



## INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE AND MANAGEMENT

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**PASSENGER'S ATTITUDE & SATISFACTION IN RAILWAYS  
(SPECIAL REFERENCE TO COIMBATORE REGION)**

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**ABSTRACT**

After 1991, the reforms process has gathered some momentum and several important decisions have been taken by the Central and State governments. There are indications that political support for deepening the economic reform process is gradually increasing. The general perception is that policy makers realize that reform is an essential pre-requisite for the economic development of India at the targeted GDP growth rate of 7-8 percent per year. With the economy on track for a planned growth at 7-8 per year, the demand for freight and passenger transport is expected to grow at around 10 percent a year. At present, however, India's transport system, especially surface transport, is highly congested, and the sector performance is poor and inefficient by international standards. One way is to improve the conditions of service to satisfy the expectations of the customers. For this it is necessary to know their attitude towards the present conditions of services provided by the Indian railways. Hence, the present study on attitude towards Indian railways.

**INTRODUCTION**

The economic growth of a country mainly depends on the infrastructure facilities available. Transport facility is an important aspect of infrastructure facilitating mobility of goods and people from one place to another place. To keep pace with the changing business paradigms along with its growing needs of the hour ensuring availability of sufficient transport facility is necessary. In this concept, the railways are remained as energy efficient transport mode ideally suited for long distance travel as well as perfect for bulk mode of transport.

The developing countries like India with thick population, Railway transport plays an important role in the development of the economy. The country's economy would be tampered if the railways were not in a position to provide transportation capacity and quality of service required by the growing transport market amidst the globalized scenario. The present Indian railways are characterized by challenges of market changes and increasing demand in capacity. Moreover, competition is a key factor in achieving improved productivity, lower prices and higher quality of services and products that respond to the changing needs of the customers.

A certain degree of competition exists between rail and road transport, but the level of competition varies widely with volume, distance and customer needs regarding transit time, reliability of service and value of goods. Indian railways can provide the necessary customer focus and compete effectively with road provided its reliability, productivity and efficiency are enhanced. So, it is imperative for Indian railways to develop innovative approach by considering customer focus and competition.

**STATEMENT OF THE PROBLEM**

Indian railways is one of the largest and busiest rail network in the world. It is an important form of public transportation in the country. Its operations are characterized by a dominance of traffic and long haul of bulk commodities. Since their inception 155 years ago, the railways in India have been contributing significant share to the growth of Indian economy. The social and economic development of the country also depends to a large extent upon Indian railways and for future development.

Indian railways have interesting historical turnaround in its fortunes in recent years largely due to the responsiveness of the organization to align itself to the strategy of striking unit cost and higher social obligations as a common carrier by providing affordable transport service to the masses.

Apart from this, there is also intense competition between railways and roads with substantial investment to improve the highway network in India. For the most part, the highways being improved parallel to the high density railway routes. In addition larger capacity and modern technology trucks that offer advantage of high speed, reliability and lower unit cost in its own way. Thus, the railways need to substantially improve the quality of service, customer focus and service profile to meet the challenges of more intense competition in the transport market.

In view of the above, the Indian railways are expected to provide safe, fast and comfortable service at reasonable prices and good behavior towards customers, it should also focus towards amenities provided and the service profile that meets changing customer's requirements.

As the market needs change and competition becomes more intense, Indian railway has to reinvent itself to continue playing an important role in the Indian transport market. Hence, the Indian railways are expected to change its insides aiming provision of high quality service in line with the changing atmosphere and hectic competitions and maintain and increase the share through market research.

So, a study on the attitude of the customers towards Indian railways about the services and other amenities provided is felt, which resulted into the present research work with the following objectives.

**BACKGROUND OF THE STUDY**

A study on railway passenger service quality valuation carried out from December 1999 to June 2000 by the organization named Steer Davies Gleave of London prepared for Shadow Strategic Rail Authority to study the importance of rail passengers into improvement of the range and

quality of facilities and service on stations and in trains (Gleave, S. D., 2000). This study gives emphasis on monetary valuation of the improvement of service for a number of passenger groups. Key aim of this study to provides some robust parameters which can use in different circumstances of assessment of railway service. In subsequent steps of current study those parameters provide essential help to short out the service quality attributes which affect the passenger satisfaction of service regarding the particular study area. About 22 attributes were used to conduct the railway passenger quality valuation process which helps to identify the responsible attributes regarding the particular study.

