



Road-based public transportation in urban areas of Indonesia: What policies do users expect to improve the service quality?

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ABSTRACT

This study investigates the relationship between road-based public transport users' preferences and expectations of particular levels of support and their support of a set of improvement policy scenarios in Indonesia. A series of structural equation modelling estimations was carried out, using empirical surveys among road-based public transportation users in three major urban areas: Jakarta, Bandung and Yogyakarta. The results show that negative experience, service importance and dissatisfaction are factors that significantly correlate with the user preferences in accepting improvement policies along with fare adjustment. The users' travel behaviours and their socio-demographic characteristics were also found to be significant in influencing the degree of such support. However, the results also show discrepancies in the influence of key determinants across the three studied cities, which indicates a need for locally designed approaches.

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1. Introduction

Providing public transportation (PT) services that meet users' travel needs and expectations is crucial in creating an inclusive and attractive urban transport system. At the same time, in an era of deregulation and privatisation, it is very important for the transport authority to identify the service quality measurements that really matter for the users. Thus, over the past few decades, there has been a surge in the number of studies concerning assessment of PT services. The studies were aimed at providing clues to improve users' satisfaction and to make the services more user-oriented. For example, see Beirão and Cabral (2007), Friman and Gärling (2001), Friman et al. (2013), Jen et al. (2011), Joewono and Kubota (2007a, 2007b), Lai and Chen (2011), Mouwen (2015), Stradling et al. (2007) and Susilo and Cats (2014).

In the assessment of service quality, investigating feedback from the users about various aspects of service was often conducted. Responses stated by the public, in particular from regular passengers, may be used as a proxy of determinants of current performances and therefore can be utilised to improve existing services. Most previous studies argued that functional, instrumental, or core

service attributes – such as frequency, travel speed, on-time performance – are the most important determinants of travellers' overall satisfaction (Brons et al., 2009; Eboli and Mazzulla, 2012; Mouwen 2015). Traditionally, travel time has been widely regarded as the key performance indicator that would satisfy frequent PT users, among other functional factor attributes (Andreassen, 1995). At the same time, some other studies, such as Stradling et al. (2007), found that non-instrumental variables, such as cleanliness, privacy, safety, convenience, stress, social interaction and scenery play a significant role in influencing traveller satisfaction with their journey. Some studies (e.g. Beirão and Cabral, 2007; dell'Olio et al., 2010; Diana, 2008; Ettema et al., 2012; Olsson 2012) highlighted the complexity of the impacts and users' social and psychological feedback concerning PT service quality and travel satisfaction. Nevertheless, despite its complexity, Tarigan et al. (2014) argued that providing a satisfactory service is paramount in order to create loyal public transport users.

Many countries, like in Europe, have more advance system where the public transport network is extensive and reliable, and the users have the flexibility to change their mode or route, or even their schedule if they are displeased with the service

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provided. In developing countries, however, such as Indonesia, many of the users are not loyal to PT by choice but are rather captive users (Deng and Nelson, 2011; Susilo et al., 2007). Unlike in developed countries, it is common for the public transport system in developing countries to be dependent on indigenous paratransit¹ systems, which tend to be loosely regulated and offer a relatively lower level of service and reliability (Y. Susilo, 2014; Y. O. Susilo, 2014). This low level of service and unreliable conditions intensifies the feeling of uncertainty among users and encourages them to shift to more accessible and reliable travel modes, for example the motorcycle, whenever possible (Susilo and Joewono, 2016). Thus, it becomes more important not only to understand what really matters for PT users in cities in developing countries, but also to understand how their preferences and dissatisfaction regarding the current PT services influence their acceptability of particular improvement policies. Furthermore, it is also important to understand whether users would be willing to pay more in order to have a service that meets their expectations. Unlike in developed countries where the public transport systems are well supported by tax-payer money, the paratransit system is a bottom-up/grass-roots initiated system, the costs of which are mostly borne by the operators and/or owners (Susilo, 2014). Tarigan et al. (2014) note that, in Indonesia, the local bus and paratransit operators were often faced by financial constraints even just to maintain the existing services. Thus, any efforts to increase the level of service would be likely to increase the cost of the trip. Hence, this study attempts not only to explore the determinants of users' travel satisfaction, but also the relationship between their preferences and expectations of a particular level of transport service and their support of a set of improvement policy scenarios with its consequences in fare increment. The study carefully elaborates whether the users' negative experiences, dissatisfaction, and trip-making significantly correlate with such supports.

