

Quality of Service in Passenger Road Transport : A Comparison Between Public and Private Sectors with Reference to Goa

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INTRODUCTION

This paper has particular reference to the paper entitled "Passenger Road Transport in Goa: A Model of Unfair Competition" by the author published in the January 1997 issue of *Indian Journal of Transport Management*. In the said paper it was concluded that although a passenger road transport undertaking is operationally and financially efficient than the other units, it need not necessarily generate higher profits than the privately operated units due to unfair competition from the private operators. The paper also established that the inefficient units (private) earned profits by resorting to unfair price competition and by adopting certain unhealthy tactics while the efficient (Kadamba Transport Corporation Ltd. - KTCL) unit was incurring losses. These facts were proved by studying the public and private sector passenger road transport operations in Goa¹.

As a sequel to the above study it was decided to analyse and compare the quality of services rendered by different types of operating units. In the state of Goa where the stage carriage operation is in the mixed economy, about 30 percent of the operations with public sector and 70% with private sector, the comparison of quality of service has a special relevance. Further, it will help to establish relationship among operational and financial efficiency as well quality of service. In this paper an attempt is made to conceptualise the term 'quality of service' and to operationalise it from the customers' point of view.

THE CONCEPTUAL FRAMEWORK

Quality is the key to customer satisfaction and customer satisfaction is an objective for successful organisation². A nation wide opinion poll of 100 companies carried out for Business Today by the Delhi-based market research and customer satisfaction measurement agency, India Research, revealed that 99 percent of the CEOs rated customer satisfaction among their three more critical strategic initiatives and 38 percent identified it as their first priority³. It follows that quality conscious organisations are necessarily customer caring in nature.

Passenger road transport being a service industry, quality of service has a special significance with reference to customer satisfaction. This is so mainly because the service being an intangible product there are no precise parameters to measure and ensure service quality. Also the evaluation of service is carried out by the customers during the process of consumption. Hence, the evaluation of quality of service as perceived by the customer depends to a great extent on the subjective judgement of the customers.

All these facts point to the need of evolving a customer-oriented thinking on the part of the passenger road transport undertaking. In the word of Philip Kotler, "customer-oriented thinking requires the company to define customer needs from the *customer point of view*". Hence it necessarily follows that the quality of service has to be defined, created and delivered based on the perceptions of the customer

In the case of a service industry like passenger road transport, the quality of service is also susceptible to high variability. This is

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due to the fact that passenger road transport industry is a performance industry wherein the new service is to be performed each time. Service quality researchers have suggested that the proof of service quality is in its flawless performance⁵. Hence it may also be inferred that the quality of service can be measured and judged on the basis of certain performance parameters.

An effort to measure the quality of service based on performance parameters has been made by the Central Institute of Road Transport (CIRT). The Institute has advocated a 'Quality of Service Index' based on number of accidents, breakdowns, cancellations, late departures and late arrivals⁶. Although this performance based approach does not include all the aspects of quality of service as perceived by the customer, since quality is part of efficiency and efficiency is an organisational culture, there is bound to be a positive relation between the qualities of service as measured by both the approaches.

OBJECTIVES

The specific objectives of this study are:

- To evolve a method to measure the quality of service of passenger road transport service as perceived by the customers
- To measure and compare the quality of services rendered by the public sector and private sector passenger road transport undertakings using the approaches of performance based evaluation as advocated by the CIRT and the customer perception based evaluation developed by the investigator.
- To establish a positive relation, if any, between the results of the measurement of quality of services using both the approaches so as to prove that the customer perception is related to actual service performance.
- To establish that quality of service is a

part of organisational efficiency which is an organisational culture by linking the results of the present study to the results of the previous study.

METHODOLOGY

Primary data related to accidents, breakdowns, cancellations, late departures and late arrivals have been collected from 35 private stage carriage operators during the financial year 1990-91. Similar data related to KTCL were obtained from Annual Administration Report and Statement of Accounts of the corporation for the same year. The Quality of Service Indices for both the types of operators were worked out using the following formula as suggested in the Compendium of Transport Terms.

$$\text{QSI} = \frac{W_1 A + W_2 B + W_3 C + W_4 D + W_5 E}{W_1 + W_2 + W_3 + W_4 + W_5}$$

Where weights are assigned as :

$$W_1 = 60, W_2 = 20, W_3 = 10, W_4 = 5, W_5 = 5.$$

$$A = \frac{a \times 100}{T} \quad a = \text{No. of accidents}$$

$$B = \frac{b \times 100}{T} \quad b = \text{No. of breakdowns}$$

$$C = \frac{c \times 100}{ST} \quad c = \text{No. of trips cancelled}$$

$$D = \frac{d \times 100}{T} \quad d = \text{No. of late departures}$$

$$E = \frac{e \times 100}{T} \quad e = \text{No. of late arrivals}$$

ST = Scheduled Trips

T = Trips operated.

