

How can you estimate the value of a bus service? Evaluating buses in tourist areas

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1. INTRODUCTION

Buses are often seen as a transport safety net for people unable to use private transport and sometimes as potential 'congestion-busters' in cities. However, increasingly public subsidies to bus services are being cut in response to reduced local authority budgets with very little attempt to evaluate the costs and benefits of such cuts, let alone compare them to other potential ways of reducing expenditure. It can be difficult to assess the benefits of a bus service to its passengers and the area. Often policy objectives are unclear and provide few criteria to compare the impact of changes (cuts or increases) in different areas of expenditure.

Low on the list of priority spending, so likely targets for public spending cuts are seasonal bus services in tourist areas. Used for discretionary trips and often carrying tourists and day visitors from outside the area, these bus services often seem a dispensable luxury when budgets are stretched and certainly cutting them is much less likely to incur wrath or hardship than services used for commuting, shopping or health trips.

This paper describes a project designed to measure some of the benefits of such buses and reports the findings. It discusses the usefulness of the findings and whether the methods could be used for other bus services or to compare the effectiveness of public spending on other provision. It explains how an activity involving participants from diverse sectors involved with buses in rural areas revealed very different priority objectives and suggests that this might be one reason why evaluating public goods may prove difficult.

2. Literature Review

Although many bus services run as commercial operations, many require support from public funds and yet in the UK, there is no recognised method of evaluating whether they give value for money or even formalising the different social objectives they fulfil. The 1998 White Paper (Department for Transport) stressed transport integration to reduce the impacts of transport and improve quality of life, increase prosperity and reduce rural isolation. A later document, The Future of Transport (Department for Transport, 2004) laid much more emphasis on the economy within environmental constraints but saw improving bus services as important for reducing social exclusion and offering an alternative for motorists to help reduce congestion (p 66). The objectives outlined in the Transport Analysis Guidance (WebTAG) (Department for Transport, 2003) include: reducing the impacts of transport, improving safety, helping the economy, getting good value for public money, improving accessibility and integration.

Social inclusion, particularly in rural areas, is often cited as one of the benefits of public transport giving non-car-users access to facilities they otherwise

would struggle to reach (see Farrington and Farrington, 2005; Moseley, 1979). This is linked to issues of equity of opportunity (Hay, 1995), social capital and well-being (as discussed by Stanley et al., 2010 in relation to urban transit). There is also evidence that the concessionary bus pass which allows people over retirement age to travel for free within England (and similar schemes in Scotland and Wales) is generating increasing leisure use of buses (Andrews et al. 2011; Guiver, 2009) and improving well-being (Hirst and Harrop, 2011).

Another goal of public transport provision is reducing car use and much of the literature about providing public transport in tourist areas focuses on this potential (see; Eckton, 2003; Guiver et al, 2007; Reeves, 2006, p4). With 96% of visitors arriving in English National Parks by car (English National Parks Authorities Association, 2012), this aim has also driven projects in the UK (Cullinane and Cullinane, 1999; Eaton and Holding 1996) and elsewhere (Dilworth, 2003; White, 2007) to encourage modal shift from cars to public transport and so reduce congestion, noise, visual and other pollution in areas of natural beauty or cultural importance, CO₂ and other greenhouse gas emissions (Bavarian National Park, 2012) and to increase capacity where road and parking space is limited (National Park Service, USA, 2012). Examples include the Alpine Pearls (see <http://www.alpine-pearls.com/en/home.html>) (La Rocca, 2009; Verbeek, Bargemen, 2011) the German KonusCard in the Black Forest (Hillbrand 2011) and GUTi card in Bavaria (Wibmer 2012). The New Forest (bus) Tour estimates to have saved 147,000 car miles within the National Park in one year (New Forest Park Authority Annual Report 2011-2012, p 11) and the Moorsbus claims a saving of 1 million car miles in the North York Moors National Park since 1994 (Bussell and Suthers, 2010). However, a recent report about the importance of buses to the national economy (Mackie et al., 2012) failed to include any reference to leisure or tourist travel. Dickinson and Robbins (2007) also question the effectiveness of public transport in reducing car use, even whether there are evident problems of congestion and lack of parking (as in their case study of the Isle of Purbeck, Dorset) because of the observed reluctance of visitors to use relatively frequent bus services.

Many of the bus services provided in areas of recreation in the UK justify the expenditure involved through extra revenue generated in the destination area (see Bussell and Suthers (2008) for the impact of the Moorsbus on local businesses and New Forest Park Authority Annual Report 2011-2012, p 11, where it is estimated that the New Forest Tour generated over £500,000 to the area in spending). Because many of the bus-borne visitors spend in local businesses, who in turn use local suppliers and employees, the value of the spending is increased by the local multiplier effect (New Economics Foundation and The Countryside Agency, 2002). Guiver and Lumsdon (2006) report that the average spending per day per bus passenger in a survey of 18 tourist areas was £16.18 excluding accommodation costs and in a similar survey of 14 areas in 2006, the average spending was calculated at £18.07 per person per day excluding accommodation costs (Institute of Transport and Tourism, 2007). Downward and Lumsdon (2004) however, suggest that the reason that bus users' spending is below the spending of car users is poorly

timed bus services, which do not allow bus users to stay later in the evening to buy evening meals, etc.