Although there have been many studies discussing the key determinant of travel satisfaction within PT and its relation with service quality attributes, this study offers unique contributions on at least two frontiers. First, most of the previous studies examined the relationships between the levels of user satisfaction and users' positive experiences with public transport services, while this study investigates the correlations between users' dissatisfaction and unpleasant experiences with their travel behaviour and support of various policy options for service improvement. This research objective is in line with the statements by Prioni and Hensher (2000) and Beirão and Cabral (2007) that efforts in examining the relationship between travel behaviour and human subjective perceptions may provide insights to the operators for service improvement and to policy makers for designing sustainable transportation in urban areas. Second, most of the comprehensive studies in this research area employed data and cases from developed countries, while this study provides elaboration from a developing country case, which is crucial to enrich the body of knowledge regarding public transport improvement strategies in the context of newly emerging economic countries.

The remainder of this paper is presented as follows. Section 2 provides a brief literature review covering user experience and service quality attributes of public transport services. Section 3 describes the proposed model and the dataset used. Section 4 reports the empirical analysis results and is followed by a discussion in Section 5.

2. Users' experience and the service quality of public transportation

Service quality evaluation needs to be defined and carried out carefully since this term refers to a complex relationship between tangible and intangible characteristics of service (supply) and users (demand). This includes travellers' subjective perceptions, expectations, past experience and well-being. Different travellers have different needs and priorities, and these influence their satisfaction and appreciation relating to various quality factors of provided services. In order to provide a transport service that meets individual travel needs, it is important to understand the factors that underlie travel satisfaction for different groups of individuals (Susilo et al., 2015a, 2015b). Andreassen (1995), in an effort to change the market strategy to attract potential riders on PT, stressed the importance of collecting feedback on how their satisfaction is related to characteristics of the service. In line with this, Prioni and Hensher (2000) demonstrated that the level of quality of PT services is an important variable to explain travel demands of PT users.

In many cases, the quality of service is measured based on how well the level of service can satisfy the user expectation, and this should be delivered to users on a regular basis (Kittelsson and Associates, Inc. et al., 2003). In some cases, the measurement of service quality is indicated by the gap between user expectation of the service and the actual service quality perceived by them. This measurement can be defined as the level of satisfaction with a PT service. In other words, satisfaction refers to the extent of overall excitement based on an accumulation of desires, needs and expectations felt by the users. A service can be qualified as high quality when users perceive a pleasant experience when riding PT and, therefore, report high satisfaction with various important aspects of the service (Parasuraman et al., 1985). In contrast, obtaining a highly negative experience and dissatisfaction with the service may explain a low quality of PT service.

Over the years, Friman and colleagues (e.g. Ettema et al., 2012; Friman, 2004; Friman et al., 1998, 2001, 2011, 2013; Friman and Gärling, 2001; Olsson et al., 2012) have developed a series of comprehensive, multidisciplinary studies on theoretical and empirical analyses of user satisfaction with PT services. Their studies reveal that individual travel satisfaction is influenced by a wide range of factors, from built environment factors to quality of service attributes and users' subjective well-being. They highlighted that inappropriate treatment or dissatisfaction caused by operators to customers, such as delay, inadequate information, or poor maintenance of infrastructure, are remembered by users, either consciously or unconsciously, to judge the quality of the service and also to decide whether they will continue utilising the service or switch to other modes. However, at the same time, other researchers have found that loyal users can be found among the PT users, regardless of their past experiences (Fornell, 1992; Morpace International, Inc. and Cambridge Systematics, Inc., 1999). This group of individuals consistently utilises the service as part of their investment for a sustainable environment or simply because they have no option as a result of their socio-economic and demographic constraints. In the latter instance, however, users may switch to other modes, for example a motorcycle, when the constraints disappear. Some studies (e.g. Fujii et al., 2001; Outwater et al., 2003) argue that the speed at which one would shift to other modes depends on ones' travel behaviours and attitudes towards PT service quality.

Whilst most previous studies have focused on measuring factors that underlie users' positive experiences, it is important not to neglect the reported negative experiences. Friman et al. (2001) argued that dissatisfying or negative incidents have more impact than positive experiences among the riders. For local authorities,

¹ Paratransit refers to modes owned and operated by private companies and individuals, which is well-known with various local names (Joewono and Kubota, 2007a).

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