A Study of Passenger Satisfaction in Maharashtra State Road Transport Corporation in Amravati District

Madhuri Rahatgaonkar, Mayura Mathankar

Abstract— **Public Road Transport system for the movement of passengers over short and medium distance is essentially based on bus services. It is a basic infrastructure and a public utility service that meets the travel needs of the general public connected with work, education, social purposes and entertainment purposes. Now buses even compete with the Railways in some long distance routes with convenient and comfortable services. In this paper we tried to attempt the satisfaction level of passengers on the services provided by Maharashtra State Road Transport Corporation and also awareness of passengers about its services.**

Index Terms—**Passanger, Bus Service, Amravati.**

I. INTRODUCTION

The Maharashtra State Road Transport Corporation (MSRTC) is the state run bus service of Maharashtra, with 17500 buses which ferry 7 million passengers daily on 17,000 routes. It is the third largest bus service provider in India and serves routes to towns and cities within Maharashtra and adjoining states. Apart from locations within the state of Maharashtra, the MSRTC service also covers destinations in neighbouring states.

Table I: Operational statistics for 2013-14 and 2014-15 for Amravati Division

S. N.	Particulars	2013-14	2014-15
1	No. of schedules operated	373	377
2	Staff strength (including TRP)	2806	2769
5	Number of depots	8	8
6	Numbers of Routes	335	333
7	Route in Kms.	26162	26861
8	Average Route Distance (in kms.)	78.10	80.66
9	Total no. of buses	431	450
10	Average no. Of buses held	444	441
11	Average no. of buses on road i) Average no. of off road vehicles ii) Average no. of roadworthy span	408 30 6	409 28 4
12	Vehicle utilisation (in kms.)	347.6	340.1
13	Average seating capacity	44.08	44.14
14	No. of passengers carried (in lakh)	579.42	548.93

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According to the provision of section 3 of RTC Act 1950, State Government of Maharashtra established the "Maharashtra State Road Transport Corporation". The MSRTC has four tier organizational setup like Central Office at Mumbai, six Regional offices at Mumbai, Pune, Nashik, Aurangabad, Amravati, Nagpur, 30 Divisional Offices situated different Districts, and 248 Depots are situated almost at Tahasil Places. 450 buses are hired for Amravati Division and it conduct 85000 trips a day. For smooth conduction, a Management Information System (MIS) is established to provide information of performance to the management and compiled at divisional level and then transmitted to regional offices, finally compilation for corporation is completed at central office.

II. LITERATURE REVIEW

Inspite of the fact that transportation plays an important role in economics, cultural, industrial and social development of any nation, transport sector had not received due consideration of researchers in past.

Kalyanaraman and Sehgal have examined a few methods for estimating future road traffic. They suggested two methods, i.e. Mechanical and analytical. The mechanical method is simply project forwards the past trends assuming that future experience is direct function of past experience. Whereas analytical method classify and analyse the several related components or factors that have caused the historical trend pattern.

Satyanarayana has observed that the cost of service of road transport depend upon the size of the fleet, the vehicle condition and the length and road condition. His study attempts to find out the inter–relationship between these factors on the basic of the data collected from a reprehensive sample of motor vehicle operators in A.P.

Manjula Singh has observed in her study that, In India, the operating ratio (revenue expenditure)is always above 100 for rail and less than 80 for road transport. She recommends a well –coordinated road transportations system on the basis of such factors as assessment of demands of roads on vehicle requirement. Distance from main roads. And coordination of local bodies . Land surfaces regional development and employment considerations.

Sudarshanam Padam discussed the history of bus transport in India, various forms of organizations in State Transport Undertakings, its management and performance by way of comparison.

III. IMPORTANCE OF PASSENGER SATISFACTION

Satisfaction is a feeling of pleasure or disappointment which results from comparing the performance or outcome in relation to passengers expectation. If the performance falls short of expectation, customer is dissatisfied. If customer is highly satisfied then he is delighted. By measuring the quality of services and measuring the satisfaction level and perceptions of passengers in quantitative term, we can make the appropriate and positive changes based on the results of these measurements. By measuring the customer satisfaction levels, an organization can become more customer focused and successful in the market.

IV. METHODOLOGY

Descriptive research is used in this paper, as it gives the deeper insight to the research problem. The study is limited to only Amravati area. It assesses the preference of choosing means of travelling by the respondents. The population are the people who are travelling through MSRTC bus. Sample of size 240 is taken. To collect the data, questionnaire was prepared.

The rating of the following attributes in the scale of 1 to 5

Scale : 1= poor, 2= good, 3 = Neutral, 4 = very good, outstanding

V. DATA ANALYSIS

1.

te the frequency of Travel by MSRTC bus?