Although the importance of fresh air and exercise have long been understood as beneficial to physical and mental health, it is only in recent years that attempts have been made to estimate their value. In a report on ten case studies of 'green exercise' Petty et al. (2005) found significant improvements in self esteem and moods following the exercise, Barton et al (2012) report similar findings. However, little has been written about the ability to access recreational areas suited to 'green exercise'.

3. CONTEXT

The buses in this study run predominantly in rural tourist areas in England and Wales, although many of them also carry high proportions of local residents for recreational journeys. Most have a limited season, some only run at weekends. Their funds come from a variety of sources such as local authorities, including National Parks and Areas of Outstanding Natural Beauty as well as fare revenue and bus pass re-imburements. The justification for this expenditure includes:

- Social inclusion
allowing people without access to private transport to visit natural areas, which are protected and conserved for current and future generations using public taxes,
- Environment
reducing the number of cars and their impacts (noise, visual intrusion, pollution) in areas valued for their tranquillity, natural and cultural landscapes and fresh air (Reeves, 2006)
- Local Economy
Bringing more people into an area where their spending helps support local employment and services

More recently there has also been debate over the health and well-being benefits of access to the countryside both for the individual, but also as an effective and cost-efficient alternative to medical intervention for some conditions (Abraham et al., 2010; Pretty et al., 2007).

4. THE PROJECT

This project funded by the Economic and Social Research Council (ESRC, UK) provided a relatively simple way of surveying passengers using these services and a stand-alone package from inputting the data and generating automatic reports. Using a questionnaire template, instructions for surveyors and a macro-enabled Excel spread sheet, participating organisations could use the organisational and analytical skills and experience of the Institute of Transport and Tourism to conduct their own surveys and analyse the resulting data. Because each area used the same format of questionnaire, it was possible to pool the data to create a common data bank and, although this was not a condition of participating, every area 'donated' their data.

In the first year (2010) seven organisations: The Peak District National Park, Yorkshire Dales Community Interest Company, Hadrian's Wall Heritage Ltd, Brecon Beacons National Park, Northumberland Coast Area of Outstanding

Beauty, Three Rivers Community Rail Project (Hampshire), Durlston Park (Dorset). In 2011 there were further surveys in Norfolk (Norfolk CoastHopper) and by Brighton and Hove City Council, who commissioned their own survey but used the same template. This meant there were over 1,000 respondents' (1,118) responses in the common databank.

The main focus of the project was to provide the mechanisms for areas to be able to collect and analyse their own data, rather than the collection and analysis of the data. This was achieved through the survey template and an Excel spreadsheet with macros to generate an automatic report. The data could be inputted by someone without special skills, using the form, which replicated the paper form in front of them (see Figure 1). This populated the spreadsheet behind. The report could be generated by clicking on a button on the front page (see Figure 2) which then produced an automatic report within the file. The report gave frequencies (age groups, gender, etc), charts, but also cross tabulations of several factors (see Figure 4), such as the proportion of people who would use cars if the bus had not been running.

Figure 1: The form used for transferring data from the paper questionnaires

Figure 2: Generating the report

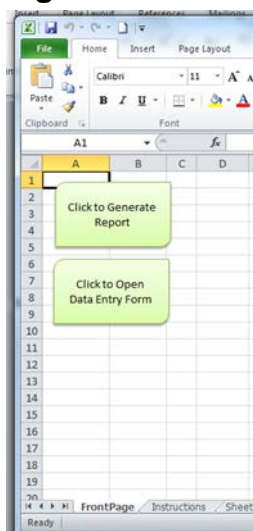
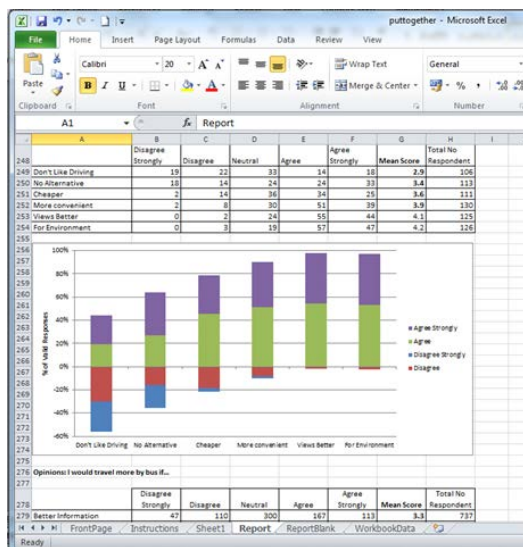


Figure 3: Part of the Report



5. METHODOLOGY

The questionnaire asked several questions about the journey the passenger was making (purpose, starting point, end point, stops, ticket, spending, etc) as well for their evaluation of a number of attributes. It also asked whether and how the trip would have been made if the bus had not been running. Personal data collected included age, gender, income bracket, car availability and frequency of visit, local bus use and intention to return.

The questionnaire was handed out to passengers on the surveyed bus, together with reply-paid envelopes. The responses were inputted into the data spread sheet (see above) and most of the results were generated automatically by the programme. The collective data were also analysed in SPSS for more advanced analysis.

6. FINDINGS

Passengers

The passengers are predominantly older than the general population (See Figures 4 and 5) and although there are still more women than men the difference is less marked than in earlier years (Lumsdon and Guiver, 2006).

