Research Paper

"Operational Efficiency Of Gujarat State Road Transport Corporation"
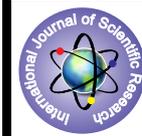
Management

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ABSTRACT   GSRTC has played a pivotal role in the economic growth of the state through operating an extensive passenger transport network and reaching out to villages. GSRTC has tried to reconcile the twin objectives of community service and financial viability. But, revenue receipts are not enough to recover even its costs. The financial performance of GSRTC is closely linked to its physical performance which, in turn, depends on the efficiency of operations and policy variables. This study emphasizes on the operational efficiency of GSRTC. The main objective of this study is to identify and ascertain the relationship between the various parameters of operational efficiency and thereby sustain the financial viability. Twenty years' data and Step wise Regression Analysis is used for the purpose. The study reveals that amongst given five parameters seating capacity and load factor having greatest impact on traffic revenue.

INTRODUCTION

Over 52 years of its existence, Gujarat State Transport Corporation has completed 100% nationalization of passenger transport services. Today 95.99% villages covering 99.19% population is getting bus services from their own village. GSRTC has played a pivotal role in the economic growth of the state through operating an extensive passenger transport network and reaching out to villages. GSRTC has tried to reconcile the twin objectives of community service and financial viability. It has built up a large fund of goodwill from people of Gujarat. But, financial viability has become a critical goal. The scrutiny of the financial performance of the GSRTC revealed that the total losses for the year 2007-08 were around Rs. 123.36 crores. Revenue receipts are not enough to recover even its costs.

Table 1 Magnitude of Profits and Losses for the year 2003-04 to 2007-08

Particulars	Amount Rs. in crores				
Year	2007-08	2006-07	2005-06	2004-05	2003-04
Total Revenue	1714.24	1612.09	1430.17	1370.71	1415.40
Total Costs	1542.41	1678.23	1837.60	1519.60	1506.18
Total Losses	112.24	66.14	123.36	148.89	90.78

Source: Computed from the annual reports and accounts of GSRTC, Ahmedabad

The financial performance of GSRTC is closely linked to its physical performance which, in turn, depends on the efficiency of operations and policy variables. This study emphasizes on the operational efficiency of GSRTC. The specific objectives of the study are spelt out below:

· To identify the independent variables that are most effective in predicting the Traffic Revenue
· To ascertain the statistical relationship between the independent variables and dependent variable
· To ascertain degree of correlation between independent variables and dependent variable
· To ascertain potential for increased Financial Performance through improved operational efficiency

METHODOLOGY
Sampling Size

Table – 2 Descriptive Statistics

Variables	Mean	Std. Deviation	N
Traffic Revenue	950.8705	391.70445	20
Seating Capacity	54.6165	3.87664	20
Load Factor	65.1145	6.46302	20
Seats Occupied	37.2115	6.36539	20
Inventory of Stores	71.2500	21.65003	20

The minimum ratio of valid cases to independent variables for stepwise multiple regression is 5 to 1. With 20 valid cases and 4 independent variables, the ratio for this analysis is 5 to 1, which satisfies the minimum requirement.

Analytical Procedure

Stepwise Regression analysis was used to meet objectives of study. The regression equation was fitted for Traffic Revenue. The regression equation includes the following variables:

$$Y = f (X1, X2, X3, X4)$$
Where,

Y = Traffic revenue (paise/km.)

X1 = Seating Capacity of the Fleet (average)

X2 = Load Factor (percentage)

X3 = Seats Occupied (average)

X4 = Inventory of Stores on last day (consumption period-days)

RESULTS AND DISCUSSIONS

1. Most Effective Independent Variables

Table – 3 Variables Entered/Removed (a)

Model	Variables Entered	Variables Removed	Method
1	Seating Capacity	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
2	Load Factor		Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

a Dependent Variable: Traffic Revenue Based on the table of "Variables Entered/Removed", the most important predictor of Traffic Revenue is Average Seating Capacity. The Second most important predictor of Traffic Revenue is Load Factor.

2. Statistical Relationship between the independent variables and dependent variable

Table – 5 ANOVA(c)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2238746.664	1	2238746.664	59.570	.000(a)
	Residual	676468.443	18	37581.580		
	Total	2915215.107	19			
2	Regression	2484289.693	2	1242144.847	49.003	.000(b)
	Residual	430925.414	17	25348.554		
	Total	2915215.107	19			

c Dependent Variable: Traffic Revenue

The probability of the F-statistic (49.003) for the regression relationship which includes these variables is, 0.001, less than or equal to the level of significance of 0.05. We reject the null hypotheses that there is no relationship between the best subset of independent variables and the dependent variable (R^2 = 0). We support the research hypotheses that there is a statistically significant relationship between the best subset of independent variables and the dependent variable.

