K.E.S's

PRATAP COLLEGE AMALNER

DEPARTMENT OF STATISTICS

T.Y.B.Sc

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PROJECT REPORT

ON

"A Study of Passenger Satisfaction in Maharashtra State Road Transport Corporation in CHOPDA Taluka"

Submitted to

K.B.C.NORTH MAHARASHTRA UNIVERSITY

by

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(NAAC Reaccredited A+++)

CERTIFICATE

This is certified that Patil Bhavesh Bhagwan, Sove Rohit Rajendra students of T.Y.B.Sc. (STATISTICS) in the academic year 2020-21 has successfully carried out the project work with faithful as well as remarkable finding accordance to the subject.

" The Study of Passenger Satisfaction in Maharashtra State Road Transport

Corporation in CHOPDA Taluka"

Under the supervision and guidance of Prof. J. B. Jain

Prof. Kalyani Deshmukh   Prof.J.B.Jain

(Project guide)   (H.O.D. of statistics)

ACKNOWLEDGEMENT

Firstly, we express our sincere gratitude to the almighty of the successful of this project. We feel indeed very happy in presenting the project report **"A Study of Passenger Satisfaction in Maharashtra State Road Transport Corporation in CHOPDA Taluka"**

We would like to thank firstly our project guide. **Prof. J. B. Jain Sir.** We are very thankful to him for encouragement and guidance for project. It was privilege to work under her guidance. We express our deep sense of gratitude to our project guide Prof. Kalyani Deshmukh for his insperative directions & constant encouragement .

We are thankful to our teachers for valuable advice and guidance in the project work. Also we are thankful to principle and especially thankful to (our HOD) **Prof. J.B.Jain** sir for his excellent support for doing project work.

Date:-

Place:- Pratap College , Amalner

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INTRODUCTION

In this project , we try to find peoples are satisfied with how must ST bus services . Nowadays mobility is an important aspect in transportation as it helps in moving either the passenger or freight from one location to another.

The Maharashtra State Road Transport Corporation (MSRTC) is the state run bus service of maharashtra , with 21449 buses with ferry 8.7 million passengers daily . It is the third largest bus services provider in india & 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 .

According to the provision of section 3 of RTC Act 1950 , state government of maharashtra established the "**Maharashtra State Road Transport Corporation**".

OBJECTIVE

- ➤ To study the significance difference of MSRTC services between 2019-20 and 2020-21

- ➤ To measure the level of satisfaction of the passengers on services provided by the MSRTC bus .

- ➤ To find out the comparison between MSRTC and railway services

METHODOLOGY

Regarding this project we have conducted survey of 308 passengers . We have used statistical tools such as chi-square test, anova and presented graphically. The study is limited to only Chopda area.. The population are the people who are travelling through MSRTC bus and railway. Also shown by comparison between railway and MSRTC bus facilities . Sample of size 308 is taken. To collect the data, this data is primary and secondary data .questionnaire was prepared.

SOFTWARE USE

- • **Excel**

- • **R-software**

Analysis – l

Table I : Operational statistics for 2019-20 and 2020-21 for Chopda Taluka

S.N.	Particulars	2019-20	2020-21
1)	Number of schedules operated	75	69
2)	Staff strength	436	422
3)	Number of villages	117	117
4)	Number of Routes	69	72
5)	Routes in K.M.	5837	5915
6)	Average route distance	84.59	82.15
7)	Total number of buses	84	70
8)	Average number of buses held	84	70
9)	Average number of buses on road	84	70
10)	Vehicle utilization (in K.M.)	310.6	150.3
11)	Average seating capacity	44.08.	44.14
12)	Number of passengers carried (in lakh)	73	22
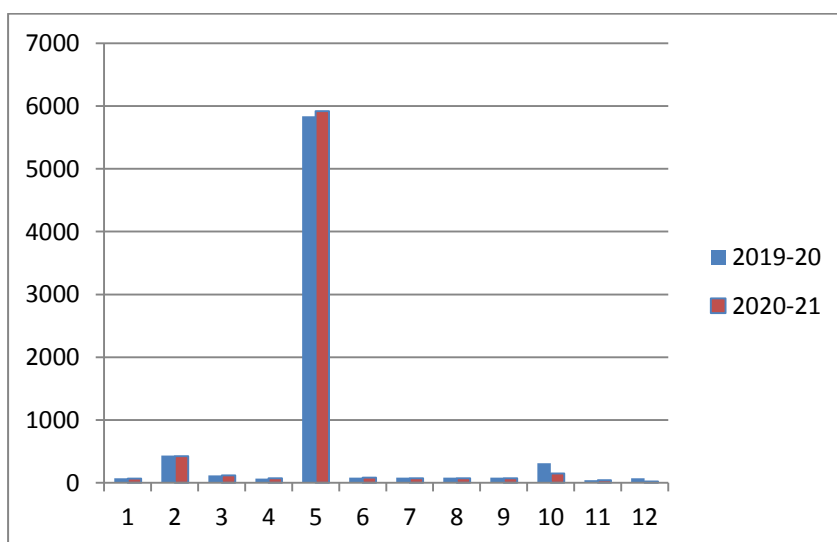
INTERPRETATION: Graphical representation above tabular data

