Article *ISSN: 2348-3784*

A Study on Passengers' Problems in Online Ticket Booking in Indian Railways with reference to Virudhunagar Junction, Madurai Division

R Neelamegam and P Murugan

Abstract

Now a days, there is a stiff competition in surface transport among government buses, private buses, vans, taxies, etc. It is very tough to Indian railways to be a robust competitor in the surface transport. Passengers need quality services from the rail transport. Internet plays a vital role in providing a speedy and an easy access to the services of ticket booking, ticket cancellation and the time of the availability of services. But it is beset with some problems while accessing the services through online. The present paper, focuses on the passengers' kind of problem in online ticket booking in Indian railways with reference to Virudhunagar junction, Madurai division of Southern Railway zone.

Keywords: *Indian railways, Online booking, Discriminant analysis*

1. Introduction

In a fast growing economy of the country, Indian Railways plays a key role in the surface transportation. Indian Railways (IR) is a mammoth public sector enterprise. Being a public enterprise the Railway Board has to balance its commercialization concept with its social performance. A notable feature is that India's railway network is one of the largest railway systems in the world under a single management and it owns thousands of coaches, wagons and locomotives. At present, IR has 17 zones including Southern Railway (SR) zone. Each zone is divided into a certain number of divisions and SR has the following railway divisions - Chennai, Tiruchirapalli, Madurai, Salem, Palghat and Trivandrum.

After globalization, rail transport faced intense competition from other modes of surface transport like passenger vans. Therefore in surface transportation, the Indian Railways has to ponder over improving service quality. This feature of service quality in the Indian Railways has attracted greater attention due to safety of passengers, improved infrastructure like double line as well as increasing the speed of the train by introducing high speed train and electrification of rail routes. Not only that, the service of railways

R. Neelamegam, Senior Professor – ICSSR, Department of Management Studies, V.H.N.S.N. College (Autonomous), Virudhunagar – 626 00. E-Mail: rneelamegam.phd@rediffmail.com, Mobile: 94421 81987, (Corresponding Author)

P. Murugan, M.phil. Scholar, Department of Management Studies, V.H.N.S.N. College (Autonomous), Virudhunagar – 626 001

being intangible requires effective steps for the safety and convenience of rail passengers. Gone are those days where railways were operating with less advanced and sophisticated equipment. Now, to remain competitive in the field, one has to think about modernizing the service in rail journey like introducing online ticket booking.

2. Review of literature

Surat Kumari, M. (2003), in her study on "Services marketing: A case study of South Central Railway" has focused on railway services availed by the general public, customer needs and expectations, and strategies adopted by South Central Railway in improving the rail service. The author has concluded that the Railway should develop an efficient and professionally managed system particularly in the areas of passenger safety and amenities, and also has suggested that the best way to develop this package is to use Kaizen approach, which links the human resource strategy to the business strategy.

Holt (2003) in his study on "The restructuring of railways" examined the concept of the restructuring of Indian Railways. The study identifies the changing institutional role of the government and railway organization, the earnings of the railways, regulation of fares, competition policy, service quality and the role of Indian Railways as the public service provider. The researcher has given recommendations to the government which is facing the challenges of fundamental restructuring and of transforming a troubled state owned railway into an industry operated on commercial principles with private sector participation.

Balakrishnan (2012) aimed at providing some robust parameters which can be used in different circumstances in the assessment of railway service. In subsequent steps of current study, those parameters provide essential help to sort out the service quality attributes which affect the passenger satisfaction of rail service. Twenty two attributes were used to conduct the railway passenger quality evaluation process which helped to identify the responsible attributes. He concluded that the railway authorities had failed to take necessary initiatives for the betterment of the passengers as well as in the improvement of services to the passengers.

Rajeshwari and Ellangovan (2014), in their "Passengers' perception of railways – a study in Salem division of Southern railway zone" seeks to find passengers' perception of railway service in Salem division of Southern railway zone. Factors considered are arrangement of medical facilities on the train, safety of passenger's belongings, accessibility to station, travelling charges, parking facility, facilities for disabled, cleanliness of the station, cleanliness of the train, adequacy of retiring rooms and tatkal scheme. Respondents have been chosen by applying stratified random sampling method. Percentage calculation and average score analysis are the statistical tools. The study's primary purpose is to identify the passengers' perception about the performance of

services by Indian railways. Findings of the study reveal that the passengers have good perception on service of the Indian railways.