Another study named service quality attributes affecting customer satisfaction for bus transit for measuring the relationship between global customer satisfaction and service attributes of public transport especially of bus transit for University of Calabria student to reach the campus from the urban area of Cossenza of southern Italy. A model proposed in this study which may useful to analyze the correlation between service quality attributes and identify the more convenient attributes for improving the supplies service (Fu, L. and Xin, Y. 2007). This study provides the methodological assistance to conduct current study to determine the relationship between rail passenger satisfaction and service attributes. Specifically multivariate technique, factor analysis, regression analysis and analysis of variance were used to estimate the interrelated dependency of attributes. In current study basically factor analysis and regression analysis used to draw the relationship between the satisfaction of service and service quality attributes of rail passengers.

Factor analysis introduced as very useful technique to summarize a large amount of data in manageable way. Factor analysis attempts to identify underlying variables, or factors, that explain the pattern of correlations within a set of observed variables (Lind, D. A. and Meson, R. D., 1994). Factor analysis is often used in data reduction to identify a small number of factors that explain most of the variance observed in a much larger number of manifest variables. It may used to define a relationship among sets of many interrelated variables are examined and represented in terms of a few underlying factors (Malhotra, 2008). This technique is applicable to identify the underlying dimension or factors that explain the correlations among a set of variables (Eboli and Mazzulla, 2007). Factor analysis can be employed to determine the brand attributes that influence consumer choice (Malhotra, 2008).

### OBJECTIVES OF THE STUDY

To analyze the attitude of the passengers towards facilities and convenience provided ensuring sophisticated service.

To identify the factors that influences the liking of the railway mode of the transport.

To suggest measures for improvement of the conditions of service in particular to the Coimbatore junction and Indian railways in general.

### SAMPLING AND DATA COLLECTIONS

The present study analysis the attitude of the passengers. The study depended on primary data. The data was collected from the passengers who want to board or otherwise in Coimbatore junction. Coimbatore is an industrial city and an education hub and above all an upcoming IT centre. The data were obtained from the respondents by administering a questionnaire to elicit information on their socio-economic profile and their attitude towards the services provided by the Indian railways. The respondents include all sections of people who used railway service for personal purpose, official purpose or other purposes. The questionnaires are distributed to the respondents selected using convenient sampling by explaining the purpose of the study.

The collected data were statistically analyzed in order to ensure that the objectives of the study are achieved.

### DATA COVERED

The issues covered in the study include the opinion recovery of rail passengers who on-board / off-board the trains are: profile of passengers, opinion of passengers on pantry car and catering facility provided by Southern railways, proper security arrangements given by the railway police force, passengers' comfort inside the compartments, excellent layout of platforms for restaurants, tea stalls, cool bars etc, amenities provided by the railways, concession given to various sections of the society, cleanliness of passengers waiting halls, platforms, compartments etc, arrangements of medical facilities for passengers provided by the railways, reservation facilities for passengers and approachability of railways staff including TTR. The data on these variables were collected using five point scale ranging from highly satisfied, satisfied, neutral, dissatisfied and highly dissatisfied.

### FRAMEWORK OF ANALYSIS

In order to achieve the objectives of the study an analysis is made to understand the opinion of the passengers on various amenities. The statistical tools used are: Factor analysis and multiple regression.

I. **Factor Analysis:** This helps to reduce the proposed factors into few, which represent a significant amount of the original one.

II. **Multiple Regression:** This helps to identify the significant factors which determine the attitude towards railway customers'.

