

PERCEIVED SATISFACTION WITH PUBLIC TRANSPORT SERVICE: CASE STUDY OF GRAS

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Abstract: Public service quality is in recent years one of the major challenges for economic analysis. It is due to the size of companies providing public services as well as to the importance of obtained results both for companies offering the services and for the public policy creators and administrators. One of the aspects that can be evaluated is the level of service offered or the supply side. The other side is the perceived satisfaction with the service quality, which represents the demand side aspect. There is not much research that analyses how the passengers perceive the quality of the services.

The objective of this paper is two folded. Firstly, to evaluate the quality of GRAS services from the aspect of users and secondly to see what needs to be improved in order for non-users or people who rarely use public transport to become regular users. The information is valuable for policy makers as well as operational managers in the public transport system. An insight into what users consider as important and how they perceive existing public transport service can show that investment and improvement of existing service can really attract new users and keep the existing ones.

The data were collected using self-administered internet mediated questionnaires to the residents of Sarajevo Canton. In total 247 persons answered the questionnaire. The response rate was above 50 per cent. The results showed that there is wide space for improvements in service, especially if the company is trying to reach non-users.

Keywords: public transportation, services, satisfaction

Introduction

Car traffic has increased considerably during recent decades. The car enables transportation that brings people positive consequences but also costs for society. Individual freedom and independence are among the positive consequences noted in connection with car use. Thus, the versatile car enables people to conduct diverse activities in different places, for instance, work, purchases of different kinds, and leisure activities. At the same time the negative environmental effects of car use is becoming recognized.

Public transport has a lower societal cost than the car. Although most people use public transport for some trips they make, it is generally perceived to be less attractive and is less chosen. How can it be made more attractive? In the public transport

industry, increasing competition has led to an increased market orientation, something which for instance has led to that customer surveys have become common. With the increased competition, there is also an interest in boosting market shares. In addition to this, there are adaptations of services in order to encourage both existing and new travellers to travel more by public transport (Carlsson, 1999; Eriksson, 2006).

Both society and the public transport industry want to change public transport in order to adapt it to those who are frequent car users today. Accordingly, there is a need for knowledge of how public transport can be made attractive to car users.

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Literature Review

According to Fellesson and Frimen (2008) in many countries there have been investments in improvement of public transport systems in order to increase the quality and thus the usage of this mean of transport. However, this doesn't lead to corresponding increase in demand (Fujii & Kitamura 2003, Mackett & Edwards 1998). This is mainly because of the increasing usage and ownership of cars. Anable states (2005) that today, people are very dependent on car transportation. For them, car is not just a mean of travel. As Steg (2005) points, it gives a feeling of sensation superiority, power, freedom, position in the society.

On the other hand, there is an increase development and implementation of measures related to the promotion of consequences of car travel, mainly on environment and congestion, especially in large cities. Together with cycling and walking, public transport is generally recognised as a sustainable alternative to the usage of cars (Redman et al., 2013). Transfer from car travel to public transport usage became an important alternative for the society which leads to the necessity to improve the quality of public transport, make it more appealing and satisfying for the users (Beirão and Cabral, 2010). Public transport systems need to become more market oriented and competitive. They need to create certain image that would attract users. In order to recognize the possibilities for improvement and increase market share, companies providing public transport services need to understand travel behaviour, consumer's needs, expectations and satisfaction of users (Beirão and Cabral, 2010). Those information are valuable for policy makers as well as operational managers in the public transport system. An insight into what users consider as important and how they perceive existing public transport service can show that investment and improvement of existing service can really attract new users and keep the existing ones (Fellesson and Friman, 2008).

Satisfaction represents a concept that deserves certain attention. It is mainly elaborated in consumer research and it is proven to have great value in understanding present

and future behaviour of customers. Customers' satisfaction is the link between the service (or a good) offered by a company and perception of that service from the customers (Fellsson and Frimen, 2008).