Gabriel and Suresh (2005) considered passenger reservation system as an important service of Indian Railways. They point out that with an increase in rail passengers, the facility has also improved and brings forth the fact that the IR is the only organisation providing maximum reservation service efficiently. Sreedharan (2004) makes a comparative study on the different types of transport. He suggests the possible roles of the government and railways, while applying various techniques and financial options in view of limited resources and technical expertise. Agarval (1986) had shown that the growth of railways was dismal. They suggested that railways should embark on a policy of upgradation of railway facilities, and convenient mode of transport.

Silcock (1981) in his paper captioned "measures of operational performance for urban bus services" has conceptualized service quality for public transport industry as the measures of accessibility, reliability, comfort, convenience, and safety. Alivelu (2010) has provided a broad overview of the growth of Indian Railways since Independence. The study is based on three time periods with the specific aim to analyse the output and employment during the study period. Geetika and Nandan (2010) in their "Determinants of customer satisfaction on service quality: A study of railway platforms in India" have reported that refreshments and behavioral factors are the most important factors of service quality.

Ngatia, et.al (2010) in their paper on "The structure of users' satisfaction on urban public transport services in developing country: The case of Nairobi" report that safety and travel cost are the important variables of service quality in travel industry. Vikram (2009), describes the achievements of passengers reservation system both from the angle of administration and the customers. The improvement in unreserved has become a boon for ordinary passengers. Vanniarajan and Stephen (2008) in their study found that passengers were satisfied with the five dimensions of reliability, assurance, empathy, tangibles, and responsiveness.

Allon and Diceasare (2008) reported that service quality in a public transport industry consists of speed, reliability, comfort, convenience, safety, special services and innovation. Vijay (2007) evaluates the amenities offered by railways to its passengers, and points out the need for improvements in the railways to provide better services to its customers.

3. Filling the research gap

It is clear from the above discussion that, the previous studies have not concentrated on problems confronted by the passengers in online ticket booking. The present study on "A study on passengers' problems in online ticket booking in Indian Railways with reference to Virudhunagar Junction, Madurai Division" fills this gap.

4. Objectives

- To find out the kinds of problem in the online reservation practices of rail passengers for their travel from Virudhunagar junction in Madurai division of Southern Railway zone.
- To offer suggestions to raise the revenue of the Southern Railway so that it could well improve its service quality.

5. Research methodology

The present study has mainly depended on primary data. The primary data, collected from a well conceived questionnaire administered to the passengers, were used to perform chi-square analysis, discriminant analysis, and to calculate values of weights of sample passengers' kinds of problem in online ticket booking.

There was an absence of concrete sampling frame as thousands of passengers travel in the train daily. Considering the cost, time, and the application of the statistical tools, it was thought fit to have a reasonable sample size of 260 rail passengers. In the absence of sampling frame, a non – probability sampling method of quota sampling was used based on the control variable of occupation of respondents. Accordingly, quotas were fixed and samples were selected in the order of 99 passengers in the occupation category of student / scholar and house wife, 97 passengers in the category of private and public sector employees and 64 passengers in the category of business and professionals. To ascertain the approximate quotas of samples, earlier a pilot study was conducted in December, 2014. Percentage calculation, Weighted values, Chi – Square analysis and Discriminant analysis were applied for the analysis of survey data obtained from 260 sample passengers.

6. Results and discussion

1. Mode of online ticket booking

Educational qualification is an important one for booking the ticket through online; online booking also needs the possession of internet connection and the knowledge of its use. Booking ticket through online is the convenient way as it saves time. Table 1 shows the mode of online ticket booking.

Table 1: Mode of online ticket booking

S.No	Mode of online ticket booking	Number	Per cent to total
1	Own	77	29.6
2	Through family members	53	20.4
3	Through friends and relations	19	7.3
4	Through agents	32	12.3
5	Other	79	30.4
	Total	260	100

Source: Primary data

It is evident from the above table that, sizeable 29.6 per cent passengers booked the ticket through online by themselves, and 12.3 per cent sought the help of the agency for online ticket booking.

