

# PASSENGERS' SATISFACTION ON SERVICES OFFERED BY THE RAIL SYSTEM (A STUDY IN SALEM DIVISION OF SOUTHERN RAILWAY ZONE)

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**Abstract**—Passenger (Customer) satisfaction of Indian railways has its influence on service quality. Satisfaction is a measure of how products and services supplied by a company meet or surpass customer expectation. This study has tried to find out the level of satisfaction on services offered by the rail system using SERQUAL instrument in Salem Division of Southern Railway Zone. Total of 500 respondents have been taken by applying stratified random sampling method and analysis of variance is used to test the hypotheses. Findings of the study reveal that the passengers are fairly satisfied with the services offered by the rail system

**Keywords-** Passengers, Satisfaction, SERQUAL instrument and Railways

## I. INTRODUCTION

Mobility is one of the most fundamental and important characteristics of economic activity as it satisfies the basic need of going from one location to the other, a need shared by passengers, freight and information. The transport sector is an important component of the economy impacting on development and the welfare of populations. When transport systems are efficient, they provide economic and social opportunities and benefits that result in positive multipliers effects such as better accessibility to markets, employment and additional investments<sup>1</sup>

Transport has recorded an extensive growth over the years both in spread of network and in output of the system. Glimpses of several modes of transport such as rail, road, water ways, air and metro are included<sup>2</sup>

“Indian Railway is the second largest railway in the whole world. Indian railway is one of the most effective network established in 1853 to operate both long distance and suburban rail systems on a multi-gauge network of broad, meter and narrow gauges. The Indian Railway helps to unite the integral, social, economical, and cultural foundation of the country. Indian railway has around 114,500 kilometers of railway track

with 7500 railway station. This Railway carries approximately 30 million passengers and 2.8 million tons of freight daily<sup>3</sup>

In response to growing concerns from passengers about poor or inconsistent quality, the Indian Railways are increasingly realizing the significance of passenger centered philosophies and thereby, seeking ways to improve and provide better passenger service. To measure and evaluate the quality of service for improvement, the only way is to find out the level of satisfaction the passengers derive from the services.<sup>4</sup>

This paper is an attempt to find passengers' satisfaction on services offered by the rail system in Salem Division of Southern Railway.

## SALEM DIVISION OF SOUTHERN RAILWAY

One of the sixteen zones established after independence, Southern Railways came into existence in the year 1951. Railways of three states consisting Madras, Southern Maharashtra Railway, Mysore State Railway, and Southern Indian Railway were merged together to form Southern Railways.

A new railway division was approved in the year 2005 with Salem as its headquarters. Salem Division was inaugurated on 1st November 2007. All the departments of the division started functioning from 1st September, 2008, even there are several constraints such as, shortage of man power especially in the Divisional office. Ever since its formation the Division is functioning as any other established Division. In the selected Salem Division there are four junctions, they are Coimbatore, Salem, Erode and Karur. This division has helped improve the quality of service and in launching new trains, hence meeting the needs of passengers.<sup>5</sup>

## II. REVIEW OF LITERATURE

According to the international literature on marketing science, their main objective is to achieve passenger satisfaction and loyalty, as well as a better quality of service, which will keep the operator at a competitive position in the domain of passenger transportation, (Kotler, 1991).<sup>6</sup>

Vanniarajan.T and A.Stephen, (2012), “Railqual and passengers Satisfaction: an empirical study in Southern Railway”. This article identifies the attributes which passengers use to evaluate the service quality of Indian railways and develops a comprehensive instrument namely RAILQUAL. The linkage between Railqual and passengers’ satisfaction is also evaluated by the data collected from the passengers of Southern Railways. The important railqual factors identified by the passengers are reliability, assurance and empathy. The service offered by southern railways is up to the expectations of their passengers. The significantly and positively influencing railqual factors on the passengers’ satisfaction and image of the Indian railways are its reliability and empathy. The intangible aspects of service performance of Indian railways have a strong, direct and positive effect on the passengers’ favourable attitude and image. This study would help the policy makers to monitor, control and improve their service at the international level. It can also be used as an evaluation tool for comparing the performance of Indian railways with reference to passengers’ expectation.<sup>7</sup>