### SURVEY RESULTS

The socio economic profiles of the respondents are shown in the following table:

**TABLE 1 SOCIO ECONOMIC PROFILE OF THE RESPONDENTS**

Variable	Profile	No. of Respondents	Percentage
<b>Gender</b>	Male	194	77.6
	Female	56	22.4
<b>Age</b>	Less than 20 years	3	1.2
	20-30 years	76	30.4
	30-40 years	100	40.0
	Above 40 years	71	28.4
<b>Educational Qualification</b>	Upto HSC	70	28.0
	Graduate	67	26.8
	Post Graduate	61	24.4
	Professional	36	14.4

	Others	16	6.4
<b>Occupation</b>	Student	32	12.8
	Business	65	26.0
	Government	40	16.0
	Private	92	36.8
	Professionals	21	8.4
<b>Monthly Salary</b>	Below Rs. 5000	48	19.2
	Rs, 5001 – Rs. 10000	34	13.6
	Rs. 10001 – Rs. 15000	57	22.8
	Above Rs. 15000	111	44.4
<b>Frequently Travel</b>	Daily	19	7.6
	Weekly	27	10.8
	Fortnightly	29	11.6
	Monthly	53	21.2
	Others	122	48.8

It is observed from the above table that 77.6% of the respondents are male and the remaining 22.4% are female.

It is understood from the table that 40% of the respondents are belonging to the age group of 30-40 years, 30.4% of the respondents are in the age group of 20-30 years, 28.4% of the respondents are in the age group of above 40 years and others are less than 20 years.

The above table shows that 44.4% of the respondents are earning a monthly income of above Rs.15000, 22.8% earn Rs.10000 to Rs.15000, 19% of them are earning between below Rs.5000 and the remaining respondents belong to the income group of Rs.5000 to Rs.10000.

Regarding the occupation of respondents is concerned, 36.8% of the respondents are working in private organizations, 26% are doing business, 16% are government employees, 12.8% are students and the remaining are professionals like doctors, lawyers etc.

It is observed regarding the frequency of travel, 48.8% of the respondents travel rarely, 21% of the respondents are traveling monthly once, 11.6% of the respondents travel once in fort night, 10.8% travel weekly once and others travel daily.

#### CUSTOMERS' ATTITUDE TOWARDS INDIAN RAILWAY

In the changing scenario, the competitive strength is to be constantly improved to enable a firm to provide product / service in the market with quality at cheaper price than the competitor. Hence, the passengers' attitude is analyzed and the results are given in table 2 below:

**Table 2 Customers' Attitude towards of Indian Railway**

Factors		Highly Dissatisfied	Dissatisfied	Neutral	Satisfied	Highly Satisfied	Total
Pantry car and catering facility provided by southern railway (S1)	No.	3	43	62	91	51	250
	%	1.2	17.2	24.8	36.4	20.4	100
Proper security arrangements given by the Railway Police Force (S2)	No.	6	41	125	65	13	250
	%	2.4	16.4	50.0	26.0	5.2	100
Passenger's comfortness inside the Compartment (S3)	No.	-	8	44	142	56	250
	%	-	3.2	17.6	56.8	22.4	100
Excellent lay out of platforms for Restaurant, tea stalls, cools Bars etc (S4)	No.	9	53	116	55	17	250
	%	3.6	21.2	46.4	22.0	6.8	100
Amenities provided by the railways (S5)	No.	-	3	39	100	108	250
	%	-	1.2	15.6	40.0	43.2	100
Concession given to various sections of the society (S6)	No.	-	10	34	103	103	250
	%	-	4.0	13.6	41.2	41.2	100
Cleanliness of passengers waiting halls, platforms, compartments, etc (S7)	No.	-	7	54	122	67	250
	%	-	2.8	21.6	48.8	26.8	100
Arrangement of medical facilities for passenger provided by the railways (S8)	No.	14	56	123	49	8	250
	%	5.6	22.4	49.2	19.6	3.2	100
Reservation facilities for passengers (S9)	No.	5	35	70	123	17	250
	%	2.0	14.0	28.0	49.2	6.8	100
Approachability of railway staff including TTR (S10)	No.	6	8	36	129	71	250
	%	2.4	3.2	14.4	51.6	28.4	100

It is understood from the above table that 36.4% and 20.4% of the respondents are satisfied and highly satisfied to the pantry car and catering facilities provided by southern railway and 1.2% and 17.2% of the respondents are highly dissatisfied and dissatisfied with the facility.

