Transit passengers' behavioural intentions: the influence of service quality and customer satisfaction

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Abstract

Knowing passengers' behavioural intentions to use transit service can be a useful support for transit managers and marketers who can define the most convenient strategies to satisfy existing passengers and attract new ones. We retain that analysing passengers' intentions to continue to use transit services in the future together with relevant concepts such as service quality and customer satisfaction is fundamental to understand passengers' behaviour. For this reason, in this paper we propose a structural equation model for investigating on the relationship among some aspects influencing passengers' behavioural intentions towards the use of transit services. The light rail transit (LRT) of Seville (Spain) offers the transit service supporting our work. We collected through an ad-hoc survey the opinions of the passengers about the used LRT system and transit system in general, and we propose a methodology to explain how passengers' opinions influence their intentions to use the LRT again. Among the interesting findings from the model, we observe that behavioural intentions are mostly affected by passengers' judgements about LRT service quality and their satisfaction with the service. Moreover, not only direct but indirect effects on behavioural intentions are derived, determining an accurate conclusion about the relationships of the other concepts with LRT' users behavioural intentions.

Keywords: service quality; satisfaction; passengers' opinions; behavioural intentions

Highlights

Understanding passengers' behavioural intentions is important for transit managers
Service quality and customer satisfaction affect passengers' behavioural intentions
Transit users' intentions depend on aspects that are difficult to directly measure
Structural equation models are suitable for investigating on behavioural intentions
The light rail transit of Seville (Spain) is the transit service supporting this work.

1. Introduction

Understanding passengers' behavioural intentions after experiencing transit services is an essential task for public transit managers. This information can help transit managers and marketers in defining the effective strategies to meet passengers' needs, and thus retain existing passengers as well as attract new ones from other modes (Lai and Chen, 2011).

Behavioural intentions represent a concept investigated for a long time. According to the Theory of Planned Behaviour (TPB), behavioural intentions trigger off future behaviours (Ajzen and Fishbein, 1980). Behavioural intentions can be viewed as signals that show whether a customer continues to utilize a company's service or switch to a different provider (Zeithaml et al., 1996). More recently, the concept of behavioural intention has been considered together with the concepts of service quality and customer satisfaction. Several researchers decided to analyse the relationship between concepts such as service quality and customer satisfaction and behavioural intentions, by adopting structural equation modelling, which we retain a very appropriate technique for analysing this kind of issues, being very complex the relationship among the various concepts.

Moreover, the single concept of service quality represents a complex idea, being the quality level of a transit service characterized by the quality levels of several different service factors. Just for this reason, service quality has been already widely investigated through structural equation models, also by the authors of this paper. They proposed such models for analysing bus services (Eboli and Mazzulla, 2007; de Oña et al., 2013) and railway services (Eboli and Mazzulla, 2012; 2014). The main aim of these works was to analyse the relationship between overall service quality and the several service aspects characterizing it.

As above mentioned, several studies attempted to explain transit users' behavioural intentions by considering the concept of service quality and using the different service aspects as predictors of travel behaviour. As an example, the study of Chen (2008) aimed to investigate the influence of service quality, perceived value and satisfaction, on behavioural intentions for air passengers. The concept of service quality was considered as a comparison between customers' expectations and actual performed services, and the concept of perceived value was defined as a trade-off between perceived benefits and perceived costs (Lovelock, 2000).

Lai and Chen (2011) proposed a model incorporating the roles of service attitudes (i.e. service quality, perceived value and satisfaction) and involvement, and explored their effects on behavioural intentions. They showed that also the concept of involvement, only rarely applied in the transport service literature, influences behavioural intention. Involvement, a widespread concept in both the marketing domain and behavioural research, is defined as the level of interest or importance that an object has for an individual (Zaichkowsky, 1994).

Chen and Chao (2011) proposed an integrated model combining the TPB, the Technology Acceptance Model (TAM), and habit to examine the switching intentions toward public transit by private vehicle users (both car and motorcycle users). Specifically, they introduce in the model concepts such as the attitude to public transport, subjective norm, perceived behavioural control, perceived ease of use, perceived usefulness, habit, and switching intention toward public transit.

The study of Chowdhury and Ceder (2013) seeks to explore the cognitive factors which influence travellers' willingness to make transfers. The TPB was adopted to investigate the role of Perceived Behavioural Control (PBC) in travellers' intentions to use PT routes with transfers. PBC was measured by being decomposed into its constituting elements: self-efficacy and perceived controllability. The effect of travellers' trip characteristics and socio-demographics on their PBC and intention was assessed.

Drawing inspiration from the literature review, we propose a structural equation model for analysing the relationships among some factors, which can influence passengers' behavioural intentions towards the use of transit services. We mainly focus our analysis on the link of service quality and customer satisfaction with passengers' behavioural intentions. This kind of analysis becomes really important for a newly operating public transit system like the LRT of Seville, which

is the transit service supporting the analysis proposed in this work. We try to explain the link of the opinions of the LRT passengers and also their feeling towards the transit in general with the intentions of the passengers to use the LRT again.
In the following, we propose a section describing our hypotheses about the relationships among the various investigated constructs. We discuss about each construct, providing for a brief review of how the constructs were investigated in the scientific literature and how we decide to investigate on them; we finally describe the proposed conceptual model. Then, there is a section about the case study, where we describe the transit service supporting the research, the survey, the sample characteristics, and the opinions expressed by the passengers about the LRT system and transit in general. Afterwards, we present the proposed model: after a brief theoretical framework about structural equation model methodology, we discuss the testing of the hypotheses, the general results of the model, and the direct and indirect effects among the variables included in the model. The paper ends with the conclusions about the work.

2. Research hypotheses

2.1. Preliminary remarks

We hypothesize that transit passengers' behavioural intentions, and specifically their intentions to continue using transit in the future, are influenced by passengers' opinions about the used transit service and also the use of transit system in general. According to our opinion, transit users' behavioural intentions depend on a series of aspects or constructs that are difficult to directly measure, because are subjective perceptions and can vary among transit passengers. These aspects concern transit users' levels of satisfaction with the used service, their perceptions about the costs and the benefits sustained and gained from using transit service, their perceptions about the different characteristics of the service, as well as their opinions about transport modes alternative to the used transit service and about transit system in general. Users' perceptions and opinions depend on individual feelings, and they should be interpreted carefully, also because they are generally collected through surveys.
So, in order to investigate on the relationship among the above mentioned aspects, we decided to collect the opinions of the passengers of an existing transit service, which is the LRT of Seville (Spain), and to have a measure of the aspects that can influence the intentions of the users to continue using the transit service in the future. In other words, we ask users for answering a series of questions concerning different aspects; through these questions we have the possibility to consider some indicators for measuring the above mentioned aspects, which represent latent or abstract construct that are difficult to directly measure. In the following we discuss about our hypotheses concerning these latent constructs by also referring to literature studies where these concepts were investigated.

2.2. Investigated latent constructs

2.2.1. Satisfaction, SA

Past research has suggested that satisfaction is an excellent predictor of repurchase intentions (Petrick, 2002). So, we can say that passengers' satisfaction is a predictor of their intentions to use the service in the future. Previous studies in the field of public transport have confirmed a direct positive relationship between satisfaction and behavioural intentions (Wen et al. 2005; Joewono and Kubota, 2007a; Lai and Chen, 2011).
Through "Satisfaction" construct, we want to consider an aspect that can give a measure of how much passengers are satisfied with the used service. We have identified the indicators suitable for

measuring the abstract concept of satisfaction from the study of the literature and specifically by considering some definitions of satisfaction proposed by other researchers. As an example, Oliver (1980, 1999) defined satisfaction as an overall affective response to a perceived discrepancy between prior expectations and perceived performance after consumption. Oliver (1997) also explains that satisfaction is associated with affective judgments of the users. Yang and Peterson (2004) defined customer satisfaction as an overall evaluation based on the total purchase and consumption experience with a good or service over time.
Besides some authors measured satisfaction by considering only one indicator (e.g. Chen, 2008), we decided that this construct has to be linked to four indicators observed through the questionnaire addressed to the sample of LRT users. First of all, we think that satisfaction has to be measured through an evaluation of the users about the overall service. In addition, we ask users if LRT meets their expectations; this question is in line with the definition of satisfaction suggested by Oliver (1997). Finally, we decided to ask users for two more specific issues: if travelling by LRT attracts them, and if they feel comfortable while they travel by LRT. Definitively, this construct has the objective to express the opinions of the users about the used LRT system.

2.2.2. Perceived costs, PC

Perceived costs have been considered as a predictor of behavioural intentions under the more complex concept of perceived value, which comes from a trade-off between perceived benefits and perceived costs (Lovelock, 2000) as specified in Lai and Chen (2011). Previous studies have suggested that perceived value may be a better predictor of repurchase intentions than either satisfaction or quality. As an example, the results of the study proposed by Jen and Hu (2003) revealed that passengers' behavioural intentions are significantly affected by perceived value; moreover, service quality is found to have a positive effect on perceived value.
Perceived costs are defined as what is given up or sacrificed to acquire a service (Zeithaml, 1988), including monetary and non-monetary prices (Choi et al., 2004; Wang et al., 2004). Despite perceived costs have been generally introduced in the analysis as part of perceived value concept, we decided to consider an independent item which has to take into account the opinions of the users about all the costs sustained by them when they travel by LRT both in terms of monetary costs and in terms of time. For this reason, this latent construct is linked to five indicators concerning: the price of the tickets; if the price exceeds the costs of the LRT; the distance of the LRT stations from trip origins or destinations; the waiting time at the platforms; the general costs including both money and time.