Chang Ee Ling and Cyril De Run.,(2009), “Satisfaction and Loyalty: Customer Perception of Malaysian Telecommunication Service Providers”. This study intends to investigate the factors that influence Customers’ Satisfaction and Customer Loyalty in Malaysian Telecommunication Services. This is achieved by utilizing a two-part research method. The first part utilizes an in-depth interview method to obtain variables to be used in the second part of the study. The second part consists of a questionnaire distributed to 125 respondents. A factor analysis is carried out. Findings indicate that important variables for satisfaction included, supporting services, product (handy, reliable, coverage, friends and family lines) and promotional efforts of the firm; while for loyalty, they refer to convenience, services, satisfaction and cost. The findings indicate that Telecommunication service providers should look beyond price wars to keep their customers satisfied and loyal.<sup>8</sup>

## III. STATEMENT OF THE PROBLEM

Satisfaction is based on the perception of passengers on various services offered by the rail system. To offer customized services, it is essential to understand the expectations and perceptions of the passengers with regard to quality of services offered by the rail system.

Based on the above issues, it is pertinent to focus the study on customer satisfaction on services provided by the rail system with the following query:

- What is the satisfaction level of the passengers on services offered by the rail system in Salem Division of Southern Railway?

## IV. OBJECTIVES

- To measure the level of satisfaction of passengers on services provided by the rail system.
- To offer suggestions to improve the satisfaction of passengers of the rail system.

## V. SAMPLING DESIGN AND METHODOLOGY

This is an empirical research based on survey method. The present study is confined to Salem Division of Southern Railway Zone. The study is based on primary data collected through structured questionnaire from 500 passengers in all the four junctions namely, Salem junction, Coimbatore junction, Erode junction and Karur junction of Salem Division of Southern Railway. The respondents for the study were drawn by means of stratified random sampling method. SPSS package were used for analysis. In order to find out the influence of various factors relating to the sample respondents on the satisfaction of passengers of the rail system analysis of variance has been used to discover any variances about the satisfaction of rail passengers among the sample respondents.

## VI. DATA COLLECTION

Primary and secondary data are used in the present study. The required primary data are collected using pre-tested and well structured questionnaire. The required secondary data are collected through Annual Reports of Ministry of railways, White paper on Indian railways published by Railway Ministry, various journals and websites.

## VII. HYPOTHESES

In tune with the objective of the study, null hypotheses were formulated that there is no significant association between the passenger satisfaction on services provided by the rail system in Salem Division of Southern Railway and the various independent variables relating to the sample respondents

## VIII. ANALYSIS

In order to achieve the objectives of the study an analysis is made to understand the level of satisfaction of the respondents on services offered by the rail system. The statistical tool used is analysis of variance. The socio economic profiles of the respondents are shown in the following table:

## ANALYSIS OF VARIANCE

### PERSONAL FACTORS AND TANGIBLES

Hypothesis: There is no significant difference between the personal classifications of the respondents on the level of satisfaction on tangibles of the Rail System.

The table 1 describes the results of ANOVA in terms of personal factors, source of variation, degrees of freedom, sum of squares, mean sum of squares, f values, p values and their significance on the level of satisfaction relating to the tangibles of the rail system.

TABLE 1: RESULTS OF ANOVA – PERSONAL FACTORS AND THE TANGIBLES OF THE RAIL SYSTEM.

Personal factors	sum of variations	Sum Squares of	Degrees of freedom	Mean Sum of Squares	F values	P values	Significant/ Not significant
Gender	Between samples	29.447	1	29.447	.814	.367	NS
	Within samples	18007.745	498	36.160			
	Total	18037.192	499				
Age(years)	Between samples	2212.953	3	737.651	23.121	.000	S
	Within samples	15824.239	496	31.904			
	Total	18037.192	499				
Educational qualification	Between samples	2127.640	3	709.213	22.111	.000	S
	Within samples	15909.552	496	32.076			
	Total	18037.192	499				
Occupational status	Between samples	1826.526	3	608.842	18.629	.000	S
	Within samples	16210.666	496	32.683			
	Total	18037.192	499				
Family monthly income (in RS)	Between samples	1411.136	3	470.379	14.033	.000	S
	Within samples	16626.056	496	33.520			
	Total	18037.192	499				
Nature of family	Between samples	149.396	1	149.396	4.159	.042	S
	Within samples	17887.796	498	35.919			
	Total	18037.192	499				
Size of the family	Between samples	815.160	3	271.720	7.826	.000	S
	Within samples	17222.032	496	34.722			
	Total	18037.192	499				
Number of dependents in the family	Between samples	89.075	1	89.075	2.472	.117	NS
	Within samples	17948.117	498	36.040			
	Total	18037.192	499				

Note: S-Significant @ 5% level (p value<\_0.05); NS-Not significant @ 5% level (p value>0.05)

It is found from table 1 that the Hypothesis is rejected (significant) in 6 cases and accepted (not significant) in 2 cases.

