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Incorporation of customer satisfaction in public transport contracts – A preliminary analysis

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ABSTRACT

The design of public transport contracts provides an opportunity to define service quality standards to which an operator can be held accountable. While the specification of service quality standards is a common practice, the relationships between the specifications and customer satisfaction are often methodologically unclear. Based on a South African case study, the paper uses data collected from a group of passengers who have personal cars but choose to use public transport, and a control group of passengers who only use their cars, in the same corridor as the user group, to estimate a service quality conjoint model. The model is used to evaluate the effect of different public transport service packages, defined in terms of different combinations of service attributes, on passenger satisfaction. The paper confirms the need to classify service attributes in terms of their relative impact on passenger satisfaction, at the service design stages, where performance in respect of some attributes has a disproportionate impact on satisfaction, especially where public transport is competing directly with private transport. Practical applications and limitations of the methodology are also discussed.

1. Introduction

While the specification of service quality standards is a common practice in public transport services, the relationship between the contract quality specifications and customer satisfaction is often methodologically unclear (Beirao & Cabral, 2005; Hensher & Stanley, 2010). Compounding this challenge is the need to consider both objective and subjective attributes in the measurement of customer satisfaction (Eboli & Mazzulla, 2011).

Based on a South African case study, the paper uses experimental data to investigate how customer satisfaction can be incorporated in public transport contracts. The investigation also provides an improved understanding of existing and potential public transport customers, with the intention of informing the design of more customer-centric services. From a business perspective, a focus on the provision of more customer-centric services can conceptually improve the financial bottom line of public transport service providers through retaining existing users and attracting new ones.

The specific questions that the paper seeks to answer are:

- What constitutes customer satisfaction in public transport?
- What customer satisfaction models are appropriate for public transport services?
- What should be taken into account when incorporating customer satisfaction in public transport contracts?

The investigation uses a conjoint-based experiment to estimate a customer satisfaction model. In an attempt to maximise data sensitivity, the experiment uses samples of respondents from commuters who personally own cars but choose to use public transport for commuting, and a control group of passengers who only use their cars for commuting purposes. The investigation is therefore undertaken within the context in which public transport competes directly against private transport.

The paper is arranged as follows: following a more general contextual background, the paper provides a review of public transport contracts, especially on issues relating to performance based contracts. This is followed by a synthesis of selected literature on customer satisfaction with the aim of identifying analytical frameworks for informing the experimental design. The description of a conceptual customer satisfaction model is then provided, followed by the experimental design and execution. The results of the experiment are analysed with the aim of identifying key lessons for the incorporation of customer satisfaction metrics in public

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transport contracts. This is then followed by conclusions and recommendations.

2. Background

The paper is a confluence of two growing bodies of knowledge, namely: (i) the body of research concerned with the advancement of knowledge in the design of public transport services through improved contracting, and (ii) the growing body of knowledge in consumer science aimed at improved understanding of consumers or customers. The former body of knowledge is gaining momentum in line with the changing ownership structures of public transport services such as services provided through competitive tendering. Where practised, the use of service contracts usually replaces decades of a public sector led provision of public transport services in which some organ of state was tasked with the design, operation and regulation of the service. This is essentially an extension of public sector reform agenda aimed at outsourcing operations that could be better provided by parties external to the state. Advances in consumer science on the other hand continuously allow for methodological improvements to enable practical incorporation of complex human behaviour in the design of service and product offerings and in turn increase customer satisfaction. Improved customer satisfaction, in particular, has over time the potential to retain existing customers and attract new ones. For public transport services, increased customer satisfaction therefore has the potential to improve the financial sustainability of public transport services by increasing public transport patronage rate, and in turn result in increased positive societal impact in the form of reduced per capita demand for private transport travel and its associated externalities such as increased roadway congestion and accelerated consumption of non-renewable natural resources.