2.2.3. Perceived benefits, PB

Analogously to perceived costs, we decided to consider perceived benefits as an independent item which gives a measure of the main advantages of the users from their use of LRT (Zeithaml, 1988). We retain that the main perceived advantages concern the general goodness of the service, the appropriateness of the relationship between quality and price, schedule, travel speed, attention to the customer. So, the following five indicators explain this latent variable: the LRT's service; the relationship between quality and price; if the schedule fits the user's needs; the customer service; and the speed of the trip.

2.2.4. Attractive alternatives, AA

By considering this construct, we want to give an idea on users' preferences about transport modes alternative to the investigated transit system, which is the LRT in our case. We retain that this construct has to be measured through three indicators evaluating the consideration from LRT users of other good alternatives, if these alternative are advantageous as regards LRT, or the indifference

of the users towards the used transport mode. According to the authors' knowledge, no previous studies on LRT systems considered this concept as predictor of passengers' behavioural intentions. On the contrary, Jen et al. (2011) demonstrated the negative effect of alternative attractiveness on customers' behavioral intentions on a coach industry. Likewise, Chen and Chao (2011) introduced a construct named "habit" to consider users' frequency to adopt other private transport modes such as car or motorcycle. We retain this construct as independent from the other ones, because it focuses on the users' preferences about transport modes alternative to the investigated transit system.

2.2.5. Behavioural intentions, BI

This construct is the key of our study, because the main purpose of the proposed model is just to predict the intentions of the users to continue using LRT in the future. So, this construct is simply explained by users' opinions about their intention to use the LRT again and to recommend the LRT to other people, through three indicators represented three questions addressed to the users. Also in the literature this construct was measured through such indicators (e.g. Chen, 2008; Lai and Chen, 2011).

2.2.6. Feeling towards transit, FTT

The term "Feeling towards transit" indicates the impressions and opinions of the users towards public transport modes in general and towards people using transit systems, differently from the satisfaction construct which is specific on the investigated LRT system. We investigate on this latent construct by adopting six indicators measuring users' opinions about: the congruence of the use of transit systems with lifestyle; the preference of travelling by LRT independently of trip purpose; the contribution of transit system to the protection of the environment; the influence of using transit systems on people' opinions about transit users; the pleasure of make known being a transit user; and the preference for people using transit.
Others authors defined this construct as "Involvement" (Bloemer and de Ruyter, 1998; Lai and Chen, 2011; Richins and Bloch, 1991, Wang 2014). In fact, Chen and Tsai (2008) stated that the level of involvement that a consumer has with respect to the object of interest works as an important determinant of consumer evaluations and behaviors. Bloemer and de Ruyter (1998) investigated the moderation effect of involvement on the satisfaction–loyalty relationship. Lai and Chen (2011) demonstrated a positive effect of involvement on behavioural intentions and Richins and Bloch (1991) found a direct effect on the level of satisfaction. Likewise, in Chen and Chao (2011) similar concepts were introduced in a construct named "subjective norm", directly influencing behavioural intentions.

2.2.7. Service Quality, SQ

Service quality is an abstract concept that is hard to be defined, and in practice, often interchangeably used with satisfaction (Lien and Yu, 2001; Lai and Chen, 2011; Sumaedi et al. 2012). However, the differences between both variables have been clarified in the literature (de Oña and de Oña, 2015a). As an example, Oliver (1997) explains that service quality is more oriented towards cognitive judgments while satisfaction is more holistic and associated with affective judgments.
Service quality relates to a series of attributes describing transit service. Berry et al. (1990) point out that "customers are the sole judges of service quality", and many authors have also supported this theory. Therefore, if service quality is measured from the customer's perspective, transit quality

depends on the passengers' perceptions about each attribute characterizing the service (de Oña et al., 2013). The selection of the service attributes that passengers have to judge obviously depends on the kind of service (bus, metro, railway, and so on). TCRP Report 165: Transit Capacity and Quality of Service Manual, 3rd edition (TRB, 2013) is a reference document that provides current research-based guidance on transit capacity and quality of service issues and the factors influencing them, concerning bus, rail, demand responsive, and ferry transit services, as well as transit stops, stations, and terminals. The most investigated transit services in terms of service quality has been surely bus services; there are several studies in this field, among them also many studies of the authors of this paper (e.g. de Oña et al., 2013; de Oña et al., 2014); they investigated also on railway service quality (e.g. Eboli and Mazzulla, 2012; Eboli and Mazzulla, 2014). Instead, as above specified, the transit system supporting this study is LRT.
Starting from the study of the literature review, the European standard EN 13816, and the extensive authors' knowledge of transit service quality, and also considering the specific kind of transit service supporting this work, we hypothesize that service quality depends on a series of service attributes grouped in eight main service quality aspects, concerning: availability of the service (depending on four attributes including among other thing frequency, and operating hours); accessibility (linked to six service quality attributes concerning accessibility to vehicles, platforms, and ticket); information (explained by four attributes concerning information at stations, on board, etc.); timeliness (in terms of punctuality, speed, and waiting time on the platform); attention to client (depending on four service attributes concerning the behaviour of the employees); comfort (linked to nine attributes regarding cleanliness, lighting, comfort of seats, temperature, and so on); safety (explained by four attributes concerning travel safety and security); environmental pollution (depending on noise level in stations, noise level in vehicle, and vibration level in vehicle).
In most of the studies proposed in the literature, service quality is not directly linked to behavioural intentions. On the contrary, we hypothesize a direct influence of service quality on users' intentions to use transit again. We retain that service quality is an important predictor of users' intentions.

2.3. Proposed conceptual model

We propose the conceptual model shown in Figure 1, where the above described constructs are linked among them.
The first and most important hypothesis at the basis of our model is that passengers' perceptions and attitudes towards transit system as well as their opinions about service quality (SQ) influence the intentions of the same users to travel by LRT again. So, the key construct is "Behavioural intentions (BI)". All the other constructs are directly or indirectly linked to the key construct. We hypothesize that users' intentions to travel by LRT again are directly affected by their opinions about the service quality aspects, by their level of satisfaction (SA) with the overall service, and by their opinions about the other transport modes alternative to the LRT that they consider as attractive (AA). Also passengers' perceived costs (PC) and benefits (PB), as well as feeling towards transit (FTT), affect their future intentions towards LRT system, but indirectly through their satisfaction level (SA). The specific hypotheses characterizing the proposed model are described in the following.

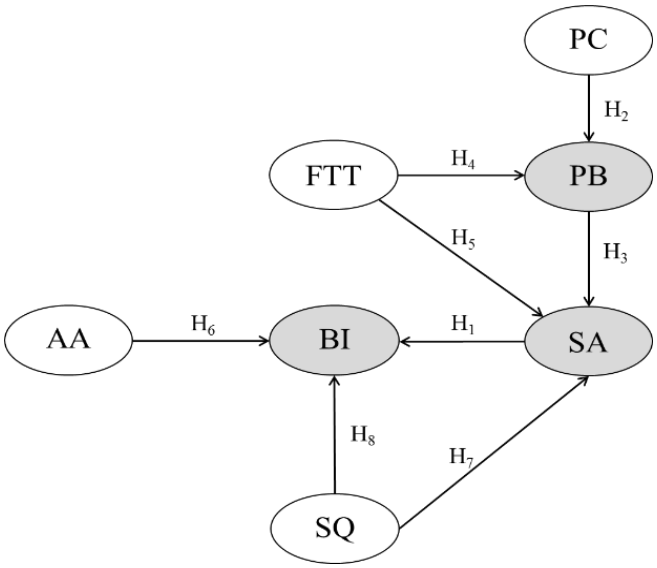

Figure 1. Conceptual model.

We hypothesize that satisfaction has a positive effect on behavioural intentions (H1) because an increase of the satisfaction levels entails an increase of users' intentions to use LRT again.
The second hypothesis is that perceived costs have a negative effect on perceived benefits (H2), that is the more the costs are considered as high, the less users perceive benefits from the use of the LRT. In turn perceived benefits have a positive effect on satisfaction (H3): the more users' perceive benefits from using transit system, the more they are satisfied with them.
Attractive alternatives are directly linked to behavioural intentions. In this case we hypothesize a negative effect (H6), meaning that if users prefer modes alternative to the LRT, the intentions to use again the LRT decrease.
We hypothesize that feeling towards transit are linked to perceived benefits, through a positive effect (H4). That is, the more users are inclined towards transit systems, the more they state to perceive benefits from the LRT. Similarly, feeling towards transit has a positive effect on satisfaction (H5) meaning that users who are more inclined towards transit systems tend to be more satisfied with the service.
We finally hypothesize that service quality has a positive direct effect on satisfaction (H7). This means that the increase of the levels of service quality entails a growth of users' satisfaction with the service. Analogously, we suppose that service quality has a positive direct effect on behavioural intentions (H8). More specifically, the more service quality levels increase, the more transit passengers use the service again.
Definitively, as we above specified, all the investigated constructs have effects on our key construct that is behavioural intentions. Specifically, service quality, satisfaction, and attractive alternatives have a direct effect on behavioural intentions, while the other constructs are indirectly linked to the key construct. All the effects are positive, except the effect of perceived costs on perceived benefits, and the effect of attractive alternatives on behavioural intentions, given the nature of the constructs explained by indicators representing aspects going in the opposite direction compared to the other constructs.