Hypothesis:

H0 : There is no significance difference of MSRTC services between 2019-20 and

2020-21

H1 : There is significance difference of MSRTC services between 2019-20 and

2020-21

ANOVA TABLE :

Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance
2019-20	12	7298.27	608.1892	2725280
2020-21	12	7103.89	591.9908	2820915

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1574.316	1	1574.316	0.000568	0.981206	4.30095
Within Groups	61008146	22	2773098			
Total	61009720	23				

Level of significance = α = 0.05

P-value = 0.981206

LOS < P-value

Decision: here Level of significance is less than P-value , H0 is accepted

Conclusion : This means that there is a no significance difference of MSRTC services between 2019-20 and 2020-21

Analysis – II

The rating of the following attributes in the scale of 1 to 5 Scale :
1= poor, 2= good, 3 = Neutral, 4 = very good, 5= outstanding

1. Rate the frequency of Travel by MSRTC bus?

Average Rating = 3.77
% of satisfaction = 75.8%

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

Average Rating = 3.52
% of satisfaction = 70.4%

3. Rate the frequency of bus services?

Average Rating = 3.15
% of satisfaction = 63%

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

Average Rating = 2.25
% of satisfaction = 45%

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

Average Rating = 2.93
% of satisfaction = 58.6%

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

Average Rating = 2.18
% of satisfaction = 43.6%

7. Rating for the staff on buses/bus depot on the following parameters

Parameters	Average rating
Behaviour	3.19
Helpfulness	3.72
Honesty	2.72
Dressing sense	3.09

<u>Average Rating = 3.18</u>

<u>% of satisfaction = 63.6%</u>

8. Rating the reservation services of MSRTC

<u>Average Rating = 2.38</u>
<u>% of satisfaction = 47.6%</u>

9. Rating MSRTC bus travel experience

<u>Average Rating = 2.81</u>
<u>% of satisfaction = 56.2%</u>

Calculation of customer satisfaction by average rating :

Avg of avg rating = $\frac{(3.77+3.52+3.15+2.25+2.93+2.18+3.18+2.38+2.81)}{9} = \frac{26.17}{9} = 2.91$

No. Of respondent =308, here 5 point rating scale is used
Therefore, maximum score = 5 and highest possible score = 308 * 5 = 1540

Average rating scored = 2.91* 308 = 896.28
Thus passenger satisfaction index = 896.28 / 1540 = 58.2%

Calculation of customer satisfaction by % of satisfaction :

Avg of % of satisfaction = $\frac{(75.8+70.4+63+45+58.6+43.6+63.6+47.6+56.2)}{9} = \frac{523.8}{9}$ =58.2%

Overall satisfaction index = 58.2%

Table ll : from the given data we took an average of 308 samples of each rating

Ratings	sample
1 rating	25
2 rating	51
3 rating	97
4 rating	87
5 rating	48

sample

INTERPRETATION:

In above graph , the maximum response has been in 3 ratings and 3 ratings is neutral and 4

rating is very good so it can be said that people are satisfied to travel by bus

Analysis–III

we have to study comparison between MSRTC & railway for the following given characteristics
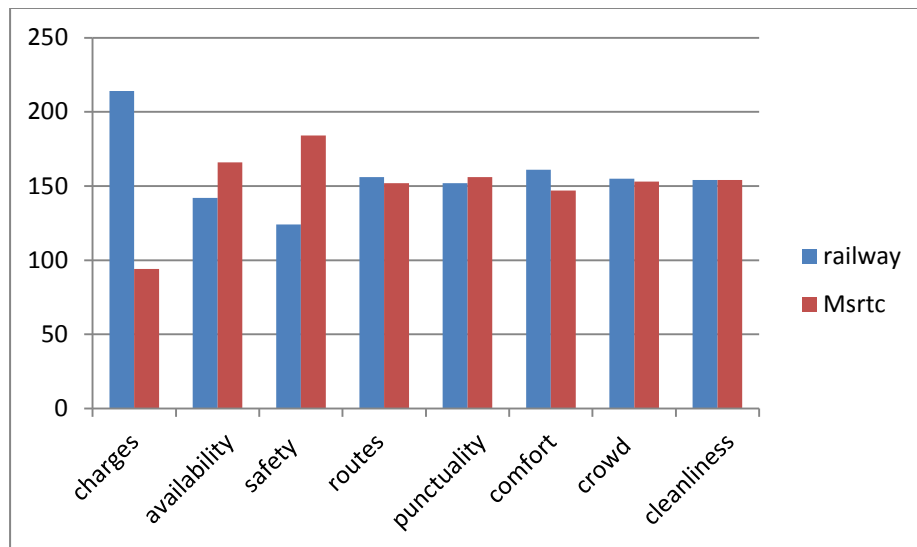
Table lll: Observed Frequency