Figure 4: Age/Gender Profile of Bus Passengers

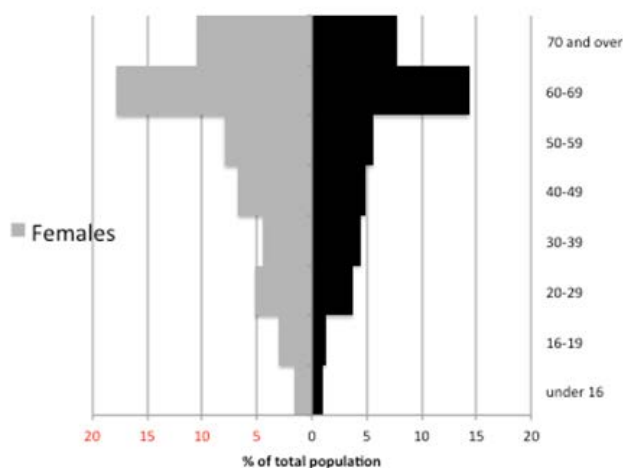
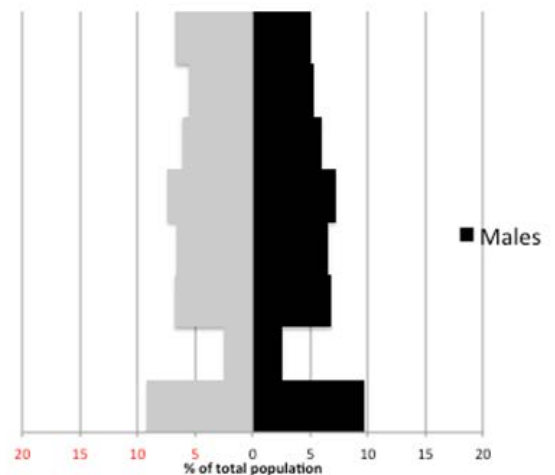


Figure 5: Age/Gender profile of Population of England and Wales 2011

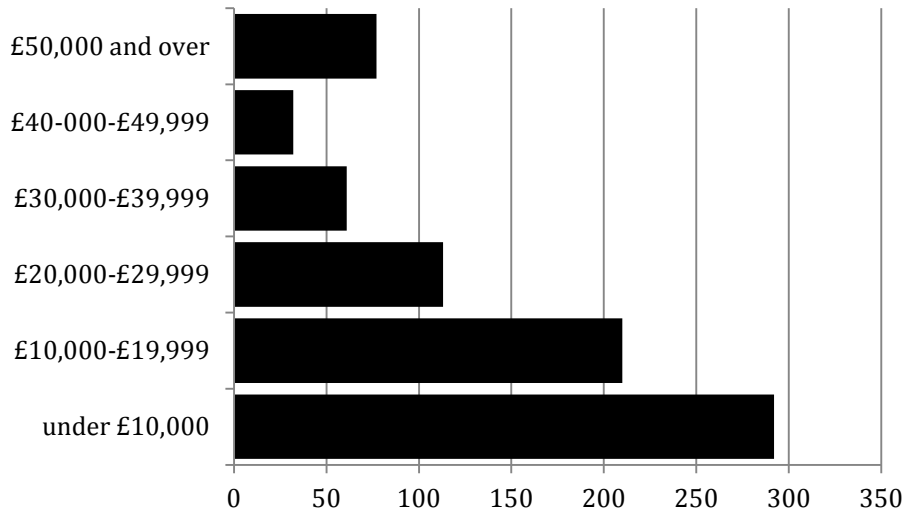


Approximately 9% said they had a disability that affected their mobility. In Figure 6 the distribution of income groups shows that the bus passengers are predominantly from lower income groups, partly because of the high proportion of retired people. However, nearly 10% have an individual income of £50,000 pa or over.

There was an almost even divide between people who had a car available (49%) and those who did not (51%). The main reasons why a car was not available were: don't own a car (52% of those giving a reason of why they were without a car available), don't drive (17%), car/driver not available (6%),

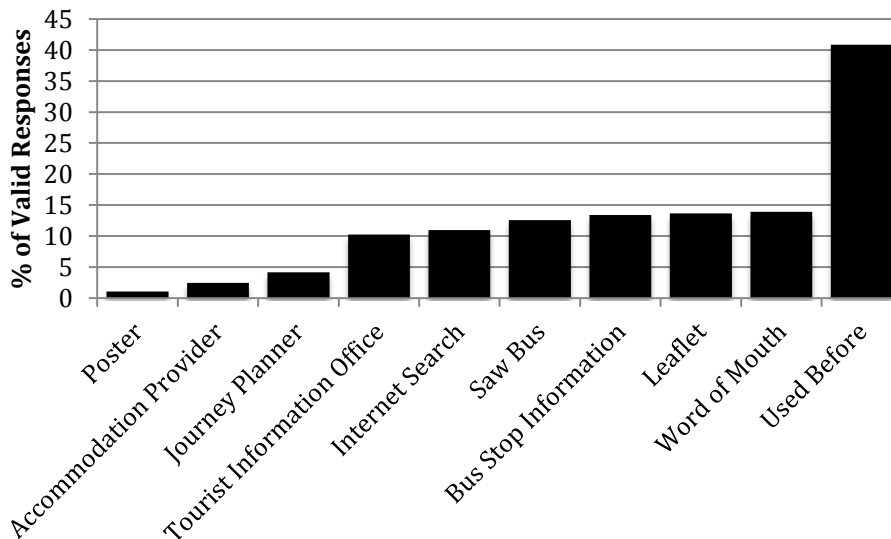
on holiday without a car (18%), other (7%). Visitors from overseas accounted for 8% of the passengers (93 passengers) and the greatest number (18) came from the USA.