3. The case study

3.1. Territorial context and the analysed transit services

The transit system analysed in this paper is the LRT transit service of Seville, a city located in the south of Spain. Seville municipality registers a population of about 700,000 inhabitants in an area of

140.8 km^2. The population density is around 4.950 inhabitant/km^2. The metropolitan area represents a more extensive area (4,912.78 km^2) made up of 46 municipalities, with a population of about 1,500,000 inhabitants.
In 2012, the size of households was of 2.80, the activity and unemployment rate was 60.48% and 32.56% respectively, with a GDP per capita around 17,000 euro in the metropolitan area. This year, the number of private cars and motorcycles per 1,000 inhabitants was 466 and 131 respectively. Last mobility household survey was conducted in 2007, when the analyzed transit system still was not operating. Nevertheless, in 2007, the modal split showed a predominance of private vehicle (53.9%) against the public transport modes (10.4%) and walking and cycling modes (35.7%).
The analysed new LRT system came into operation in 2009. Currently, it consists of a sole line characterized by a length of 18 kilometers (10.08 kilometers underground) and 21 stations connecting four of the main municipalities in the metropolitan area of Seville. These four boroughs register a population of about 850,000 people. In 2013, the LRT carried more than 13.7 million passengers. This LRT system coexists with other transit alternatives in the city of Seville, such as suburban train (5 lines), metropolitan bus (64 lines), urban bus (51 lines), tram (1 line) and public bicycle (250 facilities and more than 2,500 bicycles for hiring), all of them coordinated by the Transport Consortium of Seville. Moreover, bicycles have reasonably increased their importance since numerous cycle paths were built (80 kilometers), and some parking for bicycles were created. In fact, most of the LRT stations have parking facilities for bicycles in their nearness (distances lower than 250 meters).

3.2. Survey design and data collection

The main aim of the survey was to capture customers' perceptions about different aspects of the LRT system, and customers' attitudes towards the service. The questionnaire was designed starting from the basis of the structure and the hypotheses of the above described conceptual model. The development of the questionnaire instrument was based on a detailed literature review carried out to identify the relevant items that defined the service and attitudes constructs towards the service (Cascetta and Carteni, 2014; Chou et al., 2014; Jen et al., 2011; Joewono and Kubota, 2007b; Lai and Chen, 2011; etc). More specifically, the selection of the service attributes was made by consulting the European standard EN 13816 (2003). The preliminary version of the questionnaire was checked by seven experts (service operators, transport managers and researchers), who recommend significant modifications. Before realizing the definitive survey, a pilot survey was conducted. Six trained interviewers realized on board about 200 face-to-face interviews.
The collected data were analysed by an iterative process based on Principal Component Analysis (PCA) and reliability analysis with the coefficient Cronbach alpha (Churchill, 1979) that was used as a scale purification method, similar to the one described by Hu and Jen (2006). This exploratory study aimed to define the number of service factors. Through this process, some modifications were performed to the questionnaire: removing inappropriate questions, changing the order of the sections, reformulating the way some attributes were introduced, and so on, in order to avoid possible misunderstanding of respondents and to eliminate any bias. The definitive questionnaire was addressed online to the users, via a web-based platform (Survey Monkey). For the distribution process, a card marked with a code was handed out to users at those metro stations with higher load of passengers (12 out to 21 stations). This included a brief description of the survey objectives, a link to the survey website, and information on a prize raffle organized in order to capture users' attention. The survey code provided each respondent with an individual access to the online survey, which was accessible on computers, smartphones, tablets, etc.
The final questionnaire consists of four different parts.
"Part A: Perceptions and attitudes towards transit system" aims to know users' attitudes towards the analysed service but also public transport service in general. The questions addressed to the users in this part represent the indicators explaining all the latent constructs of the model, except for the

service quality construct, which is the most structured and for this reason it was investigated in a section apart. The questions were measured on a 11-numeric scale defined as 0-totally disagree and 10-totally agree, except for an overall satisfaction question, which was rated on a 5-point Likert scale (1-lowest level of satisfaction, 5-highest level of satisfaction); this different scale is because we retain that users could find difficulties to express a more detailed judgement (on a scale from 0 to 10) for a generic question such as the level of the overall satisfaction.
"Part B: Passengers' opinions about service quality" aims to collect users' perceived quality levels of different service attributes and the overall service. This part focuses on the indicators explaining service quality construct; it contains 37 questions related to various aspects of the LRT service, such as availability of the service, accessibility, information, timeliness, attention to client, comfort, safety and environmental pollution. The perceived level of quality of each of the 37 attributes was asked on an 11-numeric scale from 0 to 10 (0 being of poor quality and 10 being of the highest quality). Respondents also rated their overall perceived level of quality of the LRT service according to the same scale.
Finally, "Part C: Your Trip" and "Part D: About you" collect users' travel habits and socioeconomic information.

19,863 cards were administered to users by four trained interviewers during a card delivery period of two weeks (May-June 2014) at LRT stations. For selecting the sample of users, an accidental non probabilistic technique was used, based on a casual consecutive selection of the statistical units. Users who were invited to participate in the study had three weeks for completing the online survey. Afterwards, 3,365 responses were registered (response rate value of 17.09%), of which 3,211 were valid for subsequent analysis.

3.3. Sample characteristics

In this section, we provide some information concerning sample's socioeconomic characteristics and travel habits, in order to trace a profile of the user who judged the service, before analysing users' perceptions of the service and their attitudes towards public transport. The sample is almost equally spread between females (53.3%) and males (46.7%). Most of the passengers are aged between 18 and 25 years (41.6%), followed by people between 26 and 40 years (28.8%) and 41 and 65 years (25.5%). The major part of respondents has a bachelor' degree at university (48.5%) or a degree of high school or professional education (41.9%). Respondents are mainly employees (43.7%) and students (41.5%). This last high percentage is surely due to the fact that young people have more familiarity with computer and other devices for conducting the survey, as well as they are probably more attracted by the prize. Almost one fifth of the sample did not give any information about income; most of the sample has a net monthly income equal or lower than 1,200 Euros (28.7%), while the rest of the sample is more or less evenly distributed among the other levels of incomes.
More than one half of the sample travelled by LRT every day (52.1%), and only 16.4% travels occasionally. Passengers mainly travelled by LRT to go to school (38.8%) or to work (35.5%). Travellers reach or move from the LRT station mainly by walking (62.6% and 86.3%, respectively), making a trip 12 minutes long on a total trip of about 34 minutes. The Transportation Agency's card is the ticket most frequently used (58.7%), followed by bonometro pass (24.1%). People were asked to give one or more reasons why they were travelling on the LRT on that occasion. The most popular reason is speed (66.5%), followed by comfort (50.0%) and lack of parking available (32.2%).

3.4. Perceptions and attitudes towards transit system

By observing the data reported in Table 1, we can affirm that passengers are satisfied with the LRT service because they state that travel by LRT attract them, they feel comfortable travelling by LRT, and the LRT meet their expectations.

Table 1. Statistics about perceptions and attitudes towards transit system

	Mean	St. dev.	Mode (%)
Satisfaction			
A1. Travelling by LRT attracts me	7.6	2.1	10 (21.1)
A2 I feel comfortable travelling by LRT	8.1	1.7	10 (24.7)
A3. The service of LRT meets my expectations	7.4	2.2	8 (21.4)
Perceived costs			
A4. I believe that the price is high.	7.3	2.6	10 (25.9)
A5. I believe that the ticket price exceeds the costs of the LRT (staff, electricity, maintenance, etc.).	6.2	2.7	5 (18.0)
A6. The LRT stations are far away from my origin and/or destination points.	4.8	3.5	0 (17.1)
A7. I believe the waiting time at the platforms is too long.	3.5	2.8	0 (17.6)
A8. I consider the costs of travelling by LRT to be high (time, money and comfort).	5.4	2.9	5 (14.8)
Perceived benefits			
A9. The service of LRT is good	7.9	1.7	8 (25.7)
A10. I believe that the relationship between quality and price is appropriate	5.5	2.5	7 (15.8)
A11. The schedule meets my needs.	6.8	2.9	8 (17.5)
A12. The attention to the costumer is good	7.7	2.1	8 (21.1)
A13. I like the LRT because of the speed of trip.	8.4	1.8	9 (22.5)
Attractive alternatives			
A14. I believe that there are good alternatives of public transportation to the LRT (e.g. bus, taxi).	4.7	2.7	5 (19.5)
A15. I do not mind which transportation mode to use, if it meets my needs	5.9	2.9	5 (18.3)
A16. I think that other modes of transport (e.g car, bus, taxi) offer more advantages than the LRT.	4.2	2.6	5 (23.2)
Behavioural intention			
A17. I will travel by LRT again under the same conditions (money, time and comfort)	8.0	2.0	10 (31.0)
A18. I use to recommend others to use the LRT	7.6	2.3	10 (24.7)
A19. Surely. I will use the LRT service again	9.0	1.6	10 (57.8)
Feeling towards transit			
A20. I feel that using public transport is consistent with my lifestyle.	6.7	2.5	5 (21.3)
A21. Independently of my trip purpose, I always prefer to travel by public transit	5.2	3.0	5 (21.4)
A22. I feel that using public transit I contribute to protect the environment.	7.8	2.3	10 (31.2)
A23. I think that using public transport influences the people´s opinion about me.	3.7	3.0	5 (29.0)
A24. I like that people know that I use public transit.	5.7	2.7	5 (38.6)
A25. I like people who use public transit	6.8	2.4	5 (31.2)
OS. Overall satisfaction with the service	4.0	0.8	4 (54.7)

Perceived costs sustained by passengers travelling by LRT are not very well judged when we talk about monetary costs, while costs in terms of distance from the station, or waiting time, or the general costs (time, money, comfort, etc.) are better judged. However, passengers tend to appraise monetary costs as high even though they are not dissatisfied with them, being afraid of a possible rise in price if their evaluation is positive (de Oña and de Oña, 2015b).

