predict these 'dynamic response profiles'. Observed dynamic response profiles may be explained from the perspective of the individual traveller by a number of behavioural considerations. Long-term commitments exist towards existing travel behaviour (e.g. season ticket) which may prevent a change to an otherwise more attractive alternative behaviour. A period of time may be necessary to become aware of a change in the environment and to acquire and process information about it. Experimentation may be made with alternative behaviours and gradual modification made towards preferred behaviour. A new travel option may only be used after a positive attitude towards the option is developed and this may require repeated positive messages about it. Habit may prevent any conscious deliberation about behaviour. Conscious deliberation may occur if goals are not achieved (for example, if roadworks occur) or if the decision context changes (changes in personal circumstances). On the other hand, immediate responses may be likely if travellers are forewarned about the change in the environment and can prepare for it in advance, or if travellers seek variety and wish to try out new alternatives.

Despite behavioural change being of major interest to transport planners, there is relatively little understanding of the importance of the above dynamic phenomena (Chatterjee, 2001). Where longitudinal data is collected to monitor the behavioural impacts of a transport intervention it is often in the form of a 'before' and 'after' survey (two wave panel survey). Bradley (1997) notes that to understand and model the impacts of changes in the travel environment 'multiple "after" periods are necessary to determine whether policies grow, diminish, or remain stable over time'. Multiple time periods also provide the opportunity to identify causality. The paper will present initial results from a panel survey of residents in the town of Crawley (southern England) where a guided bus system has been introduced. The survey is targeting residents living near the new guided bus system route, and the first wave of the panel took place before the new route was introduced and subsequent waves are taking place at two month intervals. 550 respondents participated in the first wave with 400 of them agreeing to continue in subsequent waves.

The panel survey has been designed to collect information on personal circumstances and on travel habits, awareness, attitudes and behaviour. Two methods are being employed to analyse the data and model behavioural dynamics: discrete choice modelling (fixed and random effects) and structural equation modelling. The advantages and disadvantages of each method are discussed in the context of the panel data obtained and some initial results are presented.

References

Bradley, M. (1997) A practical comparison of modeling approaches for panel data. In *Panels for Transportation Planning* (Eds., Golob, T.F. Kitamura, R. and Long, L.). Kluwer, Boston, pp. 281-304.

Chatterjee, K. (2001). Asymmetric churn - academic jargon or a serious issue for transport planning? Transport Planning Society Bursary Paper. Available at <http://www.tps.org.uk/library/0001chatterjee.pdf> (25/06/03).