* Compendium of Transport Terms, Central Institute of Road Transport, Pune, 1989, pp. 26, 27.

Service Quality Parameters

In order to study the perception of passengers it was decided to evaluate quality by selecting a sample of 200 passengers which were given 50 statements each and were asked to classify them into 5 different classes namely safety, punctuality, regularity and frequency, comfort and convenience, quality of crew and social orientation. The passengers were also requested to evolve new categories and statements if they wished so. The examples of statements given to the respondents for classification are (a) buses do not ply very fast (b) buses generally leave the origin in time (c) crew of buses are honest in their dealings etc. Finally 30 statements were selected for preparation of the questionnaire based on a consistency of classification of 75 percent of the passengers. Each category contained 6 statements.

Passenger Survey

A questionnaire was developed by including the above 30 statements in 5 categories, each category representing an element of quality such as safety, punctuality, regularity and frequency, comfort and convenience, quality of crew and social orientation. The statements were separately repeated for KTCL and private stage carriage operators. The statements were developed in such a fashion that the agreement with the statement would denote presence of the (high) quality and disagreement would denote absence of the (poor) quality. The respondents were asked to record their agreement or disagreement to the statements on a 5 point scale ranging from strong agreement to strong disagreement. An example is given below :

KTC buses generally reach the destination in time

SA	A	UD	D	SD
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Where

- SA - Strongly agree
- A - Agree
- UD - Undecided
- D - Disagree; and
- SD - Strongly disagree.

Questionnaires were distributed to 1000 respondents selected at random at 50 bus stops on mofussil routes. Every 5th entrant to the bus stop was handed over the postage prepaid questionnaire with a request to mail it back after duly filling. Care was also taken to see that the respondents belonging to peak hour and slack hour travelling groups were included in the sample. Of the 712 filled in questionnaires received back, only 674 were found valid and from which analysis could be carried out. This survey was carried out during the year 1991-92.

ANALYSIS

The Quality of Service Indices (QSI) based on actual performance parameters as advocated by the CIRT are calculated as shown in Figure 1. The QSI for private stage carriage operators has been worked out on a per bus per year basis. Since the index takes into account negative factors which are detrimental to the quality of service. A lower index shows a higher quality and a higher index shows a poor quality. The QSI for KTCL was found to be 1.87 and that for private operators was found to be 3.37 which indicates that the quality of service of the former is much better than that of the latter.

In order to analyse the data gathered from the passengers, the scaled responses were assigned scores ranging from 2 to -2 as follows:

Strongly agree	2
Agree	1
Undecided	0
Disagree	-1
Strongly disagree	-2

Since each component of quality contained 6 statements, the total (sum) score for any component (eg. safety) could vary between 12 and -12 (6*2 and 6*-2). These scores were designated as X_i and Y_i ($i = 1$ to 5) for KTCL and private operators respectively and were further coded as Z_x and Z_y ($i = 1$ to 5) respectively as given below for the purpose of tabulation

METHOD OF CODING

$X_i (Y_i)$	$Zx_i (Zy_i)$
-12 - -6	-2
-5 - -2	-1
-1 - 1	0
2 - 5	1
6 - 12	2

The classifications of respondents on the basis of the sum of the scores of the responses tabulated into different classes of response values (Zx_i) for each component of quality of service are incorporated in Table 1 to Table 5.

A perusal of Tables 1 to 5 will reveal that while a large majority of respondents assigned negative scores for private stage carriage operators a large majority assigned positive scores for KTCL. This is true in the case of each component of quality of service. This indicates that passengers perceived the quality of service of KTCL far superior to that of private operators.

In order to test statistically whether the difference in quality between the services of KTCL and private operators is significantly different the Z test for (large sample) difference of means was employed. For this purpose the score for each component of quality was averaged. The results of the test are given in Table 6. It was found that the Z-values in the case of all the components were significantly high and hence it was proved that the quality was much higher for KTCL. However, the lower average scores in the case of 'comfort and convenience' and 'quality of crew' indicate that these are the areas where KTCL needs to concentrate for improvement. If KTCL concentrates on these parameters the share of KTCL in the market will increase.