As far as proper security arrangement given by the railway police force, 26% and 5.2% are satisfied and highly satisfied respectively and 16.4% and 2.4% are dissatisfied and highly dissatisfied.

56.8% and 22.4% of the respondents are satisfied and highly satisfied respectively to the fact that passengers are carryout inside the compartment and only 3.2% of the respondents dissatisfied to the fact.

Regarding excellent layout of platforms for restaurant, tea stalls, cool bars etc. 22% and 6.8% of the respondents are satisfied and highly satisfied and 21.2% and 3.6% of the respondents are dissatisfied and highly dissatisfied to the fact.

It is a telling fact that 40% and another 43.2% of the respondents have been satisfied and highly satisfied to the various amenities provided by the railways.

As far as the concession given to various sections of the society 41.2% each of the respondents have been satisfied and highly satisfied.

48.8% and 26.8% of the respondents respectively satisfied and highly satisfied to the fact of cleanliness of the waiting halls, platforms, compartments etc 19.6% and 3.2% of the respondents are satisfied and highly satisfied to the variable the medical facilities provided by the railway and 22.4% and 5.6% of the passengers are dissatisfied and highly dissatisfied to the fact. As far as reservation facilities are concerned, 49.2% and 6.8% of the respondents have satisfaction and high level of satisfaction with the facility. 51.6% and 28.4% of the respondents are satisfied and highly satisfied with approachability of the railway staff including TTR.

**FACTOR ANALYSIS**

The factor analysis is a powerful and useful statistical as an analytical approach to determine the underlying forces or factors among a large number of interdependent variable or measures. This method extracts common factor variables from a set of observations and groups the number of variables into a smaller set of uncorrelated factors which tell what variables belong together or which one virtually measure the same things.

This technique is used to identify the factors affecting passenger attitude towards southern railways from 250 respondents in the Coimbatore region. As a first step, the data are tested to know the whether it suits factor analysis. The following steps have been taken for the purpose: The correlation matrices are computed and examined. It reveals that there are enough correlations to go ahead with factor analysis.

Anti-image correlations were computed. These showed that partial correlations were low, indicating that true factors existed in the data. Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) for individual variables are studied from the diagonal of partial correlation matrix (Table 3). It is found to be sufficiently high for all variables. The measure can be interpreted with the following guidelines: 0.90 or above, marvelous; 0.80 or above, meritorious; 0.70 or above, middling; 0.60 or above, mediocre; 0.50 or above miserable, and below 0.50, unacceptable.

To test the sampling adequacy, Kaiser-Meyer-Olkin measure of sampling adequacy is computed, which is found to be 0.638. It is indicated that the sample is good enough for the study.

The overall significance of correlation matrix is tested with the Bartlett test of Sphericity for attitude of railway passenger (approx. chi-square = 264.830, which is significant at 0.000) as well as support for the validity of the factor analysis of the data set.

**Table 3: KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.638
Bartlett's Test of Sphericity	Approx. Chi-Square	264.830
	Df	45
	Sig.	0.000

Hence, all these standards indicated that the data is suitable for factor analysis. For extracting factors we have employed 'principal components analysis' and 'latent root criterion and rotation method- orthogonal rotation with Varimax' was also applied. As per the latent root criterion, only the factors having latent roots or Eigen values greater than 1 are considered significant; and all the other factors with latent roots less than 1 are considered insignificant and disregarded.

**IDENTIFICATION OF FACTORS AFFECTING ATTITUDE OF RAILWAY PASSENGER**

After the standards indicated that the data are suitable for factor analysis, principal components analysis was employed for extracting the data, which allowed determining the factors underlying the relationship between a number of variables. The total variable explained suggests that it extracts one factor accounts for 58.948 percent of the variance of the relationship between variables (Table 4).