In the research by Friman, Edvardsson and Garling (1998) it is pointed that dissatisfied users are maybe more important than satisfied users. In order to determine the satisfaction or dissatisfaction the relevant attributes need to be identified. In the same study it was assumed that the satisfaction is mainly affected by negative critical incidents (NCIs) and that positive critical incidents are not so relevant. The main NCIs identified were: treatment of employees (lack of competencies, knowledge, willingness to serve); service unreliability (delays); simplicity of information; and shortcomings of vehicles, equipment and stops. The study showed that single NCI and a memory of how many times it has repeated (frequency) affects overall satisfaction with the public transport service.

Paulley (2006) determined key factors that affect the demand for public transport. According to the research it was found that fares, income, car ownership and quality of service are key in determining the demand. The study is mainly related to the urban public transport in Great Britain, however many international examples and sources are used to emphasise the topic.

The research of Walle (2006) studies the relation between transport mode and time factors using elasticities and regression techniques. The results showed that there is a clear relation of waiting and walking time and public transport use. According to the findings important issues were emphasised and recommended to the public transport companies.

The important factor that can influence car drivers to switch to public transport is trip chaining. In the work of Hensher and Reyes (2000) different discrete choice models are evaluated to determine the role that certain features of households have on the tendency to undertake varying trip chains that involve the use of the car or public transport.

Research conducted by Dell Olio et al. (2011) indicates the difference between desired quality of service and perceived quality by users. The first represent what the users desire, expect or hope to receive and the later one is the daily experience of the users of public transport. The research offers new aspect of quality: the quality that the user and potential user desires. The most valued variables were waiting time, cleanliness and comfort, while driver's behaviour, occupancy and travel time were valued less. The obtained results provided useful information for the authorities and operating companies to plan marketing policies directed towards different categories of users, as well as potential users.

The important attributes that could attract car users to become the users of public transport were emphasised by Lauren Redman et al. (2013). The important contribution of this research is related to the quality attributes of public transport services that would encourage shift from private car usage to public transport. The results implied that reduction in fare promotions and other habit-interrupting measures of transport policy can lead car users to initially try public transport. To sustain those new users, the accessibility, reliability and mobility provision are highly valued.

In a study of public transport services, Hensher et al. (2003) found that travel times and fares have the greatest impact on negative satisfaction, whereas frequency of

service and seat availability constituted the largest sources of positive satisfaction. In another study, Friman et al. (2001a, 2001b) found four factors identified as constituting perceived service quality in public transport services. The first factor was how travellers were treated by staff, that is their willingness to serve, their knowledge, and their competence. The second factor was service reliability. The third factor was simplicity of information (e.g. the availability of departure and destination information). The design of vehicles and space (relating to comfort, safety, and cleanliness) constituted a fourth factor.

A transnational study of public transport in nine European cities (Fellsson & Friman, 2008) confirmed these results by highlighting the impact of safety, security, frequency, service reliability, comfort, and the quality of staff behaviour on the level of satisfaction with public transport.

Stradling et al. (2009) examined 68 items which de-motivate people from using buses. Eight factors were revealed by factor analysis. Factor 1 was interpreted as inconvenience of route, scheduling, and other service provision; Factor 2 as unwanted arousal from the journey experience (e.g. crowded bus); Factor 3 as feelings of being unsafe; Factor 4 as the need for autonomy and control; Factor 5 as costs; Factor 6 as self-image; Factor 7 as the preference for independence; and Factor 8 as disability and discomfort.

In a narrative review of international research on how to attract car users to use public transport, Redman et al. (2011) concluded that it is essential to break car-use habits, for instance by providing free public transport tickets for a limited time to enable car users to test public transport. To bolster attractiveness, it may be necessary to go beyond core service attributes such as travel time, accessibility and reliability by improving affective qualities. In order to keep (former) car users in public transport it is essential that they perceive the service as attractive, not only initially but over time. If this can be accomplished successfully car users may become satisfied public transport users (Pedersen et al., 2011).