The benefits of travelling by LRT are perceived in a good way. As we expected, rates expressed about the questions concerning benefits are in agree with the rates expressed about satisfaction, being the questions similar. By analysing the responses about the questions concerning the attractive alternative modes we can say that passengers prefer the LRT to other public transport modes, if we observe the results concerning the first and the last questions of the block. The other question seems to be not well understood or particularly considered by the respondents, especially the question “I do not mind which transportation mode to use, if meets my needs”, which registered an average rate of 5.9, a high enough standard deviation (2.9) and a mode of 5.

Responses on passengers’ behavioural intentions suggest that LRT will be surely used again, also under the same conditions. We can affirm that passengers are really convinced to use again the LRT, if we observe the values of the standard deviation (which are lower than other responses) and the values of the mode: almost 60% of users expressed a rate of 10 for confirming that they will surely use the LRT again.

Users expressed opinions about their attitudes towards transit. By observing the values of the standard deviation (highest than other responses) and of the mode (mainly concentrated on the rate 5) we could affirm that users did not well understand the questions or they did not show particular

interest towards these issues. However, the average rates suggest that users are aware that using public transit contribute to protect the environment, they like people using transit services, but at the same time they don't think that using public transport influence people's opinions about themselves.
At the end of the Part A of the questionnaire users expressed a rate (on the overall satisfaction with the service (on a 5-point Likert scale): the average rate is 4 and more than 50% of users expressed a rate equal to 5; so, users are very satisfied with the LRT service.

3.5. Passengers' opinions about service quality

Table 2 shows the analysis of the rates expressed by the users about the level of quality of the characteristics of the LRT service, or the service quality attributes describing the service.
Factors concerning availability of the service registered average rates ranging from about 6 (for the attribute "operating hours of the service") to almost 8 (for the attribute "regularity of the service").
Users positively judged the accessibility to the service by expressing high rates (around 8) for the attributes describing these aspects of the service in terms of access services to the vehicles and to the tickets.
Concerning information services, users expressed the same opinions both for information on the vehicles and in stations, registering the same average rate of 7.8, the same standard deviation (1.9), and also the same mode (8), while information through internet, phone, etc. was less appreciated by users (average rate of 6.3) and it registered a high value of standard deviation (2.6); moreover one fifth of the sample didn't give an answer. Users are very satisfied with the aspect concerning notice boards with information and directions in stations (average rate equal to 8.5, standard deviation of 1.5).
Respondents are very satisfied with the punctuality of the LRT (average rate of 8.5, standard deviation of 1.5) and speed of the trip (average rate of 8.1, standard deviation of 1.8), and satisfied enough with the waiting time on the platform (7.3).
Also the conduct of the employees was really appreciated, in fact we can observe average rates around 8 of all the attributes describing "Attention to client" aspect, except for the attribute "performance of the Customer Service", which registers an average rate of 7, but about 30% of users didn't give an answer; maybe because they didn't use this service for customers.
"Comfort" is described by several service attributes concerning different aspects: cleanliness, lighting, seats, temperature, driving, and even cell-phone coverage. We registered different opinions about all the attributes concerning comfort. Users are very satisfied with cleanliness and also with lighting (both of the station and the vehicle); we registered average values around 8 and low standard deviation around 1.5. They are less satisfied with the comfort linked to the seats (average rates around 6 both for seat availability in stations and on vehicle). Temperature on vehicle and in stations, and appropriate driving registered average rates around 7. Finally, users are not satisfied with cell-phone and 3G coverage at stations and on vehicle (average rate equal to 2.7), due to the underground part of the LRT line gets out of coverage; the judgement about this attribute is very far from the opinions about the other attributes traditionally describing comfort.

Table 2. Statistics about passengers' opinions about service quality

	Mean	St. dev.	Mode (%)
Availability			
B1. Operating hours of the service	5.8	2.9	8 (17.2)
B2. Number of trains per day (frequency of the service)	7.3	2.1	8 (24.6)
B3. Proximity of stops to origin and/or destination	6.3	2.9	8 (16.1)
B4. Regularity of the service (absence of interruptions caused by breakdown or incidents)	7.7	2.1	8 (23.8)
Accessibility			
B5. Easy connection with other transportation modes such as bike rental, taxis, buses, etc.	7.5	2.1	8 (20.6)
B6. Easy access to stations and platforms from the street	8.2	1.7	10 (24.6)
B7. Operation of elevators, escalators, etc.	8.2	1.8	10 (27.9)
B8. Easy access of persons with reduced mobility	8.0	2.0	10 (24.4)

B9. Operation of ticket validators at the entrance and exit of stations	7.9	2.0	10 (22.9)
B10. Easy use of ticket vending machines	7.5	2.1	8 (21.2)
Information			
B11. Updated, precise and reliable information on vehicles (operating hours, stops, etc.)	7.8	1.9	8 (22.1)
B12. Updated, precise and reliable information in stations (price, operating hours, stops, etc.)	7.8	1.9	8 (22.4)
B13. Information available through other communication technologies (internet, phone, etc.)	6.4	2.6	5 (13.3)
B14. Clear and simple notice boards with information and directions in stations	8.5	1.5	10 (29.9)
Timeliness			
B15. Punctuality	8.5	1.5	10 (29.9)
B16. Speed of the trip	8.1	1.8	9 (25.3)
B17. Waiting time on the platform	7.3	2.1	8 (23.6)
Attention to client			
B18. Appearance of employees	8.0	1.8	8 (21.8)
B19. Courtesy of the employees	7.8	2.0	8 (20.4)
B20. Effectiveness and speed of employees to give information and deal with user´s daily problems	7.6	2.2	8 (18.3)
B21. Performance of the Customer Service (offices, web site, phone, deal with complaints, etc.)	7.0	2.4	8 (12.6)
Comfort			
B22. Cleanliness of the stations	8.5	1.5	10 (32.0)
B23. Cleanliness of the vehicle	8.1	1.7	9 (24.1)
B24. Lightning in stations	8.4	1.5	10 (27.0)
B25. Lightning on vehicle	8.3	1.5	9 (25.5)
B26. Seat availability in stations and on platforms	6.2	2.6	8 (15.5)
B27. Level of comfort on vehicle (seat availability or enough room while standing up)	6.4	2.4	8 (18.6)
B28. Temperature and ventilation system on vehicle and in stations	7.3	2.2	8 (21.6)
B29. Appropriate driving	7.2	2.2	8 (21.6)
B30. Coverage to use cell-phone and 3G at stations and in vehicles.	2.7	3.0	0 (36.8)
Safety			
B31. Sense of security against accidents while traveling (crash/vehicle derailment)	7.3	2.2	8 (20.5)
B32. Sense of security against theft and aggression in stations and on vehicles	7.3	2.2	8 (20.5)
B33. Sense of security against slipping, falling and accidents at vehicle doors and escalators.	7.1	2.3	8 (20.6)
B34. Signage of emergency exits and extinguishers	7.6	2.0	8 (21.1)
Environmental pollution			
B35. Noise level in stations	6.5	2.4	8 (18.9)
B36. Noise level on the vehicle	6.4	2.4	8 (20.0)
B37. Vibration level on the vehicle	6.3	2.3	8 (18.4)
OSQ. Overall service quality	7.6	1.5	8 (32.0)

The most traditional factors concerning “Safety” (against accidents, against aggressions, against accidents at vehicle doors) registered similar opinions (average rates around 7). The factor “signage of emergency exits and extinguishers” reached an average rate of 7.6, but about 8% of users did not judge this factor, maybe because they had not paid attention to this aspect.
All the characteristics concerning “Environmental Pollution” aspect were similarly judged: both noise level in stations and on the vehicle, and also vibration level on the vehicle registered average rates around 6.5.
By observing the average rates registered for the various service aspects, we can conclude that “Timeliness” and “Accessibility” aspects are the service characteristics better judged by the passengers, followed by “Information”, “Comfort” (if we don’t consider the attribute linked to cell-phone coverage) and “Attention to client”. The aspect worse judged is “Environmental Pollution” which however registered average rates above 6.
Also at the end of this part of the questionnaire, a rate of overall service quality was asked to the users. They expressed an average rate equal to 7.6, and the standard deviation is quite low (1.5). We can say that this judgement agrees with the one expressed at the end of the part A of the questionnaire.

4. The structural equation model

4.1. Theoretical framework

Structural equation models (SEM) allow complex relationships between one or more independent variables and one or more dependent variables to be analysed. SEM can conceptually be used to

answer any research question involving the indirect or direct observation of one or more independent or dependent variables. The main objective of SEM is to determine and verify a proposed causal process or model. Therefore, SEM is a confirmatory technique according to which the analyst must specify a full model a priori and test the model based on the sample and variables included in his/her measurements (Hair et al., 2010).

