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Research Paper Management

Efficiency of Gujarat State Road Transport Corporation A Critical Study

* Dr. Shilpa Trivedi

* Commerce & BBA College, Junagadh

ABSTRACT

As, GSRTC offers passenger transport services, the efficiency lies in providing qualitative services in terms of safety and punctuality. The prime resource of GSRTC is its buses, so the acquisition of new buses from time to time is necessary for augmenting the existing fleets as well as for replacing the old and unserviceable buses. Proper upkeep and effective utilization of vehicles and efficiency in operations will increase revenue and control the cost of operations while over aged buses results in increased cost of repairs, and maintenance and excess fuel consumption. In present study I have tried to show how over aged fleets affect efficiency of GSRTC. The relationship between the concerned variables have been discussed with the regression analysis and tested with the Chi-square test at 5 % level of significance.

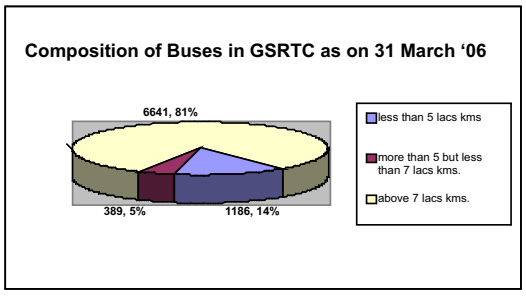
Keywords : Efficiency, qualitative services, punctuality, safety

Age Profile of Fleets in GSRTC

Gujarat State Road Transport Corporation (GSRTC) is a passenger transport corporation, providing bus services / public transits in Gujarat and neighborhood states of Rajasthan, Madhya Pradesh and Maharashtra. It also runs buses to the Union Territories of Daman & Diu.

Association of State Road Transport Undertakings (ASRTU) had recommended (1971) that the normal life of a bus should be considered as eight years or five lakh kilometers of operation whichever is earlier. GSRTC, however, has fixed 8.37 lakhs kilometers for over aged buses. The chart and table given below reveals the composition of fleets held by GSRTC

Figure 1



It is apparent from the above chart that unfortunately more than 85 per cent, of the fleet owned by GSRTC are over aged and due for replacement against the norm that buses more than five lacs kilometers should not be operated. However, scarcity of funds restricted the replacement of these vehicles. It has 6641 buses which have operated 8.37 lakh kilometers. Percentages of over aged buses were too high, 52.70 (as on 31st March 2008), in comparison to other SRTCs also.

(Table 1).

It is observed that the over aged fleet needs more resources (man and material) to operate, slow down operations due to frequent break-downs and reduced trips than planned. Consequently, number of passengers and vehicle utilization goes down and as such, increased cost of operations and decreased profit together contributes to financial weakness of GSRTC.

Literature Review

In spite of the fact that transportation plays an important role in the economic, cultural, social and industrial development of any nation, transport sector has not received due consideration of the researchers in the past. However, at present, Universities and various research institutes like Central Road Research Institute, Central Institute of Road Transport, Association of State Road Transport Undertakings, Special division of Planning Commission and Ministry of Surface Transport etc. have taken special interest for the researches in this sector. Several studies have paid attention to the Transport Industry.

M O Mathew in his book on Rail and Road Transport in India emphasized that the efficiency of the transport Industry as a whole is determined by organizational considerations in the context of unit sizes. He also opined that transport, being a public utility industry, is regulated by Government policies in many ways, of which some have a direct or indirect impact on the evolution of size.

Ali A. El-Mezawie, as a part of ILO/UNDP project of Central Institute of Road Transport, Pune, namely "State Transport Undertakings in India: A Study of Performance, Problems and Prospects", studied the problems and prospects of STUs in India.

Patankar has studied the Road Passenger Transport in different dimensions since 1950s and analysed the operational productivity and efficiency of STUs for the period 1973-74 to 19979-80. He opined that the future of road transport sector in India would brighten only with productivity oriented planning.

Objectives of the Study

Present study aims to examine the relation between over aged fleets and efficiency of GSRTC, safety in terms of accidents and breakdowns, and punctuality in terms of departure and arrival.

Research Methodology

The collected data are duly edited, classified and analyzed using regression analysis and the hypotheses are tested at 5% level of significance with help of Chi-square test.

Regression Analysis

$\hat{Y} = a + bx$

Accidents is $\hat{Y} = 2368.08905 + (-0.05862)\,X$

Breakdowns is $\hat{Y} = 506.54003 + 0.11129X$

Departure is $\hat{Y} = 96.59810 + (-0.00042)\,X$

Arrival is $\hat{Y} = 96.91830 + (-0.00030)\,X$

Chi-Square test

$X2 = \sum [(O\ E)\ 2/E]$

Period of Study

The study is made for the consecutive tenure of eight years from the accounting year 1996-1997 to 2003-04.

Data Collection

The study is based on secondary data, which are derived from the published annual reports of GSRTC, collected from the registered office of GSRTC. Other publications by GSRTC and other related sources like articles, journals, periodicals, newspapers etc. are also used.

Hypothesis

H0: Safety is not independent of over aged fleets (over aged fleets affects accident and breakdowns)

H1: Safety is independent of over aged fleets (over aged fleets doesn't affect accident and breakdowns)

H0: Punctuality is not independent of over aged fleets (over aged fleets affects departure and arrival)

H1: Punctuality is independent of over aged fleets (over aged fleets doesn't affect departure and arrival)

Limitations of the study

The research study has got the following limitations:

- This study is based on secondary data derived from published annual reports of GSRTC and as such its findings depends entirely on the accuracy of such data.
- As this study is limited only to analysis of GSRTC, this study will not be relevant to other SRTC in India.
- This study based on external analyses only, being outsider inside views may not be duly considered.