Case Study - Public Company "GRAS"

The public transport in city of Sarajevo was organised in 1885. Firstly, it was a tram which used horses. The electric power trams were introduced in 1895. The bus transport started in 1948. After many change, improvements and development, new charging system was introduced in 1974 while the half automatic fare charging system was implemented in 1977. During the war, the vehicles, the lines and whole company, as everything else in Sarajevo were devastated. The reconstruction of the public transportation service started in 1996.

Today, the mission and vision of the company states that the public passengers' transportation represents one of the most important if not the key function of modern city, overgrowing simple communication function. It represents the part of the city development policy, the base for healthy community with great social role, since the main users of public transport is population with lower income, especially younger population and retired people. The mission of the company is to improve conditions and safety in public transport, to increase the offer, improve the efficiency of communication and to maximise profit. The vision is to give absolute priority to the quality, speed and reliability of public transport, support of the Sarajevo Canton and to the ecology and energy efficiency.

Since 2005 the company implemented ISO 9001:2000 standard which was successfully recertified in 2010. The special attention is given to the staff training and communication toward the users.

Methodology

In Sarajevo there are two companies providing public transport services to the city. The objective of this study is to evaluate the user's perception and satisfaction with the quality of GRAS public transport company. The research should show what are the strengths and weaknesses of GRAS and where are the places for service improvement. The users will evaluate characteristics of public transport services like: coverage, time, reliability, behaviour of employees, condition of vehicles, frequency, safety, etc.

According to the available literature and with the objective of the research following hypotheses were constructed:

H1: There is an overall satisfaction with public transport services of GRAS.

H2: Non users would become users if more than three attributes would be improved.

H3: Places for improvement of public transport services are quality of vehicles, treatment of users by employees and service reliability.

The data were collected using self-administered internet mediated questionnaire. The questionnaire was designed using Google docs. It was administered using e-mail and social networks. This way of collecting data was chosen because of following reasons: there is no demand for field work, there are no financial resources necessary, data input is automated and data analysis is easy to perform using SPSS (Saunders et al., 2009). The design of each question was done by adapting questions used in other questionnaires. The advantages of relying on already designed questionnaires are the ability to compare the findings with other studies and possibility to **asses'** reliability of the questionnaire. In order to avoid poor questions, the relevant scientific literature was consulted. Likewise, there were no copyrights on the questions and the questions were adapted from many existing questionnaires, thus there is no need to point each out.

The first part of the questionnaire is consisted of basic demographic questions. The second part consist the question related to the reasons why people do not use public transport or use it very rarely, and what needs to be improved so a non-user would become the user of public transport services. Third part is evaluating the perception of users about the quality of public transport service using 5-point Likert scale: (1) don't agree at all, (2) hardly agree, (3) neutral, (4) partially agree, and (5) fully agree. The sampling was done using non-probability sampling more precisely convenience sampling, which is used because of ease of reaching the respondents this way.

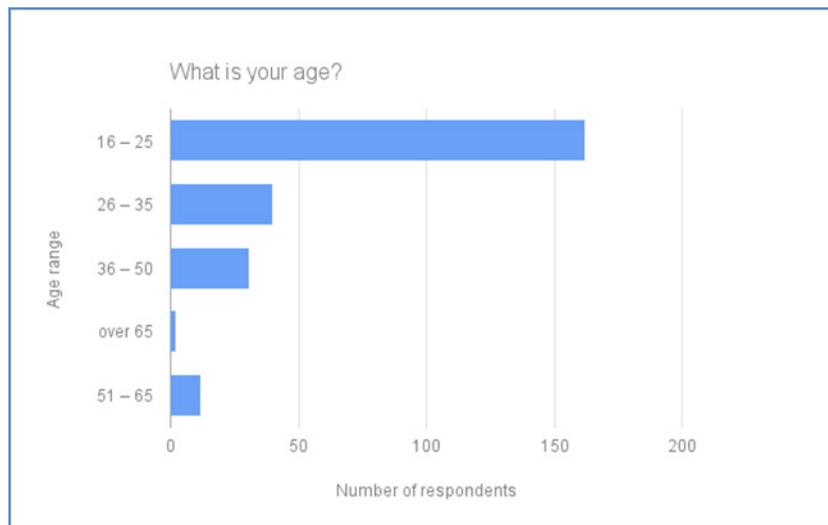
The survey was administered in English and Bosnian language. The purpose of the research was explained with accompanying cover letter. According to Dillman (2007) the message in covering letter has positive effect on the response rate.