Just for these reasons, we decided to test our proposed conceptual model through SEM.

Specifically, we have three dependent variables, corresponding to the constructs relating to perceived benefits, satisfaction, and behavioural intentions. In addition, "Behavioural intentions", which is the key construct of our conceptual model, depends also on other two dependent variables; so, it is the main dependent variable of the model. The other four constructs included in the conceptual model are independent variables and regards perceived costs, service quality, attractive alternative transport modes, and passengers' feeling towards transit systems.

SEM permits to analyse theoretical constructs that cannot be directly observed. These abstract phenomena are named as latent variables. Our seven constructs represent abstract phenomena which must be represented by latent variables.

Because latent variables are not directly observed, they cannot be directly measured. For this reason, these unobserved variables must be linked to observable or manifest variables; within the context of SEM methodology, they serve as indicators of the underlying construct which they are presumed to represent.

In our case, we have seven main latent variables, each measured by a series of indicators as we specified in the description of each construct. We now make a digression concerning the latent variable representing service quality. As we have specified in the section about the description of "Service quality" construct, the corresponding latent variable is in turn connected to other eight latent variables representing eight service aspects, which are directly linked to a series of observed indicators. So, in our model we have more than seven latent variables, but when we talk about the core of our model we refer to the seven latent variables representing the seven constructs of our conceptual model.

According to the SEM methodology, the independent variables are named as exogenous latent variables; they "cause" fluctuations in the values of other latent variables in the model. On the other hand, the dependent variables are named as endogenous latent variables; they are influenced by the exogenous variables in the model, either directly or indirectly. So, the core of our structural equation model contains three endogenous latent variables and four exogenous ones.

A structural equation model is composed of two parts: a structural model and a measurement model. The measurement model depicts the links between the latent variables and their observed measures, and the structural model depicts the links among the latent variables themselves (Byrne, 2010). A measurement error is associated with each observed variable; this error reflects on the observed variable adequacy in measuring the related factor. Instead, a residual error is considered in the prediction of each unobserved endogenous factor; this residual term represents error in the prediction of endogenous factors from exogenous factors.

A model that specifies direction of cause from one direction only is termed a recursive model; one that allows for reciprocal or feedback effects is termed a non-recursive model. Our proposed model is a recursive model.

Before elaborating SEM, a rule of thumb is conducting an explorative factor analysis (EFA) and a confirmative factor analysis (CFA). As well known, EFA is an exploratory or descriptive data technique to determine the appropriate number of common factors, and to ascertain which measured variables are reasonable indicators of the various latent dimensions. Instead, CFA is conducted in order to assess the construct validity of the measurement model when the underlying structure of the model has been established on prior empirical and theoretical grounds.

As a support of the proposed model, an EFA elaborated in a previous research conducted by de Oña et al. (2015) was considered. The authors applied an iterative process based on Principal Component Analysis (PCA) to better assess respondents' scores on Service Quality. The results

almost entirely confirm the partition of variables among the eight factors defined in the questionnaire, but present some differences. We retained to maintain the relationships between observed variables and factors presented in the questionnaire, because we have interest to investigate about these factors as defined.
CFA was developed to assess the construct validity of the measurement model that was assessed by analyzing four components: convergent validity, average variance extracted, construct reliability and discriminant validity (Hair et al., 2010). Convergent validity indicates that the items related to a construct converge or share a high proportion of variance in common. The amount of convergent validity can be assumed to be satisfactory if the factor loadings of the items that are related to a construct are statistically significant and higher than 0.5. Among 152 observed variables, only two showed values of factor loadings lower than 0.5.
Moreover, the average variance extracted (AVE) is calculated as the mean variance extracted for the items loading on a construct and its recommended value is 0.5 or higher. This statistics can be considered as acceptable, although some constructs present AVE higher than 0.4.
Reliability can be assessed by construct reliability (CRE), which indicates a good reliability if they show values 0.7 or higher. In this study, all the constructs present good reliability, except for AA with CRE equal to 0.6.
Last, discriminant validity refers to the fact that a construct is unique and captures some phenomena that another measure does not explain. We can assess discriminant validity if the average variance extracted for any two constructs is higher than the squared intercorrelation among these two constructs. To this regard, two pairs of constructs do not verify discriminant validity. In particular, SA and PB appear to capture the same aspects. Looking at table 1, the difference between the observed variables related the two factors is evident. SA refers to the overall perceived satisfaction about LRT as a new operating transit system in the city of Seville, whereas PB relates to passengers' perceptions about benefits derived from specific characteristics of the service. Similar considerations can be made about the relationships between SA and SQ. In this case, SQ regards the passengers' perception of transit service quality considered as operating technical parameters. We retain that these pairs of constructs do not verify discriminant validity because the variables explaining these are based on passengers' perception about LRT service. In both cases, we chose to run the SEM preserving the proposed conceptual model described in figure 1.

4.2. Model goodness of fit

Table 3 summarizes the goodness of fit statistics obtained from the calibration of the proposed SEM, together with the dimensions of the model in terms of variables and sample size.
The model was calibrated on the basis of 3,211 observations. The total number of variables is 152: 63 observed variables and 89 unobserved variables, which are the 11 latent endogenous variables (related to perceived benefits, satisfaction, behavioural intentions, and the eight service aspects characterizing service quality), the four latent exogenous variables (concerning perceived costs, attractive alternatives, feeling towards transit, and service quality), and the 74 errors associated to all the observed variables and the latent endogenous factors. The 152 variables can be grouped in 78 exogenous variables and 74 endogenous ones. The 78 exogenous variables are the four latent variables plus all the errors (74). The 74 endogenous variables are the eleven latent variables plus all the observed variables (63).

Table 3. Goodness of fit indices

Indices	Statistics value
Sample size	3211
N. of variables	152
N. of observed variables	63
N. of unobserved variables	89

Indices	Statistics value
N. of exogenous variables	78
N. of endogenous variables	74
N. of sample moments	2016
N. of estimated parameters	142
Degrees of Freedom (DoF)	1874
Chi-square/DoF	13.55
GFI	0.761
AGFI	0.743
NFI	0.775
CFI	0.788
RMSEA	0.063

Different researchers in the field of statistics have recommended different permissible values for parameters of goodness of fit. Generally, Chi-square/DoF ratios of the order of 3:1 are associated with better-fitting models, except in circumstances with larger samples (greater than 750) or other extenuating circumstances, such as high degree of model complexity (Hair et al., 2010). In this case the value of Chi-square/DoF is quite acceptable because the model is based on 3,211 observations. The range of values for GFI (goodness-of-fit index), AGFI (adjusted goodness-of-fit index), and CFI (comparative fit index) is generally from 0 to 1, where 1 indicates the best fit (Hair et al., 2010). We obtained values of GFI, AGFI, and CFI almost equal to 0.8, that are acceptable in this case, where a great amount of variables is treated.
According to Browne and Cudeck (1993), RMSEA (Root mean square error of approximation) values ≤ .05 can be considered as a good fit, values between 0.05 and 0.08 as an adequate fit, and values between 0.08 and 0.10 as a mediocre fit, whereas values > 0.10 are not acceptable. We obtained a value of about 0.06, which indicates an adequate fit.
Definitively, by considering all the indices we can define our model fit as adequate.
In the following, the results of the model coefficients are described and briefly discussed. Specifically, the next sections show the values of the regression weights of the observed variables, that explain each latent variable.

4.3. “Satisfaction” latent variable

“Satisfaction” (SA) is mostly explained by the satisfaction level with the overall service expressed by the users in terms of rate (OS), as we can see by observing the values of the standardized regression weights (Table 4). Satisfaction is also well represented by the indicator measuring the successful of the service in terms of reaching the expectations of the users (A3).

Table 4. Model results: “Satisfaction” latent variable

			Regression Weights	S.E.	P	St. Regression Weights
Observed endogenous variable		*Latent endogenous variable*				
A1	<---	SA	1.028	0.040	***	0.540
A2	<---	SA	1.000	-		0.643
A3	<---	SA	1.295	0.043	***	0.661
OS	<---	SA	0.503	0.016	***	0.726

*** Statistically significant at a level of 5%

4.4. “Perceived costs” latent variable

“Perceived costs” (PC) latent variable is mainly explained by the indicators concerning monetary costs (price), as shown by the standardized regression weights of the variables “A4” and “A5”;

other costs such as waiting time (A7) or access time (A6) less represent perceived costs (Table 5).

Table 5. Model results: “Perceived costs” latent variable

			Regression Weights	S.E.	P	St. Regression Weights
Observed endogenous variable		*Latent exogenous variable*				
A4	<---	PC	2.397	0.172	***	0.826
A5	<---	PC	2.357	0.169	***	0.810
A6	<---	PC	1.000	-		0.262
A7	<---	PC	1.047	0.092	***	0.336
A8	<---	PC	2.488	0.179	***	0.785

*** Statistically significant at a level of 5%

4.5. “Perceived benefits” latent variable

“Perceived benefits” (PB) latent variable is mostly explained by the general indicator regarding the goodness of the LRT (A9); the other more specific indicators, regarding aspects such as schedule, attention to the customer or travel speed, present lower weights (Table 6).