Figure 6: Income Group Distribution of Passengers



By far the most common way of knowing about the bus was previous use, but marketing and information were important to significant proportions of the people surveyed (see Figure 7).

Figure 7: How people knew about the bus

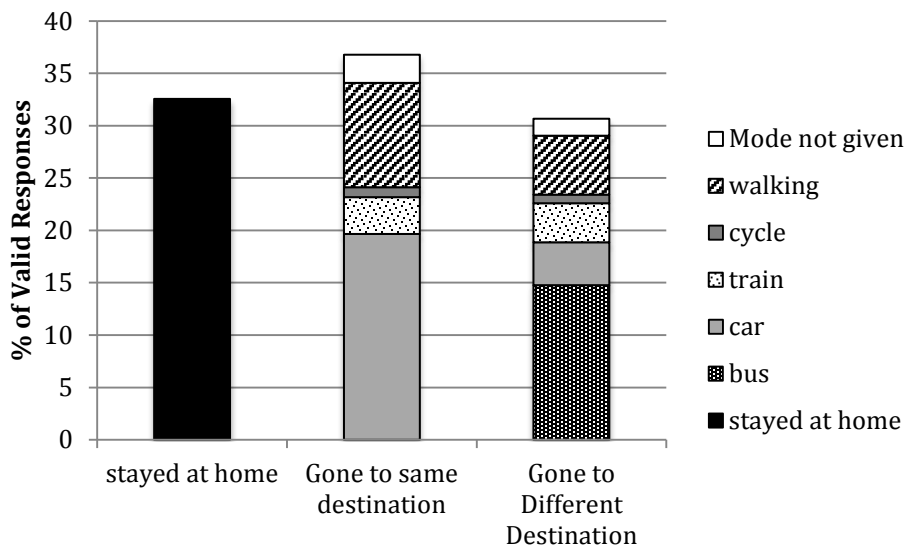


Social Exclusion and Car Use Reduction

One of the most useful questions in the survey asked what people would do had the bus not been running with three potential replies: Stay at home or at holiday base, go to the same place or go to a different place, for the second and third options, respondents were asked which mode they would use. The

results (Figure 8) indicate that 33% of the respondents would stay at home, suggesting that without the bus they might suffer social exclusion. These and the 31% of respondents (64% in total), who would visit another area, represent losses in visitors and their spending to the destination. Also, many of the people (24%) who would visit the same area or a different one would travel by car. Although, it is likely that there would be fewer car journeys than respondents with couples and groups travelling together, this still indicates that car use would increase without the bus service, evidence that such bus services are reducing car use in tourist areas.

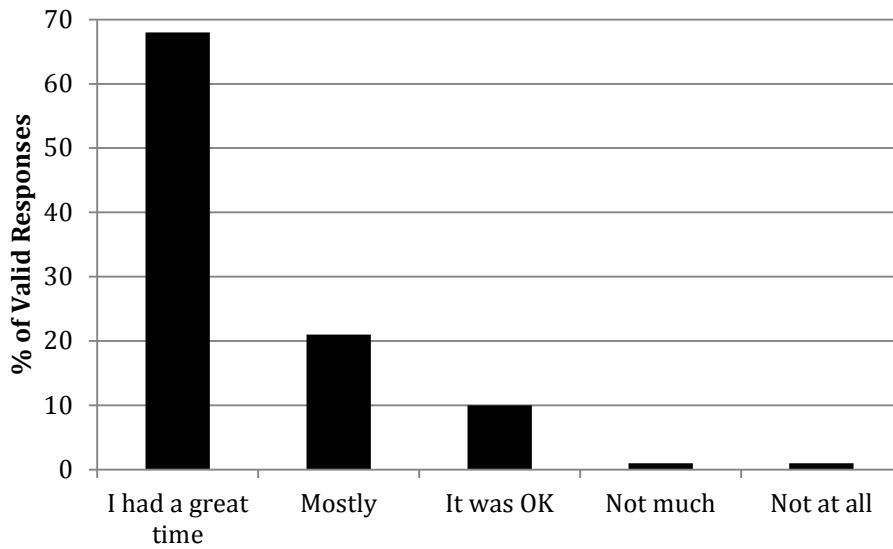
Figure 8: What passengers would do if the bus were not running