**Table 4: Extraction Method: Principal Component Analysis**  
**Total Variance Explained**

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.321	23.214	23.214	2.321	23.214	23.214	1.877	18.774	18.774
2	1.273	12.726	35.940	1.273	12.726	35.940	1.451	14.507	33.281
3	1.171	11.708	47.648	1.171	11.708	47.648	1.427	14.272	47.553
4	1.130	11.300	58.948	1.130	11.300	58.948	1.140	11.395	58.948
5	.926	9.265	68.212						
6	.786	7.856	76.069						
7	.747	7.467	83.536						
8	.666	6.659	90.195						
9	.516	5.161	95.356						

10	.464	4.644	100.000					
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Extraction Method: Principal Component Analysis.

Loading on factors can be positive or negative. A negative loading indicates that this variable has an inverse relationship with the rest of the functions. However, Comrey (1973: 1346) suggested that anything above 0.44 could be considered salient, with increased loading becoming more vital determining the factor. All the loading in the present research are positive (Table 5).

**Table 5: Extraction Method: Principal Components Analysis**

	Communalities	
	Initial	Extraction
S1	1.000	0.544
S 2	1.000	0.402
S 3	1.000	0.633
S 4	1.000	0.576
S 5	1.000	0.624
S 6	1.000	0.612
S 7	1.000	0.671
S 8	1.000	0.474
S 9	1.000	0.736
S10	1.000	0.625

**Note: 'S' stands for Variables**

Rotation is necessary when extraction technique suggests that there are two or more function. The rotation of factors is designed to give an idea of how the factors unlimitedly extracted differ from each other and to provide a clear picture of which item loads on which factor.

There are only four factors, each having Eigen value exceeding one. The Eigen values for four factors were 2.321, 1.273, 1.171 and 1.130 respectively (Table 4). The percentage of total variance is used as an index to determine how well the total factor solution accounts for what. The variable together represent index for the present solution accounts for 58.948 percent of the total variations for choosing a passenger attitude. It is pretty good extraction as it can economies the number of factors (from ten it has reduced to four factors) while we have lost 41.052 percent information content. The percentage of variance explained by factor one to four factors affecting the attitude towards railways are 23.214, 12.726, 11.708 and 11.350 respectively (Table 4). The table 5 tells as that after four factors are extracted is retained, the communality is 0.544 for variable 1, 0.402 for variable 2, and so on. It means that 54 percent of the variance of variable 1 is being accepted by the four extracted factors together. The proportion of variance on any one of the original variables, which is being captured by the extracted factor, is known as communality (Nargudkar 2002).

Large communalities indicate that a large number of variance has been accounted for by the factor solution. Varimax rotated factor analytic results for factor determining the attitude of the passengers is shown in table 6.

The four factors extracted have been shown in table 6 below;

**Table 6 NAME OF THE FACTORS**

Naming of Factors	Name of the Dimensions	Label Loading	Name of the Problems	Factor Loading
F1	Amenities and Safety Measures	S2	Adequacy security arrangement	0.541
		S3	Passengers' comfort inside the train	0.653
		S4	Excellent lay out of platforms for Restaurant, tea stalls, cools Bars etc	0.539
		S8	Provisions of medical facilities	0.689
		S10	Approachability of railway staff	0.529
		S5	Amenities provided	0.511
F2	Facility for Reservation	S9	Adequacy of facilities for reservation	0.723
F3	Cleanliness	S7	Cleanliness for waiting halls, platforms, compartment, etc.	0.646
F4	Concession and Catering Facility	S1	Pantry car and catering facilities	0.587
		S6	Concession given to various sections of society	0.731

**Factor 1: Amenities and Safety Measures**

This factor describes the amenities and safety measures provided by railways. It is the most crucial factor which explains 23.214 of the variations and includes six variables S2, S3, S4, S8, S10 and S5.

**Factor 2: Facilities for Reservation**

It is the second important factor which covers adequacy of facilities for reservations.

**Factor 3: Cleanliness**

It is identified as cleanliness expected by the passengers in the waiting halls, platforms and compartments.

**Factor 4: Concession and Catering Facility**

It is last factor among the four factors identified and named as concession and catering facilities which includes pantry car and catering facilities and concession given to various relations of the society.