Table 6. Model results: “Perceived benefits” latent variable

			Regression Weights	S.E.	P	St. Regression Weights
Observed endogenous variable		*Latent endogenous variable*				
A9	<---	PB	0.910	0.029	***	0.802
A10	<---	PB	1.000	-		0.586
A11	<---	PB	0.966	0.042	***	0.494
A12	<---	PB	0.814	0.031	***	0.592
A13	<---	PB	0.731	0.027	***	0.614

*** Statistically significant at a level of 5%

4.6. “Attractive alternatives” latent variable

The latent variable concerning attractive alternatives (AA) is explained enough by both the related indicators (Table 7). The coefficient of the indicator “A15” was not significant; for this reason, we decided to not include it in the model. Moreover, as already discussed in section 3.4, the question linked to this indicator seems to be not well understood or particularly considered by the respondents.

Table 7. Model results: “Attractive alternatives” latent variable

			Regression Weights	S.E.	P	St. Regression Weights
Observed endogenous variable		*Latent exogenous variable*				
A14	<---	AA	1.000	-		0.484
A16	<---	AA	1.258	0.254	***	0.639

*** Statistically significant at a level of 5%

4.7. “Behavioural intentions” latent variable

Behavioural intentions (BI) are almost similarly explained by all the related indicators (Table 8). However, the variable representing the intention of the users to travel by LRT again under the same condition (A17) has the highest weight. This confirms the fact that users are satisfied with the current service, as also shown by the judgements about the overall service.

Table 8. Model results: “Behavioural intentions” latent variable

			Regression Weights	S.E.	P	St. Regression Weights
Observed endogenous variable		*Latent endogenous variable*				
A17	<---	BI	1.000	-		0.758
A18	<---	BI	0.995	0.032	***	0.656
A19	<---	BI	0.742	0.022	***	0.716

*** Statistically significant at a level of 5%

4.8. "Feeling towards transit" latent variable

"Feeling towards transit" (FTT) latent variable is mostly represented by the indicators measuring how much using transit is consistent with lifestyle (A20) and the preference of users towards people using transit (A25). Users consider enough also the pleasure of make known being a transit user (A24) (Table 9).

Table 9. Model results: "Feeling towards transit" latent variable

			Regression Weights	S.E.	P	St. Regression Weights
Observed endogenous variable		*Latent exogenous variable*				
A20	<---	FTT	1.000	-		0.741
A21	<---	FTT	1.017	0.031	***	0.642
A22	<---	FTT	0.739	0.023	***	0.611
A23	<---	FTT	0.718	0.030	***	0.466
A24	<---	FTT	0.986	0.028	***	0.699
A25	<---	FTT	0.918	0.024	***	0.737

*** Statistically significant at a level of 5%

4.9. "Service quality" latent variable

The most articulated latent variable is "Service quality" (SQ). It is explained by eight latent endogenous variables representing the eight investigated service quality aspects, which are in turn explained by several observed indicators evaluated by users in Part B of the questionnaire.
By analysing the regression standardized weights reported in Table 10, we can say that service quality is mostly explained by the aspects concerning comfort, accessibility, and timeliness. Also information, availability and safety have relevant weights; the least important aspect is surely environmental pollution. From the analysis of the average rates, we found that the attributes linked to environmental pollution registered quite low satisfaction rates. So, being users satisfied enough with the overall service, it is correct that environmental pollution least influence service quality. We agree also with the results concerning the highest weights: we retain that comfort is a fundamental aspect when we talk about LRT services; passengers need cleanliness, lighting, comfort of seats both on vehicles and at stations when they travel by LRT. Also accessibility is very important for a transit system like the LRT because passengers have to easily purchase the tickets, access to platforms, and on the vehicles.

Table 10. Model results: "Service quality" latent variable

			Regression Weights	S.E.	P	St. Regression Weights
Observed exogenous variable		*Latent exogenous variable*				
Overall Service Quality	<---	SQ	1.000	-		0.736
Latent endogenous variable		*Latent exogenous variable*				
AVA	<---	SQ	1.148	0.044	***	0.792
ACC	<---	SQ	1.104	0.030	***	0.854
INFO	<---	SQ	1.029	0.028	***	0.818
TIME	<---	SQ	1.119	0.033	***	0.841

			Regression Weights	S.E.	P	St. Regression Weights
ATT.CL	<---	SQ	1.189	0.033	***	0.749
CONF	<---	SQ	0.974	0.024	***	0.875
SAFE	<---	SQ	1.218	0.034	***	0.792
POLL	<---	SQ	0.929	0.036	***	0.512

*** Statistically significant at a level of 5%

4.9.1. "Availability" latent variable

The aspect concerning availability of the service (AVA) is mostly explained by the frequency of the runs (B2), and also by the regularity of the service (B4) (Table 11), which can be considered the factors mostly expressing the existence of the service.

Table 11. Model results: "Availability" latent variable

			Regression Weights	S.E.	P	St. Regression Weights
Observed endogenous variable		*Latent endogenous variable*				
B1	<---	AVA	1.000	-		0.565
B2	<---	AVA	0.983	0.035	***	0.755
B3	<---	AVA	0.735	0.039	***	0.414
B4	<---	AVA	0.778	0.031	***	0.615

*** Statistically significant at a level of 5%

4.9.2. "Accessibility" latent variable

Accessibility (ACC) is mainly explained by the factors regarding the easiness to access to stations and platforms (B6 and B7), and less by the factors concerning ticket machines (B9 and B10), or the connection with other transport modes (B5) (Table 12). So, we can conclude that for users LRT accessibility means to access to the physical system.

Table 12. Model results: "Accessibility" latent variable

			Regression Weights	S.E.	P	St. Regression Weights
Observed endogenous variable		*Latent endogenous variable*				
B5	<---	ACC	0.907	0.026	***	0.642
B6	<---	ACC	0.938	0.021	***	0.801
B7	<---	ACC	0.913	0.022	***	0.748
B8	<---	ACC	1.000	-		0.737
B9	<---	ACC	0.953	0.026	***	0.682
B10	<---	ACC	0.989	0.027	***	0.667

*** Statistically significant at a level of 5%

4.9.3. "Information" latent variable

Information (INF) is mostly represented by the availability to have information on board and at stations (B11 and B12), while the possibility to have information through other media is not relevant for the users (B13) (Table 13), maybe because LRT services are high frequency services and users do not need pre-trip information through other information systems.

Table 13. Model results: "Information" latent variable

			Regression Weights	S.E.	P	St. Regression Weights
Observed endogenous variable		*Latent endogenous variable*				
B11	<---	INFO	1.107	0.024	***	0.809

			Regression Weights	S.E.	P	St. Regression Weights
B12	<---	INFO	1.123	0.023	***	0.827
B13	<---	INFO	1.013	0.031	***	0.586
B14	<---	INFO	1.000	-		0.779

*** Statistically significant at a level of 5%

4.9.4. "Timeliness" latent variable

Factors mostly influencing timeliness (TIME) are linked to punctuality and speed, which have the same weight (Table 14), as well as a very similar judgement expressed by the users, as we can observe in Table 2.

Table 14. Model results: "Timeliness" latent variable

			Regression Weights	S.E.	P	St. Regression Weights
Observed endogenous variable		*Latent endogenous variable*				
B15	<---	TIME	0.823	0.021	***	0.789
B16	<---	TIME	0.942	0.024	***	0.789
B17	<---	TIME	1.000	-		0.707

*** Statistically significant at a level of 5%

4.9.5. "Attention to client" latent variable

Attention to client (ATT.CL.) is similarly explained by all the indicators describing it; however, courtesy and timeliness of the employees (B19 and B20) are the most relevant factors for the users (Table 15).

Table 15. Model results: "Attention to client" latent variable

			Regression Weights	S.E.	P	St. Regression Weights
Observed endogenous variable		*Latent endogenous variable*				
B18	<---	ATT.CL	0.811	0.015	***	0.813
B19	<---	ATT.CL	0.983	0.017	***	0.873
B20	<---	ATT.CL	1.059	0.018	***	0.876
B21	<---	ATT.CL	1.000	-		0.825

*** Statistically significant at a level of 5%

4.9.6. "Comfort" latent variable

Comfort latent variable (CONF) is mostly explained by lighting and cleanliness, both in stations and vehicles (B24 and B25, and B22 and B23). The other factors of comfort, such as temperature (B28) or comfort of seats (B26 and B27) are secondary for the passengers (Table 16). The least relevant factor concerns the cell-phone coverage (B30), which is not evidently considered by the passengers as a comfort peculiarity. Moreover, users are not satisfied with it, differently from the other comfort characteristics, as above described in section 3.5.

Table 16. Model results: "Comfort" latent variable

			Regression Weights	S.E.	P	St. Regression Weights
Observed endogenous variable		*Latent endogenous variable*				
B22	<---	CONF	0.939	0.019	***	0.770
B23	<---	CONF	1.084	0.022	***	0.770
B24	<---	CONF	0.999	0.019	***	0.814

			Regression Weights	S.E.	P	St. Regression Weights
B25	<---	CONF	1.000	-		0.810
B26	<---	CONF	1.060	0.037	***	0.500
B27	<---	CONF	1.086	0.033	***	0.558
B28	<---	CONF	1.068	0.030	***	0.597
B29	<---	CONF	1.094	0.029	***	0.626
B30	<---	CONF	0.348	0.044	***	0.146

*** Statistically significant at a level of 5%

4.9.7. "Safety" latent variable

The regression weights obtained for the attributes describing safety (SAFE) are very similar among them. However, the highest one relates to travel safety against accidents (B31) (Table 17).