2. Hypothesis testing by Chi – Square analysis

In the present study, to find out the relationship between the mode of online ticket booking and the age group of respondents, chi – square analysis is made.

H_0: There is no relationship between the respondents' age and their mode of online ticket booking.

Table 2: Chi-Square test

	Value	DF	Asymp. Sig. (2-sided)
Pearson Chi-Square	33.588a	16	.006
Likelihood Ratio	39.661	16	.001
Linear-by-Linear Association	.050	1	.824
N of Valid Cases	260		

Source: Primary data, Result computed

The above Chi – Square table shows that the p value 0.006 is less than the significance level of 0.05. So the null hypothesis is accepted. It is concluded that, there is a relationship between the respondents' age and their mode of online ticket booking.

3. Ranking passengers' kind of problem in online ticket booking

All service would have certain lapses when they are provided to customers. Especially in the online service, such lapses would have been much more accentuated. The present study sheds light on the sample passengers' ranking their kind of problem when they resorted to online ticket booking. The rank was accorded based on different values of weights of problem. Table 3 bears a testimony to this fact. The respondents ranked the problem on a numerical scale of +2 to-2(+2= highly agree, -2=highly disagree). To illustrate, passengers numbering 73, and 80 respectively 'highly agreed', and 'agreed' to the net work problem while booking ticket. As per the numerical scale, the weighted value to this problem was calculated as follows.

Highly agreed 73(F)*2(S)=146
Agreed 80(F)*1(S)=80

Weighted value =226

Similarly, the weighted values for the other kinds of problem in online ticket booking were calculated. Table 3 bears a testimony to this fact.

Table 3: Passengers' kind of problem in online ticket booking

Problem	Number(F)					Weighted value (F*S)	Rank
	HA	A	NAND	DA	HD		
Network problem while booking ticket	73	80	0	0	0	226 (146+80)	3
Lack of computer knowledge	40	49	0	0	0	129 (80+49)	6
I have to pay extra money for online booking	56	75	0	0	0	187 (112+75)	5
I need debit card and internet banking	123	59	0	0	0	305	1
Sometimes, there is transaction failure after the amount is credited	62	72	0	0	0	273	4
I need Computer and Internet connection	99	75	0	0	0	174	2

HA –Highly Agree; A – Agree; NAND - Neither agree Nor disagree; DA – disagree; HD – Highly disagree.
F= Frequency/Number of respondents; S=Score
Source: Primary Data

The above table shows the passengers' ranking the kind of problem when they book tickets through online. It clearly reveals that the requirement of debit card and internet banking is the most important problem of the passengers (carrying the highest weighted value), followed by the requirement of computer and internet connection, and the network problem as the next important kind of problem in online ticket booking.

4. Performing two group Discriminant Analysis

The main objective of discriminant analysis is classification function. Here, the discriminant analysis is performed in order to classify the passengers' perception of lack of computer knowledge as a problem or not as a problem in online booking of ticket for the rail travel based on the variables of educational qualification, family income, and age of rail passengers.

7. Procedure

Following section explains the procedure of discriminant analysis.

- Development of linear combinations of the predictor variables which will best discriminate between the two groups of dependent variable.
- Examination of the significance of the discriminant function.
- Finding which predictor variable contributes to most of the intergroup difference.
- Calculation of accuracy of classification, and

- Classifying new cases to one of the groups based on the values of Predictor Variables.

To perform discriminant analysis, in the computer input data, the code for those passengers who perceived lack of computer knowledge as a problem, and those who perceived it not as a problem was given as 1 and 2 respectively, and against which the values of three predictor variables of 260 passengers were given. The statistical significance of the discriminant function with Wilks' lambda is reported in the below table.

Table 4: Statistical significance of discriminant function

Test of Functions	Eigen value	Canonical correlation	Wilk's Lambda	Chi-Square	Df	Sig.
1	.243	.442	0.805	55.771	3	0

Source: Authors calculation based on primary data

From the table 4, the Wilks' Lambda is found to be 0.805. Its low value is preferable which would indicate better discriminating power of the model. The Chi square test indicates that the discrimination between the two groups is highly significant; this is because p – value is less than 0.05. As discriminant function is significant, further interpretation of classification matrix, standardized co – efficient and group centroid is undertaken.