Well-being, Satisfaction and Health

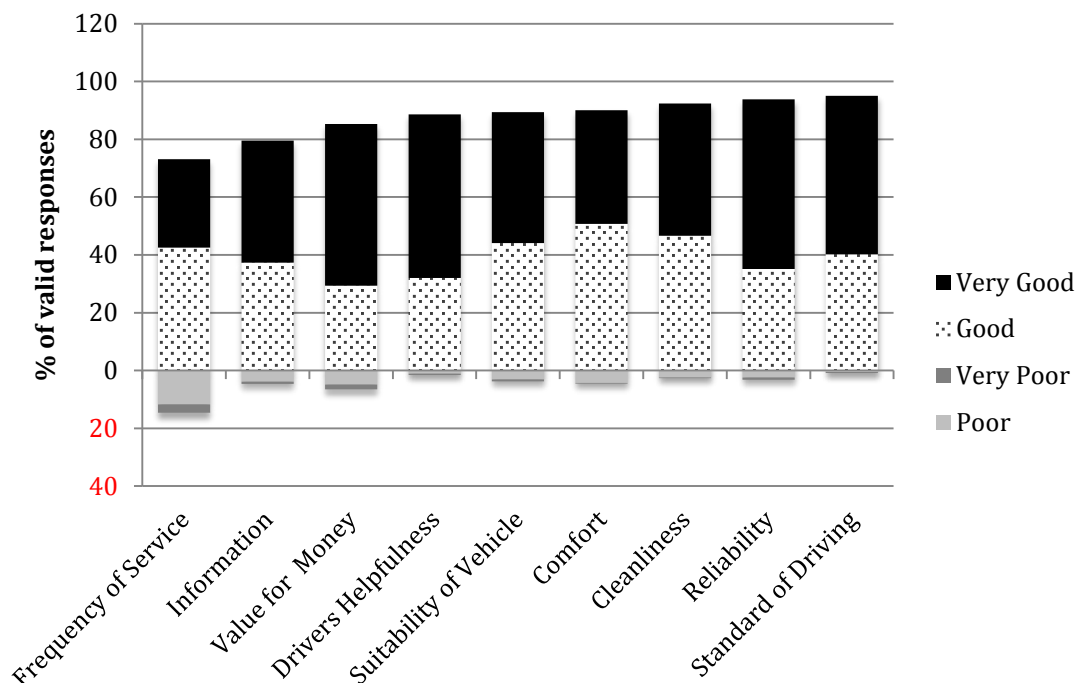
Satisfaction was extremely high amongst the bus passengers. Figure 8 shows the replies to the question 'Did you enjoy your visit today?' with 89% saying they had a great time or mostly enjoyed their visit.

Figure 9: Responses to ‘Did you enjoy your visit today?’



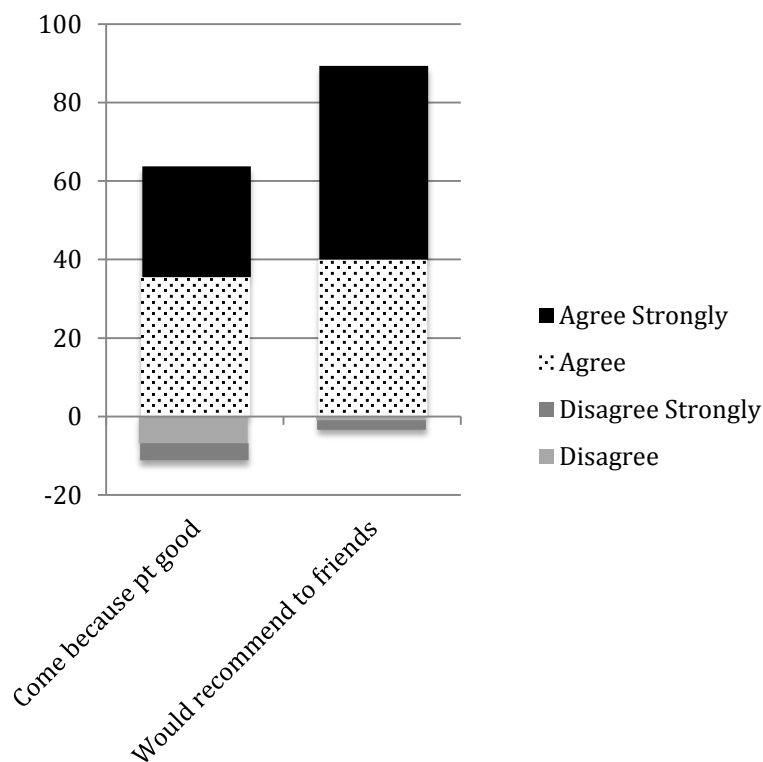
When asked to evaluate different attributes of the services, passengers generally gave favourable ‘scores’ to all the attributes (see Figure 10) with the most negative being frequency of service seen by 15% of the respondents as ‘poor (12%) or very poor (3%).

Figure 10: Evaluation of Attributes of Service



Nearly 90% of the respondents who replied (994, 89% of total) said they would recommend the service to their friends and 64% said they came to the area because the public transport was good (Figure 11).

