

# An Evaluation of Perceived Quality of Service for Bus Transport in Scotland

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27<sup>th</sup> April 2016

## Key Findings

- Perceptions of quality of service are orientated around three core dimensions:
  - Convenience of the service
  - Quality of the cabin environment
  - Ease of use of the service
- Of these dimensions, perceptions of service convenience are of central importance to overall satisfaction with service
- In order to improve the satisfaction of existing users, improvements should be targeted at:
  - Frequency of services
  - Availability of service at times of need
  - Reliability of services
  - Stability of service provision

## Summary

The quality of service indicator utilised by Transport Scotland to evaluate the perceptions of bus users has three distinct dimensions embedded within it. These dimensions, which cover perceptions of service convenience, cabin environment and ease of use, provide insights regarding the way in which users consider the service and how they evaluate its merits.

The results of the analysis indicate that bus user perceptions of service convenience are the most important issue when they consider how satisfied they are. This finding implies that targeting service improvements at issues which cover frequency, availability, reliability and stability will likely generate the highest returns to investment relating to the perceived satisfaction of existing bus users. Whilst issues orientated around perceptions of the cabin environment and ease of use of the service are still significant in user evaluations of the service, they tend to be of secondary importance.

The findings of this analysis will likely be of use when considered how to target interventions to improve the satisfaction of existing bus users. However, the findings do not provide insights concerning the opinions of non-bus users. In order to develop strategies aimed at attracting new users to bus services, additional empirical research will be necessary.

## Introduction

The use of buses throughout Scotland represents the most popular form of public transport service, accounting for 77% of all public transport journeys conducted in 2014-2015<sup>1</sup>. However, the popularity of bus transport appears to be reducing, with passenger journeys having declined from 240 million in 2004-2005 to 214 million in 2014-2015. Reversing this decline is a strategic objective of the revised National Transport Strategy<sup>2</sup>. Expanding bus patronage provides the opportunity to generate a number of positive outcomes. For instance, if bus journeys substitute for car use, increasing bus patronage can reduce levels of road congestion and the emissions of greenhouse gases and local pollutants.

The research presented in this policy note aims to produce a deeper understanding of how existing bus patrons perceived the service in order to consider what factors are particularly salient. The attention of the research is focused on the quality of service indicator deployed by Transport Scotland to assess bus passenger opinions. In addition, the research considers the ways in which perceptions regarding the quality of service interact with overall satisfaction levels. The insights generated by the analysis will likely be of assistance in developing policies which are aimed at improving the experiences of existing bus patrons.

## Quality of Service Indicator

Transport Scotland deploys an attitudinal scale which measures the opinions of passengers concerning the quality of local bus services in Scotland. This quality of service indicator is contained within the Scottish Household Survey<sup>3</sup> which allows for a temporal comparison of how opinions are changing over time. This temporal comparison is displayed in Figure 1, which implies that perceptions regarding the majority of the issues covered by the indicator have improved over time.

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<sup>1</sup> Scottish Transport Statistics 2015 - <http://www.transport.gov.scot/report/j415388-00.htm>

<sup>2</sup> National Transport Strategy - <http://www.transport.gov.scot/strategy/national-transport-strategy>

<sup>3</sup> Scottish Household Survey - <http://www.gov.scot/Topics/Statistics/16002/PublicationAnnual>