**REGRESSION ANALYSIS**

Multiple regressions are basically a predictive tool. The result is obtained by analyzing a set of independent variables to predict a dependent variable. The general equation for a multiple regression can be written as below:

$Y = B_0 + B_1 X_1 + B_2 X_2 + B_3 X_3 + \dots + B_n X_n + E$ , Where  $B_0$  = A constant, the value of Y when all X values are zero.  $B_1$  = The slope of the regression surface of the response surface, and B represents the regression coefficient associated with each  $X_i$  and E = An error term, normally distributed about a mean 0. For the purpose of computation, E is assumed to be 0.

The regression coefficient can either be stated in raw score units (the actual X values) or as standardized coefficients. In either case, the value of regression coefficient states the amount that Y varies with each unit change of the associated X variables, when the effects of all other X variables are being held constant. When the regression coefficient are standardized, they are called beta weights (B), and their values indicate the relative importance of the associated X values, particularly are unrelated.

The above equation can be built either with all variables, specific combinations or a selected method that sequentially adds or removes variables. Forward selection starts with the constant and adds variables that results in the largest R square increase. Backward elimination begins with a model containing all independent variables and remove the variables changes R square the least. The independent variable that contributes the most in explaining the dependent variable is added first. Subsequent variables are included based on the incremental contribution over the first variables and whether they meet the criterion for entering the equation. Care should be taken to ensure that the independent variable must not be correlated among themselves, as it highly affects the overall result. This situation is called multicollinearity.

The factor analysis shows that some of the variables are highly correlated among each other. This leads to multicollinearity. The highlighted parameter under each factor is used to run the multiple regressions resulting that a all the parameters are statically significant at 5% and at 1% level.

The results are shown in the following table 7.

Coefficients							
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R <sup>2</sup>
		B	Std. Error	Beta			
1	(Constant)	-0.285	0.224		-1.272	0.205**	0.296
	S3	0.356	0.060	0.342	5.897	0.000*	
	S7	0.135	0.054	0.138	2.530	0.012*	
	S2	0.139	0.051	0.154	2.710	0.007*	
	S6	0.148	0.050	0.160	2.944	0.004*	
	S4	0.130	0.046	0.158	2.828	0.005*	

a Dependent Variable: S5

\*: Significant at 5 % \*\*: significant at 1% level.

Here, using the B value of the unstandardized coefficients, the following regression equation is formed:

Attitude towards a particular variable = -0.285 +0.356 S3 + 0.135 S7 + 0.139 S2 + 0.148 S6 + 0.130 S4

**ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Regression	152.187	14	10.871	9.862	.000*
Residual	534.605	485	1.102		
Total	686.792	499			

Dependent Variable: S5

The analysis of variance of multiple regression model for S5 indicates the overall significance of the model. The coefficient of determination R<sup>2</sup> value shows that the six variables put together explains the variations of amenities is adequate (S5) to the extent of 20.5 %.

Thus, it is concluded that the step wise multiple regression analysis (Partial Model) for the variable Y, dependent variable the amenities is adequate is adequate (S5) has esteemed a functional relation between Y with the predictor variables S3, S7, S2, S6 and S4 and these five variables have significantly contributed to amenities is adequate is adequate (S5) to the extend of 29.6%. The model has excluded the other variables.

**FINDINGS**

The following are the findings based on the present study:

1. The Indian Railways have to pay more attention towards Passengers' comfort inside the train, Cleanliness for waiting halls, platforms, compartment, etc., Adequacy security arrangement, Concession given to various sections of society, Excellent lay out of platforms for Restaurant, tea Stalls, cools Bars etc.
2. Provision of adequate amenities is the factor which has great influence over the other factors selected for the study, so the railway administration may concentrate its attention towards it.

## CONCLUSION

In conclusions, protect their market share and viability, the railways have, different degrees, responded with a recognized management structure – that focuses on business and customers, improved asset and staff productivity, redefined service profiles to match changing customer requirements, targeting of higher – margin market segments and shedding of non-core activities. As per the present study the railways have to focus their attention towards the four factors like amenities and safety measurement, facilities for reservation, cleanliness and concession and catering facilities. Essentially, the railways have had to transform themselves to market-responsive entities in order to remain in business. The fundamental change has been that service is tailored to meet the specific needs of the customer, and pricing varies accordingly.

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