While there is an emerging body of research on customer oriented public transport contracts, very little research has been done on the incorporation of the needs of the customer in service contracts (Beirao & Cabral, 2005). The lack of customer orientation in public transport service design is perhaps one of the biggest contributing reasons for the general decline in patronage. For example, Bockstael-Blok (2001) shows that in the Netherlands, despite increased supply of considerably good public transport infrastructure, public transport market share declined from 34% in 1960 to about 12% in 2000. In South Africa, Lombard, Cameron, Mokonyama, and Shaw (2007) show that although patronage of both public and private transport have been increasing in absolute terms, there is a steady decline in the public transport share, especially for buses managed in terms of some forms of service contracts. From a customer relations perspective, the question that needs to be continuously asked and answered is: are there better ways to serve public transport customers?

3. Public transport contracts

Public transport contracts for the provision of public transport, usually entered into between public transport operators and organs of state, remain the only guaranteed incentive for operators to deliver a desirable service. However, given that one of the primary goals of contracting, especially competitively tendered public transport services, is to eliminate "principal–agent behaviour", more emphasis in the contracting arrangements has tended to be placed on the relationship between the agent (operator) and the principal (the state) with little explicit consideration for the needs of the customer. Principal–agent problems arise when one party (the agent) undertakes work on behalf of another party (the principal) and the agent has no incentive to maximise efficiency if poor productivity cannot be verified or if verified it would be at a high cost (Kain, 2006). The principal–agent behaviour is a particular characteristic of monopolistic service providers.

The involvement of the state in the regulation of public transport services has historically been warranted by the close association between these services and political risks (Vuchic, 2005). For example, the serving of the poorer members of society, as well as services in less lucrative areas, and overall decision making in general development planning, are seen as politically risky if left solely to profit seeking market forces. Government regulation, therefore, has tended to include aspects such as economic regulation (public transport fare structures and levels), safety (vehicles specifications, maintenance requirements and driver training), technical specifications (noise and air pollution levels, evacuation procedures and equipment performance) and social objectives (service quality and considerations for special needs passengers) (Vuchic, 2005). In South Africa, for example, existing public transport contracts offer protection to customers by attaching penalties when contract breaches occur in relation to the following service aspects (Department of Transport, 2006):

- Service reliability (failing to provide a service, vehicle breakdown, late or early arrivals),
- Information (display of destination and duty boards),
- Failing to pick up or drop passengers at authorised stops,
- Vehicle condition (cleanliness, leaking roof, missing or broken seats, broken or missing windows),
- Route deviations, and
- The lack of operational electronic equipment for ticketing

Contract misspecifications can also result in unintended negative consequences. For example, poorly drafted performance contracts that are open to different interpretations allow for selective enforcement and potentially create an uncompetitive environment (Gwilliam, 2005).

Tendered contracts, whether gross-cost or net-cost contracts, are increasingly being adopted in place of perpetual service contracts in order to introduce some form of competition among prospective operators. Through an international review of competitively tendered contracts, Domberger and Rimmer (1994) show that in general pure forms of this contracting tends to generate cost savings, but could not conclusively show its impact on service quality. However, Hensher and Stanley (2003), arguing for customer-centric performance based public transport contracts, indicate that over time the cost savings from tendered contracting regime could become eroded as a result of perpetual successful bids of incumbent operators and reduced competition, subsequently creating near-monopolistic operators. Acknowledging the weaknesses of tendered contracts, Hensher, Stopher, and Bullock (2003) provide a framework for implementing performance based contracts through a Service Quality Index (SQI), and argue that SQI can incorporate measures that benefit both operators and the public. In fact, various formulations of customer satisfaction indices and performance related enhancements have increasingly found application on public transport contracts. Lake and Ferreira (2001) conducted a literature review of how performance based contracts are being implemented in different parts of the world and their findings show that:

- Some contracts use both incentives and disincentives to elicit desired behaviour from the operator. In some cases, operator point demerit systems allow the authorities to terminate a contract when the number of demerit points reaches a predefined threshold.
- The renewal of contracts is sometimes based on past performance. Automatic extension of the life of a contract in some