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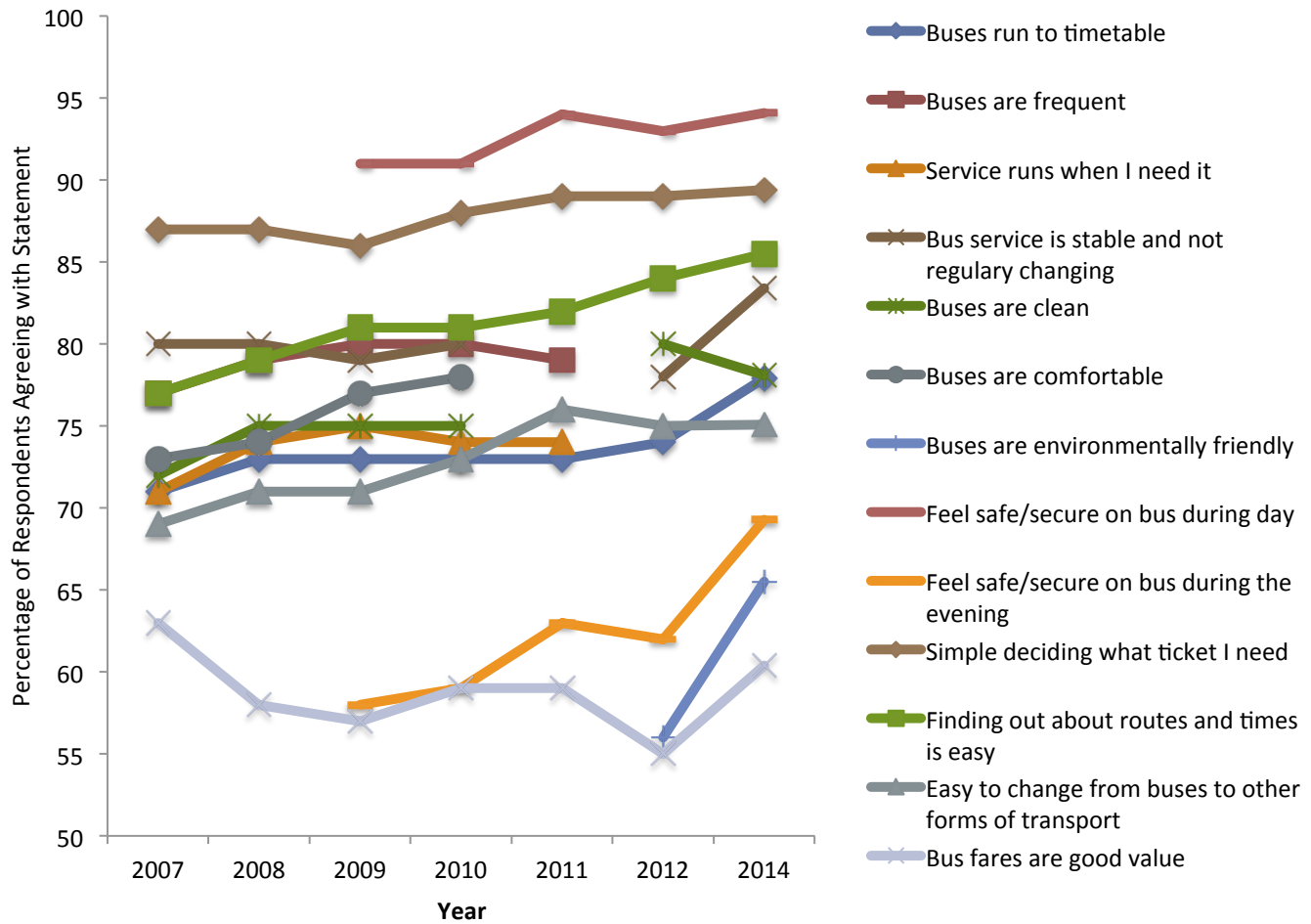


Figure 1: Temporal trends in items included in the quality of service indicator utilised by Transport Scotland 2007-2014

This study conducted a factor analysis to improve understanding of how the qualities of bus services are perceived by passengers. Such an analysis allows for the dimensions which are underpinning survey responses to be identified and evaluated. The results of this factor analysis are presented in Table 1 and suggest that three underlining dimensions exist within the quality of service indicator.

The first of these dimensions groups opinion statements which appear to orientate around the concept of convenience including service frequency, usefulness, reliability and stability. The second dimension concentrates on perceptions of the cabin environment and measures cleanliness, comfort and security of the service. The final dimension identified in the analysis focuses on perceived ease of use of service and contains opinion statements which measure the provision of service information, the complexity of ticketing systems and the seamless interchange between bus and other forms of public transport.

**Table 1:** Factor Analysis of the 2007-2008 quality of service indicator deployed by the Transport Scotland with latent construct labels, opinion statement groupings and construct loadings

Statement	F1	F2	F3
Quality of Service: Convenience			
The buses are frequent	0.907	-0.097	0.002
The service runs when I need it	0.862	-0.043	0.044
The buses are on time	0.725	0.164	-0.084
The service is stable and isn't regularly changing	0.629	0.104	0.140
Quality of Service: Cabin Environment			
The buses are clean	0.013	0.900	-0.061
The buses are comfortable	0.045	0.850	-0.014
I feel personally safe and secure on the bus	-0.014	0.698	0.160
Quality of Service: Ease of Use			
Finding out about routes and times is easy	-0.110	0.042	0.812
It is simple deciding which ticket I need	0.041	0.059	0.768
It's easy changing from buses to other forms of transport	0.171	-0.051	0.683

## Perceived Satisfaction

Having identified the dimensions that underlie the quality of service indicator, the study considered the manner in which these dimensions interact with perceived satisfaction with public transport. Reported in Figure 2, public transport users appear to be generally satisfied with the service, with over two thirds of respondents stating they are either satisfied or highly satisfied.