Since the number of thematic questions in the survey was 19, in order to obtain validity, the minimum number of respondents was 190 (ten respondents per each question). In total 247 persons answered the questionnaire. The response rate was above 50 per cent.

Results

Out of 247 respondents 49.8 per cent are female and 50.2 are male. When asked about living area, 81.9 per cent live in the study area while 18.1 per cent do not. The age structure of respondents is presented in next figure.

Figure 1: The age structure of respondents



Related to employment status 59.6 per cent are students and 36.7 are employed. There is also a minority of self-employed (3.3 per cent) and retired respondents (0.4 per cent). The respondents who own a car are 43.4 per cent of the sample.

Since one of the aims of this paper is to determine what are the reasons not to use public transportation services, it was important to find out how often respondents use public transport. People who use it few times a year count for 20.8 per cent of the total sample and 8.6 per cent never use it. This is represented in figure 2.

Figure 2: Frequency of public transport usage

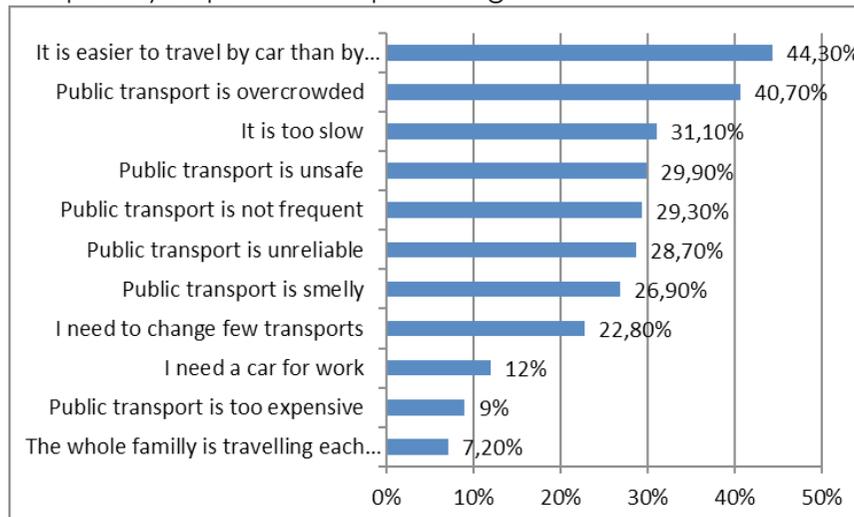
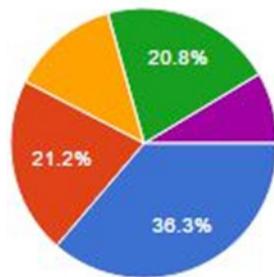


Figure 3 shows the reasons why some respondents do not use or rarely use public transportation services. The main reasons, according to the non-users are that it is easier to travel by car and that public transport is overcrowded (more than 40 per cent). Only 9 per cent thinks that public transport is too expensive and only 7.2 per cent do not use it because the whole family is travelling by car.

Figure 3: Reasons for not using public transport



Every day	89	36.3%
Few times a week	52	21.2%
Few times a month	32	13.1%
Few times a year	51	20.8%
Never	21	8.6%

When asked about what needs to be improved so they would become users or more frequent users of public transport the respondents gave different answers (table 1).