It is concluded that there exist significant difference between the personal classification on respondents' age, educational qualification and occupational status in respect of their level of satisfaction on tangibles of the rail system.

### PERSONAL FACTORS AND RESPONSIVENESS

HYPOTHESIS: There is no significant difference between the personal classifications of the respondents on the level of satisfaction on responsiveness of railway employees.

The table 2 describes the results of ANOVA in terms of personal factors, source of variation, degrees of freedom, sum of squares, mean sum of squares, f values, p values and their significance on the level of satisfaction relating to the responsiveness of railway employees.

TABLE 2: RESULTS OF ANOVA – PERSONAL FACTORS AND THE RESPONSIVENESS OF RAILWAY EMPLOYEES

Personal factors	sum of variations	Sum Squares of	Degrees of freedom	Mean Sum of Squares	F values	P values	Significant / Not significant
Gender	Between samples	85.757	1	85.757	10.755	.001	S
	Within samples	3971.001	498	7.974			
	Total	4056.758	499				
Age(years)	Between samples	201.108	3	67.036	8.624	.000	S
	Within samples	3855.650	496	7.773			
	Total	4056.758	499				
Educational qualification	Between samples	43.014	3	14.338	1.772	.152	NS
	Within samples	4013.744	496	8.092			
	Total	4056.758	499				

Occupational status	Between samples	93.761	3	31.254	3.912	.009	S
	Within samples	3962.997	496	7.990			
	Total	4056.758	499				
Family monthly income (in RS)	Between samples	153.721	3	51.240	6.512	.000	S
	Within samples	3903.037	496	7.869			
	Total	4056.758	499				
Nature of family	Between samples	85.842	1	85.842	10.766	.001	S
	Within samples	3970.916	498	7.974			
	Total	4056.758	499				
Size of the family	Between samples	118.381	3	39.460	4.970	.002	S
	Within samples	3938.377	496	7.940			
	Total	4056.758	499				
Number of dependents in the family	Between samples	.158	1	.158	.019	.889	NS
	Within samples	4056.600	498	8.146			
	Total	4056.758	499				

Note: S-Significant @ 5% level (p value<.05); NS-Not significant @ 5% level (p value>.05)

It is found from table 2 that the Hypothesis is rejected (significant) in 6 cases and accepted (not significant) in 2 cases.

It is concluded that there exist significant difference between the personal classification on respondents' gender, age and occupational status in respect of their level of satisfaction on the responsiveness of railway employees.

#### PERSONAL FACTORS AND ASSURANCE

**HYPOTHESIS:** There is no significant difference between the personal classifications of the respondents on the level of satisfaction on assurance of the rail system.

The table 3 describes the results of ANOVA in terms of personal factors, source of variation, degrees of freedom, sum of squares, mean sum of squares, f values, p values and their significance on the level of satisfaction relating to the assurance of the rail system.

TABLE 3: RESULTS OF ANOVA – PERSONAL FACTORS AND ASSURANCE OF THE RAIL SYSTEM

Personal factors	sum of variations	Sum Squares	of Degrees of freedom	Mean Sum of Squares	F values	P values	Significant/ Not significant
Gender	Between samples	118.647	1	118.647	15.753	.000	S
	Within samples	3750.761	498	7.532			
	Total	3869.408	499				
Age(years)	Between samples	11.228	3	3.743	.481	.696	NS
	Within samples	3858.180	496	7.779			
	Total	3869.408	499				
Educational qualification	Between samples	18.496	3	6.165	.794	.498	NS
	Within samples	3850.912	496	7.764			
	Total	3869.408	499				
Occupational status	Between samples	20.642	3	6.881	.887	.448	NS
	Within samples	3848.766	496	7.760			
	Total	3869.408	499				
Family monthly income (in RS)	Between samples	438.269	3	146.090	21.119	.000	S
	Within samples	3431.139	496	6.918			
	Total	3869.408	499				
Nature of family	Between samples	12.962	1	12.962	1.674	.196	NS
	Within samples	3856.446	498	7.774			
	Total	3869.408	499				
Size of the family	Between samples	212.850	3	70.950	9.624	.000	S
	Within samples	3656.558	496	7.372			
	Total	3869.408	499				
Number of dependents in the family	Between samples	1.015	1	1.015	.131	.718	NS
	Within samples	3868.393	498	7.768			
	Total	3869.408	499				

Note: S-Significant @ 5% level (p value<.05); NS-Not significant @ 5% level (p value>.05)

It is found from table 3 that the Hypothesis is rejected (significant) in 3 cases and accepted (not significant) in 5 cases.