Table 17. Model results: "Safety" latent variable

			Regression Weights	S.E.	P	St. Regression Weights
Observed endogenous variable		*Latent endogenous variable*				
B31	<---	SAFE	1.000	-		0.779
B32	<---	SAFE	0.945	0.023	***	0.739
B33	<---	SAFE	1.012	0.024	***	0.755
B34	<---	SAFE	0.879	0.020	***	0.765

*** Statistically significant at a level of 5%

4.8.8. "Environmental Pollution" latent variable

Finally, environmental pollution (POLL) is mostly explained by noise level on the vehicle (B36), and also by vibration level (B37). Noise level in station is less relevant for the users (B35) (Table 18).

Table 18. Model results: "Environmental Pollution" latent variable

			Regression Weights	S.E.	P	St. Regression Weights
Observed endogenous variable		*Latent endogenous variable*				
B35	<---	POLL	0.956	0.018	***	0.799
B36	<---	POLL	1.042	0.018	***	0.883
B37	<---	POLL	1.000	-		0.862

*** Statistically significant at a level of 5%

4.10. The core of the structural equation model

4.10.1. Testing of hypotheses

The hypotheses at the basis of our conceptual model (Figure 1) regards the relationship among the above described seven constructs which constitute the core of our structural equation model where seven latent variables are connected. The core of the proposed model has three latent endogenous variables or dependent variables representing the latent constructs concerning perceived benefits (PB), satisfaction (SA), and behavioural intention (BI), which is our key construct. The latent exogenous variables are linked to the constructs "Perceived costs" (PC), "Attractive alternatives" (AA), "Feeling towards transit" (FTT), "Service Quality" (SQ).

Table 19. Model results: "Satisfaction" latent variable

			Regression Weights	S.E.	P	St. Regression Weights
Latent endogenous variable		*Latent exogenous variable*				
PB	<---	PC	-0.710	0.061	***	-0.441
PB	<---	FTT	0.262	0.017	***	0.335
SA	<---	FTT	0.037	0.010	***	0.067
BI	<---	AA	-0.205	0.031	***	-0.186
BI	<---	SQ	0.386	0.027	***	0.302
SA	<---	SQ	0.329	0.017	***	0.355
Latent endogenous variable		*Latent endogenous variable*				
BI	<---	SA	0.644	0.033	***	0.467
SA	<---	PB	0.528	0.022	***	0.751

*** Statistically significant at a level of 5%

By observing the values reported in Table 19 we can conclude that all our hypotheses are significant, being significant the values of the regression weights. Specifically, PC has a negative effect on PB, as supposed according to H2 hypothesis, while FTT has a positive effect on the same variable, as hypothesized in H4. By analysing the relationship concerning the latent variable SA, we observe that users' satisfaction is positively influenced by PB (as defined in H3), FTT (confirming H5) and SQ (as supposed according to H7). Finally, both satisfaction and service quality have a positive effect on BI (as supposed according to H1 and H6 hypotheses), while AA negatively affects BI, confirming H8 hypothesis.

4.10.2. Direct and indirect effects

Table 20 summarizes the effects among the latent variables. In order to provide for a complete description, given that we have three dependent variables (PB, SA, and BI), we show the effect of the other variables on these three ones. However, the variable BI is the most important for us; in fact, also the dependent variables PB and SA have in turn influence on BI.
We can affirm that PB is mostly influenced by PC, and less by FTT. This means that users' perceptions about costs of the LRT mostly affect their perceptions of the benefits of the system than their feeling toward transit systems in general.
We observe that SA dependent variable is mainly influenced by PB; also SQ has a relevant weight on SA, while FFT not very much influences SA, even if the indirect effect is relevant enough. These results suggest that the benefits gained by LRT users from travelling by LRT affect their satisfaction with the service. Once again feeling toward transit systems in general less affects perceptions of users about the LRT (in terms of satisfaction). Finally, as expected perceived service quality has a relevant link with satisfaction.
We observe that BI, the most important variable of our study, is mostly affected by SQ and SA, if we observe the values of the total effects. The direct effect of AA is the least one. PC and FTT have little indirect effects on BI. The obtained values mean that the intentions of LRT system users to travel again by LRT are mainly influenced by opinions about the characteristics of the service and their satisfaction level with the service. On the other hand, opinions about transport modes alternative to the LRT are not relevant for their decisions to continue to travel by LRT in the future.

Table 20. Direct, indirect and total effect.

Causal path	Direct effect	Indirect effect	Total effect
SA → BI	0.467	-	0.467
PC → BI	-	-0.155	-0.155
PB → BI	-	0.351	0.351
AA → BI	-0.186	-	-0.186
FTT → BI	-	0.149	0.149

Causal path	Direct effect	Indirect effect	Total effect
SQ → BI	0.302	0.166	0.468
PC → SA	-	-0.331	-0.331
PB → SA	0.751	-	0.751
FTT → SA	0.067	0.252	0.319
SQ → SA	0.355	-	0.355
PC → PB	-0.441	-	-0.441
FTT → PB	0.335	-	0.335

5. Conclusions and managerial implications

In order to better understanding of transit passengers' behavioural intentions, we propose in this paper a model for predicting the intentions of passengers to continue to use transit services in the future. We consider that this is a very important issue given the necessity to increase the use of transit systems to the detriment of the private transport modes in order to reach a sustainable mobility system, mainly in urban areas. We have proposed a model based on attitudinal perspectives from transportation, planned behaviour and marketing literature.

Being behavioural intentions an abstract concept in turn linked to other abstract concepts such as service quality, passengers' satisfaction and so on, we decided to analyse the relationship among these concepts through structural equation models, which have the ability to consider latent construct that are difficult to be measured.

The proposed model considers a large number of latent constructs that influence directly or indirectly behavioural intentions, with the purpose of analyse the global phenomena that explains the intentions of LRT users towards using again this system. The model includes the "service quality – satisfaction – behavioural intentions" paradigm, the planned behaviour theory and the perceived value theory. Additionally, we include in the model two latent construct that, as far as the authors' knowledge, have not been previously analysed together: feeling toward transit and attractive alternatives. Specifically, we propose an integrated model that tries to clarify the relationships between service quality, satisfaction, behavioural intentions, perceived benefit, perceived cost, attractive alternatives and feeling toward transit. This conceptual model has been validated for the LRT system in Seville.

The findings presented in this work support our hypotheses and can provide public transit managers for useful insights in order to better design their marketing and promotion strategies to retain actual passengers and to attract more transit riders. Although the results cannot demonstrate strong conclusions, the study clearly highlights a tendency. From a managerial point of view, the model justify the effort of public managers to improve transit service quality, satisfaction, perceived benefit, costs, and feeling towards transit; and to reduce the attractiveness of other transport mode alternatives (e.g., private vehicle), in order to increase the use of transit systems. The model also suggests that any strategy trying to improve only one of these variables would be an incomplete strategy if we do not consider the effects of the others variables.

Our proposed model, compared to other similar models proposed in the scientific literature about LRT systems, presents several peculiarities. The model includes direct and indirect effects that could help to identify the process of how transit passengers behavioural intentions are formed. As an example, most of the previous studies suggest that satisfaction is the link between service quality and behavioural intentions (Chiou and Chen, 2012; Dabholkar et al., 2000; Jen et al., 2011). However, some authors have found evidences that service quality may also have a direct effect on behavioural intentions for high-speed rail (Chou et al., 2014) and bus and heavy rail (Minser and Webb, 2010). According to our model, we further show that service quality has a direct and an indirect effect on behavioural intentions (through satisfaction), in the case of LRT systems.

As above specified, we focused our analysis on the construct of service quality as the most important predictor of behavioural intentions. We decided to explain this construct by considering

all the service quality factors characterizing it in order to understand the most convenient strategies to improve the quality of transit services and to increase the use of the services. We obtained from the model that service quality is mostly explained by aspects concerning comfort, accessibility, and timeliness, even if also information, availability and safety have relevant weights. These results are very useful for transit operators who can focus their efforts on the service aspects mostly affecting service quality and then passengers' intentions to use the LRT again.

After service quality and satisfaction, our results show that perceived benefits presents the highest effect on behavioural intentions. This latent construct is affected by perceived costs and feeling towards transit. Therefore, transit managers may induce desirable passenger behavioural intentions (e.g., loyalty and recommendations intentions) by decreasing the perceived costs and increasing the positive feeling towards transit. Although transportation literature has pointed out similar suggestions in other fields (e.g., airlines or coach), our study also confirm that perceived costs may affect behavioural intentions through perceived benefits. From a managerial point of view, a transit manager who would like to increase loyalty by reducing costs should be sure that this reduction will increase the passengers' perceived benefits of its services.

Another way to increase perceived benefits, and indirectly improve behavioural intentions, is through the passengers' feelings towards transit. Our model shows that feeling toward transit has an indirect positive effect on behavioural intentions (through perceived benefit and satisfaction). From a managerial point of view, successful strategies in increasing an individual's subjective feelings towards public transportation (e.g., green consciousness, benefits of transit, transit oriented developments, etc.) could increase perceived benefit, satisfaction and behavioural intentions.

Finally, the alternative attractiveness presents a negative direct effect on behavioural intentions. Although this finding has been previously reported in other transportation fields (mainly for interurban trips: e.g., airlines, or airlines vs. high speed railways), our study also confirm this point in an urban context. From a managerial point of view, public managers in urban context could promote positive behavioural intentions towards transit with management programs that could reduce the attractiveness of private alternatives (e.g., restrictions to private vehicles in city centres, reducing free parking spaces, congestion charging schemes, etc.).