Table 5: Structure matrix

Variable	Function
	1
Qualification	0.818
Family income	0.557
Age	-0.349

Structure correlations are referred to as discriminant loadings, representing the simple correlations between the predictor and the discriminant function. Structure matrix shows a good degree of correlation between discriminant function and each of the variables.

Table 6: Classification matrix

Lack of computer knowledge		Predicted Group Membership		Total
Count	Yes	71	37	108
	No	34	118	152
% to total	Yes	65.7	34.3	100
	No	22.4	77.6	100
a. 72.7% of original grouped cases correctly classified.				

Table 6 shows that the discriminant function is able to classify nearly 73 per cent of the passengers correctly; it confirms the significance of the discriminant function. Here, one finds three predictor variables, i.e., educational qualification, age and family income. Which of these is a better / stronger predictor of a passenger thinking lack of computer as a problem or it is not as a problem? To answer this question, one may look at the standardized coefficients in the output

Table 7: Standardized canonical discriminant function coefficients

Variable	Function
	1
Qualification	0.704
Age	-0.306
Family Income	0.570

Source: Primary Data, Result Computed.

The table 7 shows that, respondents' educational level is the best predictor with the coefficient of 0.704, followed by income with a coefficient of 0.570 and age is the last one, with a coefficient of -0.306. The absolute value of the standardized co-efficient of each variable indicates its relative importance. Finally, how can one classify a new case / passenger into either as one who may consider 'lack of computer knowledge is a problem', or such 'lack of computer knowledge is not a problem? This is the most important question to be answered. The way to solve this problem is to use the output in table 5 and 6.

Table 8: Canonical discriminant function coefficients

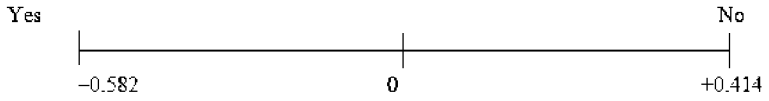
Variable	Function
	1
Qualification	1.032
Age	-0.31
Family Income (Constant)	0.491
Unstandardized coefficients	-3.459

Table 9: Functions at group centroids

Lack of Computer Knowledge	Function
	1
Yes	-0.582
No	0.414
Unstandardized canonical discriminant functions evaluated at group means.	

From table 9, one can understand the new means for the transformed group centroids. The new mean for group one, i.e., that the lack of computer knowledge is a problem in

online ticket booking is – 0.582 and the new mean for group 2, i.e., lack of computer knowledge is not a problem is +0.414. This means that the midpoint of these two is 0 (approximately). This is clear when one plots the two means on a straight line and locates their midpoint as shown below.



Y = Constant + Education * (1.032) + Age * (– 0.310) + Income * (0.491)

Assume the value of new case for education as 3, age as 3 and income as 3. Now calculating the value by the formula

Y = Constant + Education * (1.032) + Age * (– 0.310) + Income * (0.491)
Y = (– 3.459) + 3 * (1.032) + 3 * (– 0.310) + 3 * (0.491)
Y = (– 3.459) + 3.096 – 0.93 + 1.473
Y = (– 4.389) + 4.569
Y = 0.18

From the above calculation, one could conclude that lack of computer knowledge is not a problem to the new passenger of rail journey.

8. Suggestions

During the study, ranking passengers' kind of problem in online ticket booking has been made. There are several kinds of problem faced by the passengers while they are booking ticket through online. Some important problems noted are follows. Network problem while booking ticket, lack of computer knowledge, payment of extra money for online booking, requirements of debit card and internet banking, possession of computer and internet connection, and sometimes, there is transaction failure after the amount is credited. It is the observance of the study, requirement of debit card and internet banking and possession of computer and internet connections are the most important problems faced by passengers, though they are well known about the online ticket booking. The Railway Board may step in to mitigate some of the problems for the benefit of online ticket booking passengers. Lack of computer knowledge is another problem in online ticket booking. The Railway Board is requested to make some alternative easy access to the online ticket booking facility for such passengers.

On 26th February, 2015, the Railways Minister Mr. Suresh Babu presented the Railway Budget in the Lok Sabha. The Budget revealed the Government's plan of achieving its main goals in the forthcoming years as

- To provide clean, comfort and speedy passenger service.
- To provide safety travel and
- To increase passengers' daily carrying capacity from 21 million to 30 million in five years.