Average Rating = 3.77
% of satisfaction = 74.8%

2. Rate the availability of information about bus time on bus stop/depot.

Average Rating = 3.12
% of satisfaction = 62.5%

3. Rate the frequency of bus services?

Average Rating = 3.25
% of satisfaction = 65.08%

4. Rate the price charged by MSRTC for their various services?

Average Rating = 2.55
% of satisfaction = 51%

5. Whether there is a correlation in between use of bus (every day, several time a week, once or twice a year, never) and price charged by MSRTC?

H_0: There is no correlation between use of bus (every day, several times a week, once or twice a year, never) and charges of ST bus services.

H_1: There is correlation between use of bus (every day, several times a week, once or twice a year, never) and charges of ST bus services.

Using Karl Pearson Correlation Coefficient

$$r = \frac{Covariance\ (x, y)}{S.D.(x)\ S.D.(y)}$$

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{[n \sum x^2 - (\sum x)^2][n \sum y^2 - (\sum y)^2]}}$$

$$r = -0.104196485$$

Since there is a negative correlation between the uses of bus (every day, several times a week, once or twice a year, never) and charges of ST bus services. Hence H_0 Is rejected. Therefore, There is no correlation between use of bus (every day, several times a week, once or twice a year, never) and charges of ST bus services.

6 Rating the level of personal safety from crime or threatening behaviour at bus stop?

Average Rating = 2.98
% of satisfaction = 59.75%

7. Rate the comfort of the buses like (cleanliness ,seat ,bus condition, internal space etc.)?

Average Rating = 2.93
% of satisfaction = 58.7%

8. Rating for the staff on buses/bus depot on the following parameters
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Parameters	Average Rating
Behaviour	2.29
Helpfulness	2072
Honesty	2072
Dressing sense	3.09

Average Rating = 2.72
% of satisfaction = 54.4%

9. Rate MSRTC ST bus services

Average Rating = 2.38
% of satisfaction = 47.66%

Calculation of customer satisfaction

No. Of respondent = 240, here 5 point rating scale is used, the customer can assign a maximum rating of "5" to an attribute. Therefore, maximum score = 5 and highest possible score = 240 * 5 = 1200

Average rating scored = 2.29 * 240 = 708.9

Thus passenger satisfaction index = 708.9/1200 = 59.07%

Overall satisfaction index = 59.07%

10. Rate MSRTC and Railway with following factors.(where you have to mark in the box which you find better.)

Table II: Observed Frequency

	Charges	Availability	Safety	Routs Covered	Punctuality	Comfort	Crowd	Cleanliness	Total
MSRTC	56	124	152	122	118	113	119	120	924
Railway	184	116	88	118	122	127	121	120	996
	240	240	240	240	240	240	240	240	1920

Table III: Expected frequency:

	Charges	Availability	Safety	Routs Covered	Punctuality	Comfort	Crowd	Cleanliness	Total
MSRTC	115.5	115.5	115.5	115.5	115.5	115.5	115.5	115.5	924
Railway	124.5	124.5	124.5	124.5	124.5	124.5	124.5	124.5	996
	240	240	240	240	240	240	240	240	1920

Table II: Chi square 2x8 contingency table:

	Charges	Availability	Safety	Routs Covered	Punctuality	Comfort	Crowd	Cleanliness	Total
MSRTC	30.6515	0.6255	11.534	0.3658008	0.054113	0.05411	0.1060	0.1753	43.56709
Railway	28.4357	0.5803	10.700	0.3393574	0.050201	1.06224	0.0983	0.1626	41.42971
	59.0872	1.2058	22.235	0.7051583	0.104313	1.11636	0.2044	0.3379	84.99681

Here we used a chi square test for independence.

The Chi-Square test of Independence is used to determine if there is a significant relationship between two nominal (categorical) variables. The frequency of one nominal variable is compared with different values of the second nominal variable. The data can be displayed in an R*C contingency table, where R is the row and C is the column.

$$X^2 = \sum \frac{(O-E)^2}{E}$$

Here,

O = Observed frequency

E = Expected frequency

X^2 = Chi Square value

Hypothesis:

H_0: There is no significance difference between services of MSRTC & Railway.

H_1: There is a significance difference between services of MSRTC & Railway.

Chi-Square = 84.99682

P Value = 8.27458E-14

$\alpha = 0.5$

The calculated value is greater than tabulated value therefore we reject null the hypothesis H0. This means that there is a significance difference between services of MSRTC and Railway.

VI. RECOMMENDATIONS

While comparing the services of MSRTC and Indian railway, it is observed that there is a significance difference between services of MSRTC and Railway. In this case passengers prefer railways rather than MSRTC.

➢ Based on the survey and observations, following are the recommendations to same parameters which is beneficial for MSRTC.

➢ Condition of the buses should be better and seats are comfortable.

➢ Air conditioned buses with sleeper coach should be started for long route.

➢ There must be arrangement of ladies wash rooms in bus stops with sufficient water and cleanliness

VII. CONCLUSION

The overall satisfaction index for the survey findings is 59.07%. Thus it shows that the passengers are overall satisfied with MSRTC as the comfortable means of transport for short as well as long route.

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