It is concluded that there exist significant difference between the personal classification on respondents' gender, family monthly income and size of the family in respect of their level of satisfaction on assurance of the rail system.

**PERSONAL FACTORS AND RELIABILITY**

**HYPOTHESIS:** There is no significant difference between the personal classifications of the respondents on the satisfaction on reliability of the rail system.

The table 4 describes the results of ANOVA in terms of personal factors, source of variation, degrees of freedom, sum of squares, mean sum of squares, f values, p values and their significance on the level of satisfaction relating to reliability of the rail system.

**TABLE 4: RESULTS OF ANOVA – PERSONAL FACTORS AND RELIABILITY OF THE RAIL SYSTEM**

Personal factors	sum of variations	Sum of Squares	Degrees of freedom	Mean Sum of Squares	F values	P values	Significant/ Not significant
Gender	Between samples	17.021	1	17.021	2.050	.153	NS
	Within samples	4135.657	498	8.305			
	Total	4152.678	499				
Age(years)	Between samples	19.475	3	6.492	.779	.506	NS
	Within samples	4133.203	496	8.333			
	Total	4152.678	499				
Educational qualification	Between samples	183.699	3	61.233	7.652	.000	S
	Within samples	3968.979	496	8.002			
	Total	4152.678	499				
Occupational status	Between samples	16.249	3	5.416	.649	.584	NS
	Within samples	4136.429	496	8.340			
	Total	4152.678	499				
Family monthly income (in RS)	Between samples	579.475	3	193.158	26.812	.000	S
	Within samples	3573.203	496	7.204			
	Total	4152.678	499				
Nature of family	Between samples	12.874	1	12.874	1.549	.214	NS
	Within samples	4139.804	498	8.313			
	Total	4152.678	499				
Size of the family	Between samples	13.890	3	4.630	.555	.645	NS
	Within samples	4138.788	496	8.344			
	Total	4152.678	499				
Number of dependents in the family	Between samples	3.967	1	3.967	.476	.491	NS
	Within samples	4148.711	498	8.331			
	Total	4152.678	499				

Note: S-Significant @ 5% level (p value<\_0.05); NS-Not significant @ 5% level (p value>0.05)

It is found from table4 that the Hypothesis is rejected (significant) in 2 cases and accepted (not significant) in 6 cases.

It is concluded that there exist significant difference between the personal classification on respondents' educational qualification and family monthly income in respect of their level of satisfaction on reliability of the rail system.

**PERSONAL FACTORS AND EMPATHY**

**HYPOTHESIS:** There is no significant difference between the personal classifications of the respondents on the level of satisfaction on empathy of the rail system.

The table 5 describes the results of ANOVA in terms of personal factors, source of variation, degrees of freedom, sum of squares, mean sum of squares, f values, p values and their significance on the level of satisfaction relating to empathy of the rail system.

**TABLE 5 : RESULTS OF ANOVA – PERSONAL FACTORS AND EMPATHY OF THE RAIL SYSTEM**

Personal factors	sum of variations	Sum of Squares	Degrees of freedom	Mean Sum of Squares	F values	P values	Significant/ Not significant
Gender	Between samples	80.997	1	80.997	8.385	.004	S
	Within samples	4810.545	498	9.660			
	Total	4891.542	499				
Age(years)	Between samples	21.795	3	7.265	.740	.529	NS
	Within samples	4869.747	496	9.818			
	Total	4891.542	499				
Educational qualification	Between samples	100.874	3	33.625	3.481	.016	S
	Within samples	4790.668	496	9.659			

	Total	4891.542	499				
Occupational status	Between samples	65.375	3	21.792	2.240	.083	NS
	Within samples	4826.167	496	9.730			
	Total	4891.542	499				
Family monthly income (in RS)	Between samples	449.165	3	149.722	16.717	.000	S
	Within samples	4442.377	496	8.956			
	Total	4891.542	499				
Nature of family	Between samples	7.415	1	7.415	.756	.385	NS
	Within samples	4884.127	498	9.807			
	Total	4891.542	499				
Size of the family	Between samples	176.411	3	58.804	6.186	.000	S
	Within samples	4715.131	496	9.506			
	Total	4891.542	499				
Number of dependents in the family	Between samples	8.758	1	8.758	.893	.345	NS
	Within samples	4882.784	498	9.805			
	Total	4891.542	499				

Note: S-Significant @ 5% level (p value<\_0.05); NS-Not significant @ 5% level (p value>0.05)

It is found from table 5 that the Hypothesis is rejected (significant) in 4 cases and accepted (not significant) in 4 cases.