Table 1: What needs to be improved in order to use public transportation more frequently

Frequency of using public transportation services	If you do not use public transportation services or use it very rare, what are your reasons for it?
Every day	Safety (7)
	Cleanness (3)
	Frequency (4)
	Reliable (regular) (3)
	Speed (2)
	To reduce the price of tickets (3)
	New tram
	More vehicles and seating places (2)
Few times a month	Quality, better conditions
	Reliable and more frequent (3)
	Less crowd
	Modern vehicles (2)
	Customized tickets according to the destination
	There should be only one public transport service company
	The public transport market should be more competitive, not monopolistic.
	Everything (2)
Better hygiene and behavior of employees	

	Wi-Fi
Few times a week	Safety (3)
	New vehicles (3)
	Frequency (2)
	Cleanness (2)
	Better employees (2)
	You never know whether the bus will take you all the way to your destination or it would stop somewhere (therefore you lose your money you pay for the ticket and you are late in most
	More comfortable
	Everything (2)
	Nothing
Few times a year	Cleaner (4)
	Better transport (3)
	Safety (3)
	Better connectivity and more available routes
	More vehicles with newer production date
	frequency (7)
	Less crowd (2)
	Educate people manners in public transport
Never	All (2)
	Speed, reliability and frequency (2)
	Don't know
	Not planning to use it

Mainly answers were related to three broad topics. Frequency and reliability is very important. Second issue that was pointed is related to the conditions in the vehicles. The respondents ask for better quality, better hygiene and more clean vehicles. The third group of possible improvements is related to the employees and their behaviour. The complaints are related to the manners of drivers and lack of politeness. One more response that was repeated few times is safety during ride.

When all respondents were asked to say whether they agree or disagree with certain attributes of public transport the responses corresponded with answers from non-users. The number of surveyed people that thinks it is overcrowded is 148 (61.9 per cent). Around 45 per cent thinks it is not safe. More than 60 per cent states that the vehicles are not modern and not clean.

Discussion

The purpose of this study is to investigate which are the problems in public transport perceived by its users and which solutions may make public transport more attractive to car users. With such knowledge, it will then be possible to suggest how public transport can adapt its service offering to car users.

The results of this study indicate that public transport services need to be improved.

This is due to the perception that current public transport services are not attractive enough.

The generality of these results is implied by the fact that they are in line with previous research findings from other countries (Curtis & Headicar, 1997; Kingham et al., 2001; Shannon et al., 2006).

How can public transport be improved and become attractive? In response to this question, the results showed that increased service frequencies, reliability, cleaner and newer vehicles were stated by car users to be reasons for increasing their use of public transport. Similar results have been shown in other studies (Kingham et al., 2001). Even if an improved public transport system would be provided in medium-size cities, it would probably still be the case that car users would have to make sacrifices, especially initially because of their known difficulties in changing an acquired car-use habit (Fujii & Gärling, 2005).

Furthermore, it is unlikely that a public transport service would fully cater to car users' needs as regards time and flexibility. In order to increase public transport use, it is thus also essential to make car use less attractive. It is not likely in the near future that conditions governing car use in medium-sized cities will deteriorate due to congestion. Other measures need to be taken to reduce the relative attractiveness of car use, for instance the prohibition of car traffic in various zones, parking restrictions, and general measures such as increasing the cost of owning and driving a car.

Conclusion

One of the undisputable need for the economic development of any society is providing public transport services that are satisfying the growing mobility needs of citizens.

Many public transport companies in other countries, as well as our domestic company have internal indicators of the quality of services they offer. However, those parameters are usually related to some attributes that are important from the aspect of the company, such as travel time, frequency of the service, the average delay, the average age of the buses that serve a route, etc. These measurements have internal utility but in many cases are not valid for specific actions to improve user welfare.

The studies on quality must be not only based on certain standards but on combination of set quality criteria and level of user's satisfaction. The public authorities, no matter they are regulators or providers, must establish levels of quality that maximize user utility.

Related to the above mentioned, this study provides an interesting insight into the satisfaction of users. Likewise, it determines attributes that need to be improved in order for non-users to become users. Frequency, reliability, safety, cleanness are the characteristics that need to be main concerns of future strategies of public transport companies, especially in a market that once used to be monopoly and is transforming to more competitive market.

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