The research is supported by the service offered by the LRT system of the city of Seville which gave us the possibility to design an ad-hoc survey to satisfy our work objectives. However, different transit services (e.g., bus, metro, heavy rail, and so on), even LRT services operating in other territorial contexts, own their particular characteristics. Therefore, users' attitudes hypothesis should be checked at each specific service.

Definitively, although we already owned a deep knowledge about transit service quality and the methodology for measuring it, thanks to this study, we found that the only measurement of service quality could be not exhaustive for establishing the most convenient strategies that should be adopted by transit operators, policy makers, etc. in order to maintain customers and attract new passengers. We retain that explaining transit users' behavioural intentions by considering the concept of service quality can be very useful for this aim.

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References

Ajzen, I.,and Fishbein, M. (1980). Understanding Attitudes and Predicting Social Behavior. Prentice-Hall, Englewood Cliffs, NJ.

Berry, L.L., Zeithaml, V.A., and Parasuraman, A. (1990) Five imperatives for improving service quality. Sloan Manage Rev, Summer, 9-38.

Bloemer, J.M., de Ruyter, K., (1998). On the relationship between store image, store satisfaction and store loyalty. Eur. J. Market 32, 499–513.

Cascetta, E., and Cartenì, A. (2014) A Quality-Based Approach to Public Transportation Planning: Theory and a Case Study. International Journal of Sustainable Transportation, 8 (1), 84-106.

Chen, C.F. (2008). Investigating structural relationships between service quality, perceived value, satisfaction, and behavioral intentions for air passengers: evidence from Taiwan. Transportation Research PartA, 42(4), 709-717.

Chen, C.F., and Chao, W.H. (2011). Habitual or reasoned? Using the theory of planned behavior, technology acceptance model, and habit to examine switching intentions toward public transit. Transportation Research Part F, 14, 128-137.

Chen, C.-F., Tsai, M.-H., (2008). Perceived value, satisfaction, and loyalty of TV travel product shopping: involvement as amoderator. Tourism Manage. 29, 1166–1171.

Chiou, Y. C., and Y. H. Chen. (2012). Service quality effects on air passenger intentions: A service chain perspective. *Transportmetrica*, 8(6), 406-426.

Choi, K.S., Cho, W.H., Lee, S., Lee, H., Kim, C.: The relationships among quality, value, satisfaction and behavioral intention in health care provider choice: a South Korean study. J. Bus. Res. 57(8), 913–921 (2004)

Chou, P.F., Lu, C.S., and Chang, Y.H. (2014). Effects of service quality and customer satisfaction on customer loyalty in high-speed rail services in Taiwan, *Transportmetrica A: Transport Science*, 10, 917-945

Chowdhury, S., and Ceder, A. (2013). A psychological investigation on public-transport users' intention to use routes with transfers. International Journal of Transportation, 1(1), 3-20.

Churchill, G.A. Jr. (1979). A Paradigm for Developing Better Measures of Marketing Constructs. *Journal of Marketing Research*, 16(1), 64-73.

Dabholkar, P. A., C. D. Shepherd, and D. I. Thorpe. (2000). A comprehensive framework for service quality: an investigation of critical conceptual and measurement issues through a longitudinal study. Journal of Retailing, 76(2), 139-173.

de Oña, J., and de Oña, R. (2015a). Quality of service in public transport based on customer satisfaction surveys: A review and assessment of methodological approaches. *Transportation Science*, 49(3), 605-622.

de Oña, R., and de Oña, J. (2015b). Analysis of transit quality of service through segmentation and classification tree techniques. *Transportmetrica A: Transport Science*, 11(5), 365-387.

de Oña, R., Machado J.L., and de Oña, J. (2015). Perceived Service Quality, Customer Satisfaction and Behavioral Intentions: A Structural Equation Model for the Metro of Seville, Spain. *Transportation Research Record: Journal of the Transportation Research Board*, 2538, 76-85.

de Oña, J., de Oña, R., Eboli, L, and Mazzulla G. (2013). Perceived service quality in bus transit service: A structural equation approach. Transport Policy, 29, 219-226.

de Oña, J., de Oña, R., Eboli, L, and Mazzulla G. (2014a). Heterogeneity in perceptions of service quality among groups of railway passengers. *International Journal of Sustainable Transportation*, 9(8), 612-626.

de Oña, R., Eboli, L., and Mazzulla, G. (2014b). Key factors affecting rail service quality. A decision tree approach. *Transport*, 29(1), 75-83.

Eboli, L., and Mazzulla, G. (2007). Service Quality Attributes Affecting Customer Satisfaction for Bus Transit. *Journal of Public Transportation*, 10(3), 21-34.

Eboli, L., and Mazzulla, G. (2012). Structural Equation Modelling for Analysing Passengers' Perceptions about Railway Services. *Procedia-Social and Behavioural Science*, 54, 96-106.

Eboli, L., and Mazzulla, G. (2014). Relationships between rail passengers' satisfaction and service quality: a framework for identifying key service factors. *Public Transport*, DOI 10.1007/s12469-014-0096-x
Hair, J. F., W. C. Black, B. J. Babin, and R. E. Anderson. Multivariate Data Analysis: A Global Perspective. Prentice Hall, New Jersey, 2010.
Hu, K.C., and Jen, W. (2006). Passengers' Perceived Service Quality of City Buses in Taipei: Scale Development and Measurement. *Transport Reviews*, 26(5), 645-662.
Jen, W., and Hu, K.C. (2003). Application of perceived value model to identify factors affecting passengers' repurchase intentions on city bus: a case of the Taipei metropolitan area. Transportation, 30, 307-327.
Jen, W., Tu, R., Lu, T. (2011) Managing passenger behavioral intention: an integrated framework for service quality, satisfaction, perceived value, and switching barriers. Transportation, 38, 321–342.
Joewono, T.B., and Kubota, H. (2007a). User satisfaction with paratransit in competition with motorization in Indonesia: anticipation of future implications. Transportation, 34, 337-354.
Joewono T.B., and Kubota, H. (2007b) Exploring negative experiences and user loyalty in paratransit. *Transportation Research Record*, 2034, 134-142.
Lai W.T., and Chen C.F. (2011). Behavioral intentions of public transit passenger. The roles of service quality, perceived value, satisfaction and involvement. *Transport Policy*, 18, 318-325.
Lien, T.B., and Yu, C.C. (2001). An Integrated Model for the effects of perceived product, perceived service quality, and perceived price fairness on customer satisfaction and loyalty, Journal of Consumer Satisfaction, Dissatisfaction, and Complaining Behaviour, 14, 125-140.
Lovelock, C.H. (2000). Service Marketing 4th edition Prentice Hall International, New Jersey.
Minser, J., and V. Webb. (2010) Quantifying the Benefits. Transportation Research Record: *Journal of the Transportation Research Board*, Vol. 2144, No. -1, pp. 111-120
Oliver, R. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. Journal of Marketing Research, 17, 460-469.
Oliver, R. (1997). Satisfaction: A Behavioral Perspective on the Consumer. McGraw-Hill, New York.
Oliver, R. (1999). Whence consumer loyalty? Journal of Marketing, 63, 33-44.
Petrick, J.F. (2004). The roles of quality, value and satisfaction in predicting cruise passengers' behavioral intentions. Journal of Travel Research, 42(4), 397-407.
Richins, M.L., Bloch, P.H., (1991). Post-purchase product satisfaction: incorporating the effects of involvement and time. J. Bus. Res. 23, 145–158.
Sumaedi, S., Bakti, I.G.M.Y., Medi Y. (2012). The empirical study of public transport passengers' behavioral intentions: the roles of service quality, perceived sacrifice, perceived value, and satisfaction (case study: paratransit passengers in jakarta, indonesia). International Journal for Traffic and Transport Engineering, 2(1), 83-97.
Transportation Research Board (2013). Transit Capacity and Quality of Service Manual 3rd edition, TCRP Report 165.
UNE-EN13816. Transportation - Logistics and services - Public passenger transport - Service quality definition, targeting and measurement. B S I Standards, 2003.
Wang, S. W. (2014). The moderating effects of involvement with respect to customer relationship management of the airline sector. Journal of Air Transport Management, 35, 57-63.
Wang, Y., Lo, H.P., Chi, R., Yang, Y.: An integrated framework for customer value and customerrelationship- management performance: a customer-based perspective from China. Manag. Serv. Qual. 14(2/3), 169–182 (2004)
Wen, C.H., Lawrence, W.L., and Cheng, H.L. (2005). Structural equation modeling to determine passenger loyalty toward intercity bus services. Journal of the Transportation Research Board, 1927, 249-255.
Yang, Z., Peterson, R.T. (2004). Customer perceived value, satisfaction, and loyalty: the role of

switching costs. Psychology and Marketing, 21(10), 799-822.
Zaichkowsky, J.L., 1994. The personal involvement inventory: reduction, reversion, and application to advertising. Journal of Advertising, 23(4), 59-70.
Zeithaml, V.A. (1988). Consumer perceptions of price, quality and value: a means-end model and synthesis of evidence. Journal of Marketing, 52(3), 2–22
Zeithaml, V.A., Berry, L.L., and Parasuraman, A. (1996). The behavioral consequences of service quality. Journal of Marketing, 60(2), 31-46.