

How do residents respond to a step change in bus provision?

K. Chatterjee, University of the West of England, Bristol

K. Ma, University of the West of England, Bristol

When new transport services are introduced or existing services 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 the evolution in travel behaviour. Despite behavioural change being of major interest to transport planners, there is relatively little understanding of how and why it takes place. We look at this topic with respect to the provision of new, high quality bus services.

A significant emphasis has been placed on the role of improved bus services in the government's transport strategy, but there remains uncertainty about how the public will respond to the introduction of new, enhanced services. Will people be aware of the improvements to local bus services? Will car users willingly choose to try these services and will they sustain their use? Will people without access to a car gain improved access to jobs and services? Will improved services halt the past decline in bus patronage and help to restrain traffic growth? In order to answer these questions detailed longitudinal data is required on travel behaviour responses to new services and this is rarely available. This paper presents results from a panel survey conducted in Crawley, West Sussex, which has attempted to monitor individuals' responses to a new bus service. In particular it has sought to:

- Identify whether and how local residents became aware of the new service;
- Identify how long it took (if at all) for local residents to first use the new bus service;
- Identify how attitudes towards and usage of the new service changed over time for car users and non-car users;
- Use above insights to explain how total patronage of the new service grew over time;
- Recommend steps that can be taken to increase awareness, positive attitudes and usage of new public transport services.

The Fastway bus service began operating in the Crawley and Gatwick Airport area in September 2003. It is intended to be "a modern, high quality public transport system providing a frequent, reliable service and offering a real alternative to the car". The Fastway buses travel in dedicated lanes and guideways along significant parts of their routes and also benefit from barrier controlled bus gates and priority at signal controlled junctions. Real-time information is provided at bus stops and on the internet and the buses are a modern fleet of high specification vehicles with low floor access, comfortable and modern interiors and low-noise and low-emission engines.

The first Fastway route (Route 10) has experienced steady growth in passengers from 4,000 passenger per day in September 2003 up to 6,000 in May 2005 and a second route has been introduced in 2005. The impact of the Route 10 service on travel behaviour has been studied using an on-board passenger survey in May/June 2005. This has provided valuable insights on the characteristics of users, the journeys that they were making and perceptions and attitudes towards the service. However, it was a 'snapshot' survey and is limited in what it can tell us about how the service has changed perceptions, attitudes and behaviour over time.

A panel survey has been conducted to study the impacts on travel behaviour of the Fastway Route 20 service introduced in August 2005 which connects Crawley, Gatwick Airport and Horley. The survey has been aimed at residents in two neighbourhoods in Crawley where the new service operates. The first wave of the panel took place one month before the new route was introduced and three subsequent waves took place after the new route was introduced with the last wave six months afterwards. 550 respondents participated in the first wave with 400 of them agreeing to continue in subsequent waves. 250 respondents have participated in all four waves and it is these that are subject to analysis in this paper.

The panel survey has been designed to collect information on personal circumstances and on travel habits, awareness, attitudes and behaviour. It has been administered through a mail-back questionnaire and, in common with all panel surveys, has required steps to be taken to maintain interest and motivation of participants to continue with the survey. It has not been attempted to ensure that the sample is fully representative of the residents of the two neighbourhoods since the main priority has been on gaining a better understanding of behavioural change and the factors influencing it, rather than obtaining generalisable results with which to make future predictions.

The characteristics of the sample differed from that which would be expected from a representative sample in certain respects but although older residents and bus users were over represented there was still a substantial majority of respondents who were of working age and mainly car users. The wave one travel characteristics of the respondents are presented with particular consideration given to level of usage of existing bus services (including Fastway Route 10 service) and intentions for future bus use.

The results from the analysis of the second wave of the survey show that nearly 19% of the respondents had sought information about the service in the first month after it had been introduced. 15% of respondents had used the service and another 19% of non-users intended to use it. Respondents were asked to indicate in waves 2, 3 and 4 which week (if at all) they first used the new Fastway service and the profile of this over time is presented in the form of a graph. It is noted that the profile varies considerably for different groups within the sample (eg workers and non-workers) and this is used to explain in what circumstances individuals were more likely to use the new service.

Scatter plots are used to show how the mode choices of individuals (for commuting mode and shopping mode) change over the survey period. This shows that most respondents have stable travel behaviour over time but that some respondents switched to the new bus service and continued to use it and a few respondents had volatile choices. The results from the panel survey are compared with patronage growth figures in order to attempt to explain the latter. The dynamic bus use profile of the panel survey sample is consistent with the patronage growth figures and the insights from the panel survey help to explain the shape of the patronage growth profile. In particular lack of awareness of the new service and habitual behaviour towards other transport mode options explain the initial slow uptake of the new service. Changes in employment circumstances and other aspects of people's lives explain the fact that new users of the Route 20 service are picked up throughout the survey period.

The analysis of the panel survey has also provided insights on policy and service factors that have influenced the response of residents to the new service. The importance of marketing the new service in advance to those living close to the service is highlighted. It is not sufficient to expect local residents to find out

about destinations served, times of operation and fares from bus stop information and the internet alone. Also, it is important that all aspects of the operation are fully functional when the service is introduced if car users are to be persuaded that a realistic public transport alternative is available and to be tempted to try it.