3. The degree of correlation between the independent variables and dependent variable

Table – 6 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.876(a)	.768	.755	193.85969
2	.923(b)	.852	.835	159.21229

a Predictors: (Constant), Seating Capacity, Load Factor

The multiple R for the relationship between the subset of independent variables that best predict the dependent variable is 0.923, which would be characterized as very strong using the rule of thumb. Correlation less than or equal to 0.20 is characterized as very weak, greater than 0.20 and less than or equal to 0.40 is weak, greater than 0.40 and less than or equal to 0.60 is moderate, greater than 0.60 and less than or equal to 0.80 is strong, and greater than 0.80 is very strong.

CONCLUSION

The result indicates that all the parameters of operational efficiency indicted by GSRTC are not equally important in generating Traffic Revenue. A wide variation in Traffic Revenue within the independent variables was observed. Average Seating Capacity and Load factor have greater contribution in terms of generating Traffic Revenue to GSRTC.

The Load Factor represent the percentage of seating capacity offered to seating capacity actually occupied. In GSRTC, the Load Factor has dropped from 67.94 per cent (as on 1988-89) to 63.18 per cent (as on 2007-08). It was lower than the Load Factor achieved by other SRTCs. The highest Load factor was achieved by the Culcutta STC (86.70) and GSRTC ranked 13th amongst total seventeen reporting SRTCs. Thus, there is strong need to rationalize the seating capacity in GSRTC. This will results in improved operational efficiency and thereby improved financial performance of GSRTC.

ANNEXURE – 1

Year	Traffic Revenue	Seating Capacity	Load Factor	Seats Occupied	Inventory of Stores
1988-89	437.25	59.22	67.94	40.23	88.00
1989-90	458.85	59.91	70.23	42.07	88.00
1990-91	506.84	60.13	68.21	41.01	87.00
1991-92	574.50	60.40	65.16	39.40	126.00
1992-93	577.38	60.00	67.86	40.70	97.00
1993-94	707.01	58.68	54.26	31.60	70.00
1994-95	714.59	57.44	58.93	33.80	64.00
1995-96	740.10	55.78	74.37	41.50	79.00
1996-97	755.55	54.55	77.81	42.50	77.00
1997-98	830.89	53.78	73.76	39.70	78.00
1998-99	888.22	52.68	71.35	37.60	70.00
1999-00	941.59	51.84	63.83	33.10	79.00
2000-01	1040.53	51.04	65.61	33.50	79.00
2001-02	1069.32	51.01	66.36	33.90	71.00
2002-03	1246.94	51.11	59.53	34.50	45.00
2003-04	1323.48	51.05	56.75	56.75	40.00
2004-05	1427.96	51.16	57.60	29.47	52.00
2005-06	1536.55	51.11	58.36	29.83	48.00
2006-07	1608.65	50.91	61.19	31.15	42.00
2007-08	1631.21	50.53	63.18	31.92	45.00

Source: Computed from the annual reports and accounts of GSRTC, Ahmedabad

ANNEXURE – 2

Sr. No.	Name of SRTU	Load Factor (%)
1	Andhra Pradesh SRTC	69.92
2	Assam STC	-
3	Bihar SRTC	63.63
4	Culcutta STC	86.70
5	Delhi TC	80.40
6	South Bengal STC	83.52
7	Gujarat SRTC	63.18
8	Himachal RTC	-
9	Jammu and Kashmir RTC	-
10	Karnataka SRTC	72.73
11	Kerala SRTC	-
12	Madhya Pradesh SRTC	-
13	Maharashtra SRTC	47.23
14	Meghalaya STC	55.32
15	North Bengal STC	62.83
16	Orisssa SRTC	71.00
17	Pepsu RTC	72.65
18	Rajasthan SRTC	72.00
19	Tripura RTC	-
20	Uttar Pradesh SRTC	64.00
21	North West Karnataka RTC	63.11
22	Bengalore Metropoliton TC	53.51
23	North Eastern Karnataka RTC	64.64

Source: Road Transport Year Book (2006-07), Transport Research Wing, Ministry of Shipping, Road Transport & Highways, Government of India, New Delhi

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