Figure 11: Respondents in the area because public transport is good or who would recommend Service to their friends



Physical Activity

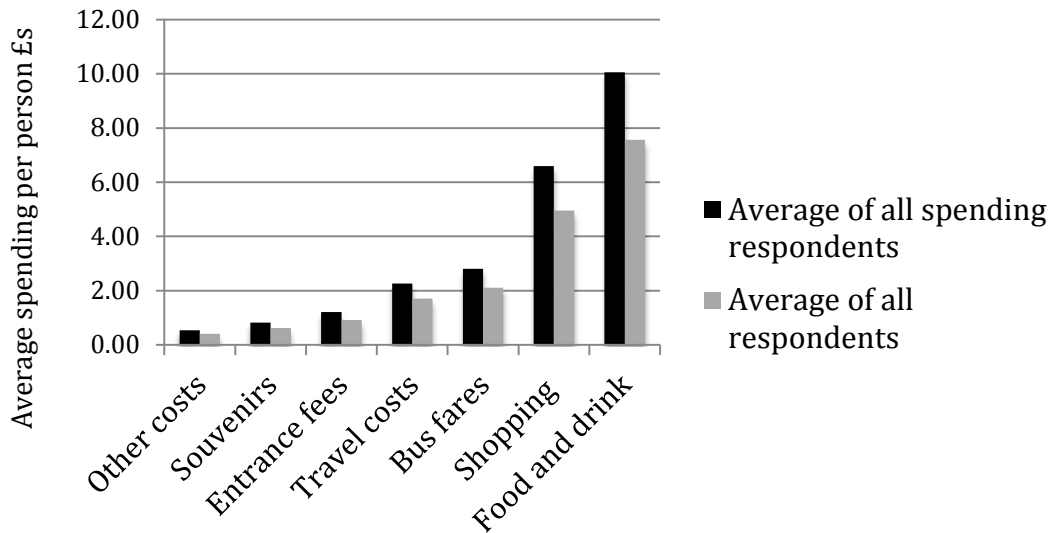
In addition to the evidence that passengers had enjoyed themselves, most (74%) said they walked, cycled or did other physical activity on their day out. The average distances walked and cycled were 5.5 miles (9 kms) and 18.6 miles (30 kms) respectively.

Spending

Respondents were asked about their expenditure on the day on a number of items. Only 839 (75%) of the respondents recorded any spending, some possibly leaving the section blank possibly because of respondent-fatigue or reluctance to disclose spending. The average expenditure was £18.25 per person when including all respondents, but £24.26 when only including those who reported any expenditure. Figure 12 shows the two calculations for the different types of expenditure with food and drink being the item attracting the greatest spending.

If the people who would not visit the area without the bus are excluded, the total number of visitors is reduced by 63%, day-time spending by 62% and spending on accommodation by 60%.

Figure 12: Expenditure per respondent



In addition to the day-time spending, one third (365) of the respondents planned to stay overnight the night after the survey and their average duration of stay was 6.23 nights. The average price per person per night was £22.23, which averages out over all the respondents as an extra £6.59 of local spending per passenger per day and brings the total average expenditure per person per day to £24.84.

7. Priorities and Value for Money

The surveys have produced extensive evidence that the bus services are:

- reducing social exclusion (by allowing a third of the surveyed passengers to get out when they would have otherwise stayed at home)
- reducing car use (approximately one quarter of the respondents would have used a car in the absence of the bus)
- increasing spending in the local economy (by at least £24.84 per person per day)
- improving health and well-being through the physical activity undertaken by just over half of the passengers and the degree of satisfaction expressed with the day out and the bus service.

However, although this suggests that such bus services are valuable, it does not indicate whether they provide value for money or how they compare with other public provision which might provide similar benefits. There is also a question of how to assess the benefits against each other, for example, what gives greater value for money helping people get out of the house, when otherwise they would have stayed at home or reducing the number of car journeys in an area of natural beauty, bringing spending to a destination or increasing the health and well-being of the general population? Of course,

these are not necessarily mutually exclusive and how they are prioritised may depend on the return on investment. For example, if a set sum of money would reduce the social exclusion of 100 people or reduce car use by five journeys, it may be seen as a greater return for the expenditure to adopt the social inclusion measures. However, if the same sum of money would only reduce social exclusion for five people but take 100 cars off the road, the car-use reduction measures may seem more cost effective. How an authority might spend their money would also depend on their own priorities, if they had no interest in reducing car-use, only in reducing social exclusion, the possible returns on expenditure in reducing car-use would be of no value however efficient and effective they were.

In order to explore whether there are different priorities among different kinds of stakeholders, the Institute of Transport and Tourism used the end of project seminar for an activity designed to identify potential differences and elicit conversation about the practicalities of allocating funding.

8. Activity

Approximately 50 seminar delegates took part in the 'game'. Participants sat at tables with colleagues with similar jobs and/or backgrounds I:

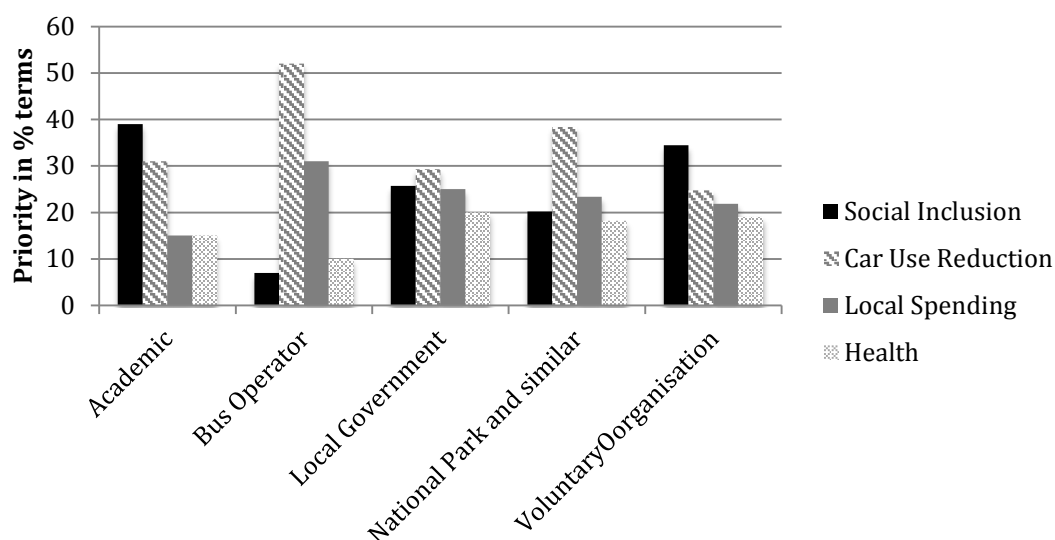
- Academics
- Bus company managers
- Local Authority Officers
- Officers from National Parks, Areas of Outstanding Natural Beauty and similar
- Voluntary Group members

First participants were asked to record in percentage terms their personal priorities between reducing car use, reducing social exclusion, increasing local spending and improving health and well-being. Figure 12 shows the averages of these per table. This shows the following priorities:

- Academics: social inclusion followed by car use reduction
- Bus operators: local spending followed by car use reduction
- Local Government officers: fairly equal with a slight priority for social Inclusion and car use reduction
- National Park officers and similar: a high priority for car use reduction, followed by local spending
- Voluntary organisations: social inclusion followed by car use reduction

Health and Well-being was near the bottom of the priorities for each group.

Figure 13: Initial Allocation of Priorities



The next stage involved two steps: each participant was asked to individually allocate a budget of £1,000 between the four benefits using a table of returns (see Figure 14). The returns on this table were entirely fictitious and designed to give a variety of trade-offs of different benefits at different levels of expenditure. Figure 14 shows how the benefits were presumed to have different curves, so that while the initial expenditure on social inclusion helped few people, between £500 and £1,500 each pound spent helped an increasing number of people. Additional early expenditure on reducing car use yielded excellent returns but these ‘plateau-ed’ out after £1,000. Health benefits grew in direct proportion to the budget, but local spending did not exceed the money spent on it until over £500 was spent, after which there was an increasing return for each pound spent.

Each group was then asked to agree on the allocation of a joint budget of a £1,000 through negotiation. Counters were provided to help participants explore the marginal value of each £100. The negotiated budgets are shown in Figure 15.

The negotiations on each table were recorded to give insights into the decision-making processes, and the following themes emerged:

- Participants found it difficult to allocate resources according to their effectiveness if this meant the final budget did not appear to reflect their priorities. So, although investment in local spending was not effective below £500, many participants wanted to register its importance by allocating it some of their budget.
- In the desire to reach a consensus, stronger voices and arguments tended to have their way, with other, more ambivalent participants more likely to concede.

- Tables developed different strategies to conduct the negotiations including just averaging the individual allocations to avoid discussions
- The allocation was not just to abstract ideas as these also represented different groups of beneficiaries. This made it harder to justify spending money to reduce car use, when this pulled money away from social inclusion and a possibly more deserving client group.