Testing of Hypotheses

Safety

H0: Safety is not independent of over aged fleets (over aged fleets affects accident and breakdowns)

H1: Safety is independent of over aged fleets (over aged fleets doesn't affect accident and breakdowns)

Degree of Freedom: 7

Level of Significance: 5%

Table Value of X2: 14.067

Result: Null Hypotheses is not rejected

Findings: Over aged fleets affects safety in GSRTC

Table 2 :Regression Analysis and Chi-Square test

Year	Over Aged Fleets	Safety					
		Accident			Breakdown (in100)		
		Observed Frequency O	Expected Frequency E	Difference O - E	Observed Frequency O	Expected Frequency E	Difference O - E
1996-97	4560	2580	2101	479	921	1014	-93
1997-98	3600	2684	2157	527	938	907	31
1998-99	3427	2633	2167	466	1009	888	121
1999-00	2392	2335	2228	107	827	773	54
2000-01	2486	2002	2222	-220	524	783	-259
2001-02	2480	1800	2223	-423	782	783	-1
2002-03	3425	1601	2167	-566	1063	888	175
2003-04	6489	1618	1988	-370	1200	1229	-29
Chi-Square test		662.91			150.969		

Punctuality

H0: Punctuality is not independent of over aged fleets (over aged fleets affects departure and arrival)

H1: Punctuality is independent of over aged fleets (over aged fleets doesn't affect departure and arrival)

Degree of Freedom: 7

Level of Significance: 5%

Table Value of X2: 14.067

Result: Null Hypotheses is rejected

Findings: Over aged fleets doesn't affect punctuality in GSRTC

Table 3 : Regression Analysis and Chi-Square test

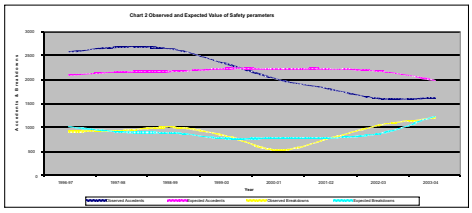
Year	Over Aged Fleets	Punctuality					
		Departure			Arrival		
		Observed Frequency O	Expected Frequency E	Difference O - E	Observed Frequency O	Expected Frequency E	Difference O - E
1996-97	4560	93.74	94.69	-0.95	94.57	95.55	-0.98
1997-98	3600	93.41	95.09	-1.68	94.28	95.84	-1.56
1998-99	3427	93.62	95.16	-1.54	94.47	95.89	-1.42
1999-00	2392	95.41	95.60	-0.19	96.00	96.20	-0.20
2000-01	2486	96.96	95.56	1.40	97.37	96.17	1.20
2001-02	2480	96.57	95.56	1.01	97.14	96.17	0.97
2002-03	3425	95.99	95.17	0.82	96.83	95.89	0.94
2003-04	6489	95.01	93.88	1.13	96.02	94.97	1.05
Chi-Square test		0.117			0.102		

Conclusion

GSRTC offers passenger transport services and the prime resource of GSRTC is its fleets. More than 85 per cent, of the fleet owned by GSRTC are over aged. These over aged fleets affect the efficiency of GSRTC. Over aged fleets considerably affects safety, however have no effect on punctuality.

Recommendations

GSRTC should replace at least those fleets which have completed more than seven lakh kilometers.



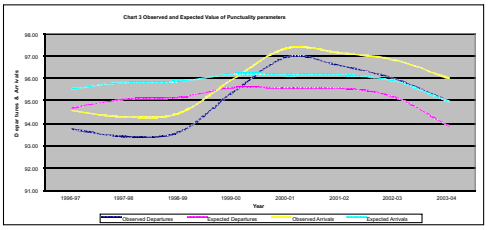


Table 1: Age Profile of Fleets in GSRTC

No.	Particulars	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2005-06
1	Fleets at the beginning of the year	8605	8998	9249	9459	10024	10048	9531	9209	8164
2	New fleets added	1095	1144	1149	2791	1130	258	-	-	656
3	Fleets discarded	702	893	939	2226	1106	775	322	389	543
4	Fleets at the end of the year	8998	9249	9459	10024	10048	9531	9209	8820	8277
5	No. of buses less than 5 lacs kilometers	4438 (49.32)	4695 (50.77)	4953 (52.36)	6469 (64.54)	6346 (63.16)	5747 (60.30)	3897 (42.32)	983 (11.15)	1186 (14.33)
6	No. of buses more than 5 lacs kilometers but less than 7 lacs kilometers	2009 (22.33)	1020 (21.34)	941 (21.36)	1075 (22.32)	1269 (24.37)	1235 (26.64)	1583 (37.68)	1997 (37.92)	389 (5.45)
7	No. of buses above 7 lacs kilometers	2551 (28.35)	2580 (27.89)	2486 (26.28)	1317 (13.14)	1217 (12.11)	1245 (13.06)	1842 (20.00)	4492 (50.93)	6641 (80.23)

Source: Data compiled from annual reports and accounts of GSRTC, Ahmedabad

Note: Figures in brackets indicate percentage

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