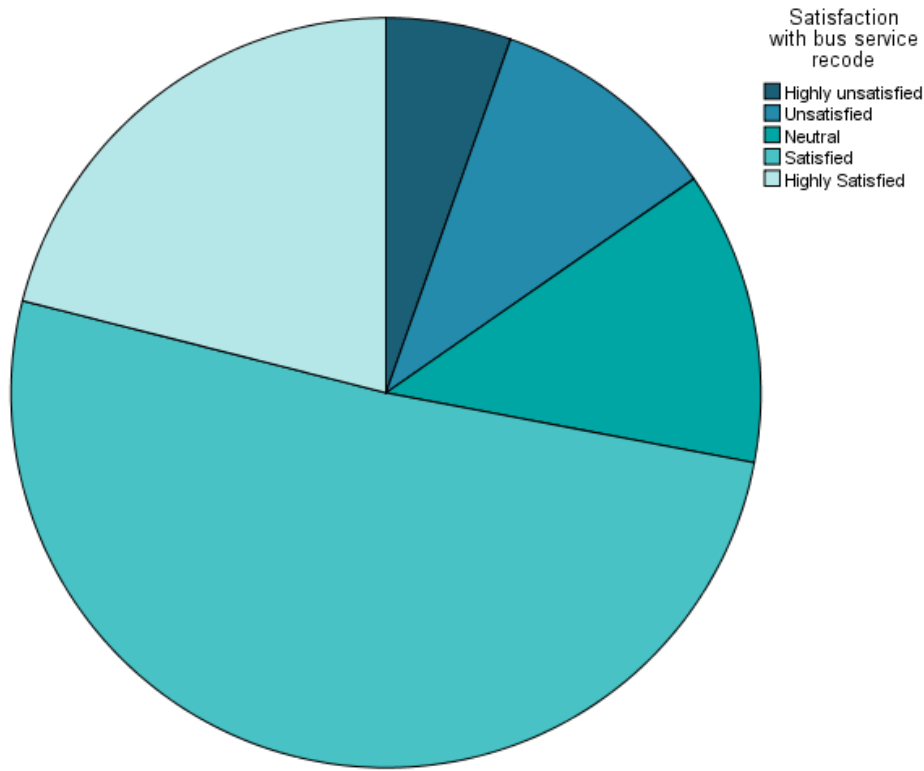
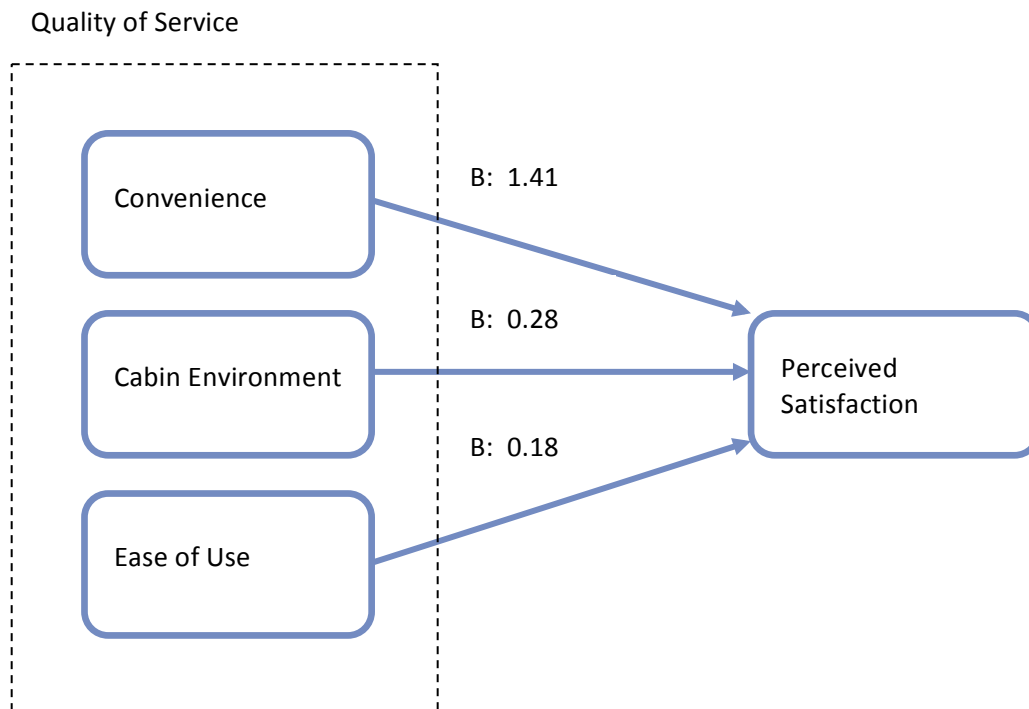


Figure 2: User perceived satisfaction with public transport services 2007-2008

Linking the perceived satisfaction measurement with the dimensions of quality of service identified in the factor analysis provides insights concerning what issues are most important in how bus users evaluate service performance. To achieve this, a regression model has been specified which uses perceived satisfaction as the dependent variable and the dimensions of quality of service as the independent variables. The results of the analysis are illustrated in Figure 3 with the model being able to account for over 40% of the variance in perceived satisfaction. The results reveal that all of the quality of service dimensions display significant effects over perceived satisfaction. However, the dimension which measures perceptions of service convenience appears to be of central importance whilst the dimensions which cover perceptions of the cabin environment and ease of use are of secondary importance.



**Figure 3:** Illustration of the ordinal logistic regression model which aims to explain variance in perceived satisfaction levels using the identified quality of service dimensions