Figure 14: Supply curves for different benefits

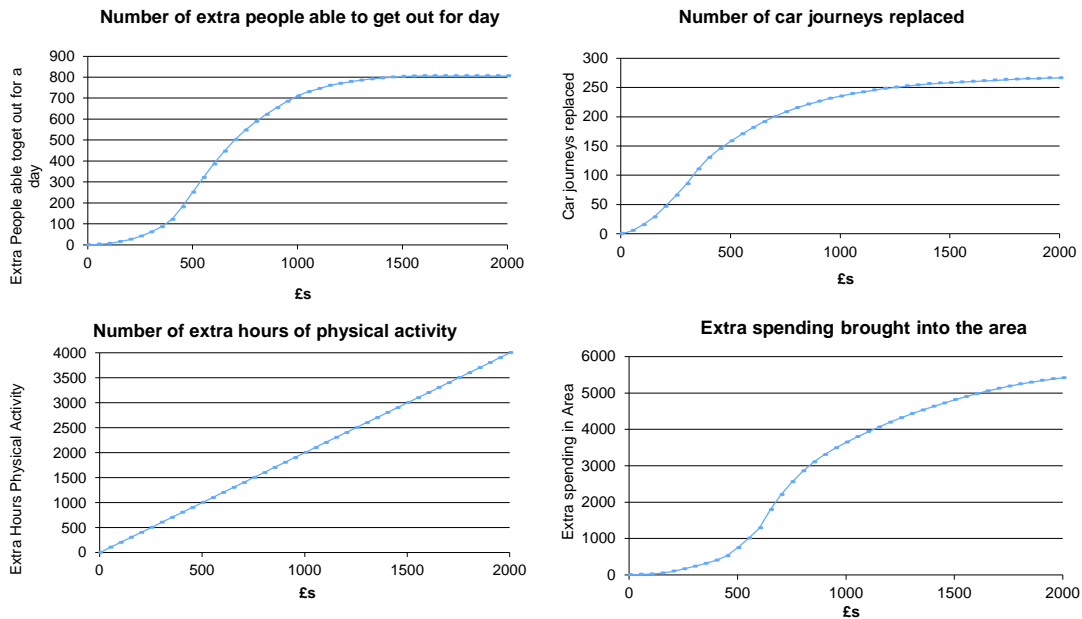
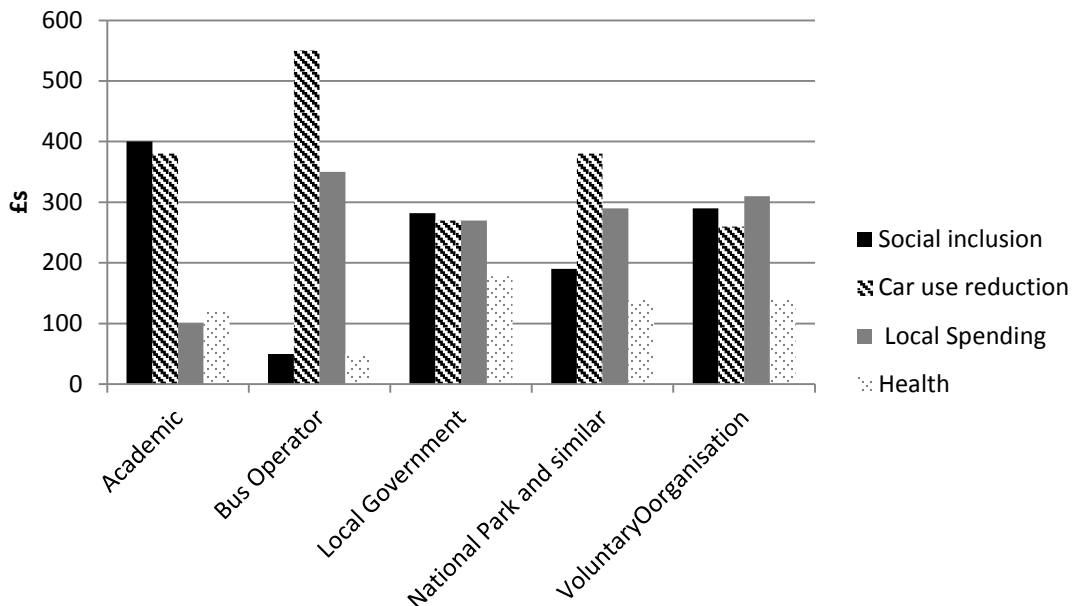


Figure 15: Allocation of £1,000 Budgets



During the discussions several participants commented that they found it difficult to comply with the instruction to see each benefit separately, when in practice measures to improve the performance in terms of one benefit would

also help realise other benefits (for example reducing fares might attract more car-users while also helping to alleviate social exclusion).

9. DISCUSSION

The survey confirmed previous findings (Guiver and Lumsdon 2006, Institute of Transport and Tourism 2007), that buses in rural tourist areas bring benefits to their users and the area in terms of reducing social exclusion, car use reduction (Guiver et al, 2007; New Forest Park Authority Annual Report 2011-2012; Reeves, 2006), bringing spending to the area (Bussell and Suthers, 2008) and promote health and well-being and these benefits can be measured and quantified.

However, there are currently no national figures collected about the importance of bus services to tourism and leisure which may explain the omission of tourism and leisure travel from a recent, influential report (Mackie et al., 2012). It would be useful now to find the means to extrapolate these results from a few days surveying, to the whole year of season of each service. This might be possible using ticketing data. Once figures for overall benefits have been established it would be possible to compare these to the costs of running the service both financially, but also in carbon-equivalent emissions and other environmental costs. An attempt to do this for one service in the Lake District (Kirkbride, 2009) concluded that the bus service (Kentmere Rambler) cost more than it generated in local spending and emitted more carbon equivalents than the car journeys it replaced. In this case it was decided to withdraw the bus service, but an alternative strategy might have been to boost the number of people using the bus.

Determining whether such services deliver value for money may, of course, be redundant if there is no public money available for these or other public facilities. However, if cuts need to be made, it seems reasonable that authorities weigh up the relative costs and benefits of what is cut and what is spared, although the findings from the seminar activity suggests that total budget allocation, rather than value for money is the guiding principle for decision-makers.

Where buses in tourist areas are retained, it is clear that they fulfil a number of purposes and patronage can be increased and subsidies reduced through a number of measures (marketing, information, intelligent scheduling and ticketing, etc.). Here research into the different segments of users and potential users, their motivations and triggers may help boost passengers numbers and satisfaction. Another approach tapping into the pockets of different beneficiaries, such as tourist attractions as has trialled in the New Forest (Gregory, 2011).

10. Conclusions

The survey has produced evidence of the benefits of buses in rural tourist areas in reducing social exclusion and car use, improving health and well-being and generating local spending. This research now needs to be extended to investigate the cost of the services in relation to the benefits and possibly whether other publically-provided services such as tourist information perform as well, better or worse in relation to agreed goals.

The seminar activity, however, cast doubt on the importance of establishing value for money, when decisions were taken on the total proportion of the budget allocated to each benefit rather than the return on the expenditure.

The project provides a useful framework for evaluating the benefits of bus services and could easily be adapted to utility as well as recreational bus services. It now requires means of extrapolating the data to cover the whole season of operation, using ticketing data and comparing performance with expenditure.

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