It is concluded that there exist significant difference between the personal classification on respondents' gender, educational qualification, family monthly income and size of the family in respect of their level of satisfaction on empathy of the rail system.

#### IX. FINDINGS OF THE STUDY

1. There exist significant difference between the personal classification on respondents' age, educational qualification, occupational status in respect of their level of satisfaction on tangibles of the rail system
2. There exists significant difference between the personal classification on respondents' gender, age, occupational status in respect of their level of satisfaction on the responsiveness of railway employees.
3. There exist significant difference between the personal classification on respondents' gender, family monthly income and size of the family in respect of their level of satisfaction on assurance of the rail system.
4. There exist significant difference between the personal classification on respondents' educational qualification and family monthly income in respect of their level of satisfaction on reliability of the rail system.
5. There exist significant difference between the personal classification on respondents' gender, educational qualification, family monthly income and size of the family in respect of their level of satisfaction on empathy of the rail system.

#### X. SUGESTIONS AND CONCLUSION

The contribution of this study is the identification of factors that determine passenger satisfaction with services offered by the rail system. SERQUAL instrument is used to find the level of satisfaction of the respondents. Availability of power, responsiveness of railway staffs (including TTE, booking clerk etc), safety and security, digital display and individualized attention to passengers are the factors considered most important by the passengers. The proposed model of customer satisfaction may be used as a basis to plan efforts towards increasing customer satisfaction. Improvement in sanitation facility, catering facility, infrastructures in the train, behaviour of porters, responsiveness of railway doctors, Railway staff's knowledge in answering the queries, punctuality of train services and understanding the needs of the passengers is required to enhance the satisfaction of the passengers and to improve the quality of services of the rail system. The study thus provides a direction for railway administration whereby areas for improving services may be identified and passenger satisfaction may be enhanced.

The model, although designed in a specific context, may be extended to other similar services and help to improve quality of life for the masses and thus increase overall satisfaction.

#### APPENDIX PASSENGERS' SATISFACTION ON SERVICES OFFERED BY THE RAIL SYSTEM

##### (A STUDY IN SALEM DIVISION OF SOUTHERN RAILWAY ZONE)

#### QUESTIONNAIRE

##### I. Personal details

1.1 Name:

1.2 Gender

Male

Female

1.3 Age(years)

- Less than 20
- 20- 30
- 30-40
- 40 and above

1.4 Educational qualification

- No formal education
- School level
- College level
- Others (specify)

1.5 Occupational status

- Agriculture
- Business/Professional
- Employed
- Others (please specify)

**II.Travel details**

2.1 How often do you travel by train?

- Daily
- Weekly
- Monthly
- Half-yearly
- Yearly
- Occasionally

2.2 With whom do you travel?

- Single
- Family without kids
- Family with kids
- With friends and relatives
- With business partners

2.3 Mention your purpose of travel?

- Official/Business
- Education
- Personal
- Tour / pilgrimage
- Vacation
- Sports
- Others (specify)

**III.Indicate your level of satisfaction on services offered by the Rail System to passengers**

S.NO	Factors	Highly Satisfied	Satisfied	Neutral	Dissatisfied	Highly dissatisfied
A	Tangibles					
1	Facilities on the train:					
1.1	Availability of power					
1.2	Seating arrangement					
1.3	Ventilation facility					
1.4	Sanitation facility					
1.5	Catering facility					
2	Infrastructure at the station					
3	Infrastructure in the train					
4	Appearance of railway personnel					

B	Responsiveness					
1	Willingness of the staff (including TTE, booking clerk etc) to respond					
2	Behaviour of the porters, sanitary workers, etc					
3	Service by the railway doctors					
4	Responsiveness of railway police					
5	Approachability of the top management					
C	Assurance					
1	Trust worthiness of Railways					
2	Safety of passengers in their transactions					
3	Courtesy of the staff					
4	Performance of services as promised					
5	Staff's knowledge in answering the queries					
D	Reliability					
1	Record keeping					
2	Punctuality of train services					
3	Display of reservation chart					
4	Clarity of announcements					
5	Digital display					
E	Empathy					
1	Individualised attention to passengers					
2	Convenient business hours					
3	Railway journey is easy to plan					
4	Mental and physical support from the staff					
5	Understand the needs of the passengers					

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