	Charges	Availability	Safety	Routs Covered	Punctuality	Comfort	Crowd	Cleanliness	Total
MSRTC	94	166	184	152	156	147	153	154	1206
Railway	214	142	124	156	152	161	155	154	1258
	308	308	308	308	308	308	308	308	2464

Table lV: Expected Frequency

	Charges	Availability	Safety	Routs Covered	Punctuality	Comfort	Crowd	Cleanliness	Total
MSRTC	150.75	150.75	150.75	150.75	150.75	150.75	150.75	150.75	1206
Railway	157.25	157.25	157.25	157.25	157.25	157.25	157.25	157.25	1258
	308	308	308	308	308	308	308	308	2464

Table V: Chi-square table

	Charges	Availability	Safety	Routs Covered	Punctuality	Comfort	Crowd	Cleanliness	Total
MSRTC	21.36	1.54	7.33	0.01	0.182	0.093	0.033	0.07	30.618
Railway	20.48	1.47	7.03	0.0099	0.175	0.089	0.032	0.0671	29.9569
	41.84	3.01	14.36	0.0199	0.357	0.182	0.065	0.1371	59.971

INTERPRETATION:

In above graph infers that graphical representation of characteristics between

MSRTC and railway

Here ,we used a chi square test for independence.

$$X^2 = \sum (O_i - E_i)^2 / E_i$$

Here,

O = Observed frequency

E = Expected frequency

X^2 = Chi Square value

Hypothesis:

H0: There is no significance difference between services of MSRTC & Railway.
H1: There is a significance difference between services of MSRTC & Railway.

Chi-Square $_{cal}$ = 59.971
Chi-Square $_{tab}$= 14.07

P-value = 1.514e-10 , df=7

Chi-Square $_{cal}$ > Chi-Square $_{tab}$

Decision: here calculated value is greater than tabulated value , H0 is rejected

Conclusion: This means that there is a significant difference between services of MSRTC and railway.

CONCLUSION

1) From the data of 'analysis-l' it is understood that there is no significant difference of MSRTC services between 2019-20 and 2020-21 .

2) In this data , the transport service is closed due to lockdown in the status of 'COVID-19 ' so there is a half difference in the number of passengers carried and vehicle utilisation

3) The overall satisfaction index for the survey findings is 58.2%.

4) From the graph we see that maximum response has been in 3 ratings and 3 ratings is neutral and 4 ratings is very good so it can be said that people are satisfied to travel bus

5) From the data of 'Analysis-lll' , there is a significant difference between services of MSRTC and railway.

APPENDIX

Questionnaire:

1. Name

2. Rate the frequency of travel by MSRTC bus.

   a) Poor b)Good c)Neutral d)Very good e)Outstanding

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

   a) Poor b)Good c)Neutral d)Very good e)Outstanding

4) Rate the frequency of bus services?

   a) Poor b)Good c)Neutral d)Very good e)Outstanding

5) Rate the price charged by MSRTC for their various services?

   a) Poor b)Good c)Neutral d)Very good e)Outstanding

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

   a) Poor b)Good c)Neutral d)Very good e)Outstanding

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

   a) Poor b)Good c)Neutral d)Very good e)Outstanding

8) Rating for the staff on buses/bus depot on the following parameters

   a) Poor   b)Good   c)Neutral   d)Very good   e)Outstanding

Behaviour
Helpfulness
Honesty
Dressing sense

9) Rating the reservation services of MSRTC

   a) Poor b)Good c)Neutral d)Very good e)Outstanding

10) Rating MSRTC bus travel experience

   a) Poor b)Good c)Neutral d)Very good e)Outstanding

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

	Charges	Availability	Safety	Routs Covered	Punctuality	Comfort	Crowd	Cleaniness
MSRTC								
RAILWAY								