The focus of the 2016 -17 Rail Budget is on women's safety: more CC TV cameras, 33 per cent reservation for women in reserved categories in catering units and milk, hot water and baby food facilities for young mothers. It is also gratifying to note that introduction of new classes of speed trains, i.e., Humsafar, Tejas, Uday trains. Another welcome feature is about lighting, i.e., all new light provisions will be covered with LED luminaire in the next 2-3 years. However, the Budget is saddled with certain dismal features; for instance, on the score of raising revenue from passenger traffic, top revenue yielding passenger routes in Tamil Nadu, namely, Chennai – Kanniyakumari's double tracking as well as Chennai – Coimbatore double tracking, and in goods traffic, a separate freight corridor for Chennai – Tuticorin have been ignored in this Rail Budget 2016 – 17. It is worthwhile to note that the Tamil Nadu Government has already sent the above priority list to the Railway Ministry before the submission of 2016 -17 Rail Budget.

Now a days, there is an intense competition in the surface transport. If the Indian Railways wishes to be a robust competitor in the surface transport, it has to offer a clean, safe, affordable, timely, as well as novel service to the passengers; this makes obligatory on the part of Indian Railways to raise its revenue.

9. Conclusion

Born in colonial times, now the Indian Railways is the seventh largest employer in the world. The business is business in whose hands it be. Times are changing. When rail passengers expect flawless quality service that requires gigantic proportion of investments, as suggested by Bibek Deleroy Committee, the Union Government in a liberalised scenario may mull over participation of private players and launching of some novel services that would lessen the huge financial burden of cash – strapped Indian Railways.

References

Agarwal,A. L., etal.(1986). On effieiency of Indian railways: projection of passenger and freight traffic part-1. *Transportation systems analysis and policy studies*. Pg: 713-719.

Alivalu, G. (2010). Salient aspects of the growth story of Indian railways 1981-82 through 2007-08. *Working paper No. 86,* Centre for Economic and Social Studies, Hyderabad.

Allen, & Di Cesare (2008). Public transportation and customer satisfaction: The case of Indian Railways. *Global Business Review*. 9, 257–272.

Balakrishnan, K.P. (2012). A study on service quality perception of railway passengers of southern railway. *International Journal of Management Research*, *2*(2), 105-110.

Chopra, V. (2009). The unreserved ticketing system of Indian Railways. Management *in Government. 31*(2), 75 – 84.

Durga Prasad Vijay, V. (2007). A decisive analysis of amenities of Indian railways to the passengers. *The journal of institute of public enterprise. 30*(3–4),164 – 177.

Gabriel, J. S., & Babu, S. M. (2005). Passenger reservation system in the Indian railways- A study. *The journal of institute of public enterprise. 28*(1,2),77-85.

Geetika, & Nandan, (2010). Determinants of customer satisfaction on service quality: A study of railway platforms in India. *Journal of public transportation*, *13* (1).

John, H. (2003). The restructuring of railways. *Economic and Social Commission for Asia and the Pacific*. United Nations, New York.

Ngatia, G. J. (2010). "The structure of users' satisfaction on urban public transportation service in developing country: The case for Nairobi". The Journal of the eastern Asia society for transport studies, Vol.8.

Rajeshwari, G & Ellangovan, D. (2014). Passengers' perception of railways – A study in Salem division of Southern railway zone. *International Journal of Scientific Research and Reviews. 3*(1), 189-199.

Silcok, D.T.(1981)8 "measures of operational performance of urban bus services". Traffic Engineering and control, vol. 22, No.12, pp.645-648.

Sreedharan, E. (2004)."Rail based urban transport". Infra structure in India 's development – power ,trannsport and communication. Varma,S.P.(ed), Kanishka publishers, New Delhi, pp.1-18.

Surat Kumari, M.(2003). "Services Marketing: A case study of South Central Railway". Finance India, Vol. XVII, No.3.

Vanniarajan, T., & Stephen, A. (2008). Railqual and passenger satisfaction: An empirical study in southern railway. *Asia pacific business review. 4*(1), 12 – 20.