A Comprehensive Quality of Service Index has been worked out by summing the scores for individual components. Since there are 5 components and the score for each

component can vary between 12 and -12, the score for Comprehensive Quality Index could vary between 60 and -60. The index is included as overall mean in Table 6. The Comprehensive Quality of Service Indices for KTCL and private operators were also statistically found significantly different, the values being 10.373 and -11.407 respectively.

CONCLUDING REMARKS

An organisation which is quality conscious is naturally customer oriented and such an organisation will have high organisational success in terms of high customer patronage, profits and growth. The only situation in which low quality service will enjoy an equal customer patronage is a condition of excess demand in relation to supply and a price cut to compensate for quality drop. Both these conditions have been found to exist in Goa as proved by previous study.

The present study has established that the customers' perception of quality of service is a function of 'safety', 'punctuality', 'regularity and frequency', 'comfort and convenience', 'quality of crew' and 'social orientation'. The study has also established the possibility and method of operationalisation of different components of quality of service using functional manifestations of the components of quality. These functional manifestations are provided in Annexure I. Thus it has developed a measure of perceived quality of service in the form of a Comprehensive Quality of Service Index.

The study has also resulted in establishing a positive relation between the measure of perceived quality by customers and a performance based measure of quality of service. This indicates that there is a basis for the perceived quality in actual performance. The measurement of perceived quality also helped in pointing out the areas in which the public sector organisation needs improvement. Further the positive relation among financial efficiency, operational efficiency and quality of service suggests that quality is one of the facets of efficiency which is an organisational culture.

Figure 1

QSI (KTC Ltd) =

$$\begin{aligned} & \frac{(60 \times \frac{114 \times 100}{328000} + 20 \times \frac{580 \times 100}{328000} + 10 \times \frac{33000 \times 100}{361000} + 5 \times \frac{29520 \times 100}{328000} + 5 \times \frac{29520 \times 100}{328000})}{100} \\ &= (2.0854 + 3.5366 + 91.4127 + 45 + 45) / 100 \\ &= 187.0347 / 100 = 1.87 \end{aligned}$$

QSI (Private Operators) =

$$\begin{aligned} & \frac{(60 \times \frac{0.9 \times 100}{1389} + 20 \times \frac{6.6 \times 100}{1389} + 10 \times \frac{168.1 \times 100}{1557.09} + 5 \times \frac{208.4 \times 100}{1389} + 5 \times \frac{388.9 \times 100}{1389})}{100} \\ &= (3.8877 + 9.5032 + 107.9578 + 75.018 + 139.99) / 100 \\ &= 336.3595 / 100 = 3.37 \end{aligned}$$

Table-1 : Coded Scores for Safety

K.T.C.L.			PRIVATE OPERATORS		
Zx ₁	Count	Percent	Zy _i	Count	Percent
-2	13	1.93	-2	194	30.08
-1	45	6.68	-1	217	33.64
0	120	17.80	0	152	23.57
1	295	43.77	1	64	9.92
2	201	29.82	2	18	2.79
TOTAL	674			645	
Missing	-			29	

Source: Survey conducted by the investigator

Table-2 : Coded Scores for Punctuality, Regularity and Frequency

K.T.C.L.			PRIVATE OPERATORS		
Zx ₂	Count	Percent	Zy ₂	Count	Percent
-2	26	3.89	-2	205	31.98
-1	56	8.32	-1	232	36.19
0	141	21.11	0	116	18.10
1	254	38.02	1	75	11.70
2	191	28.59	2	13	2.03
TOTAL	668			641	
Missing	6			33	

Source: Primary data

Table-3 : Coded Score for Comfort and Convenience

K.T.C.L.			PRIVATE OPERATORS		
Zx ₃	Count	Percent	Zy ₃	Count	Percent
-2	65	9.69	-2	77	12.60
-1	170	25.34	-1	186	30.44
0	137	20.42	0	128	20.95
1	180	26.83	1	156	25.53
2	119	17.73	2	64	10.47
TOTAL	671			611	
Missing	3			63	

*Source: Primary data***Table-4 : Coded Scores for Quality of Crew**

K.T.C.L.			PRIVATE OPERATORS		
Zx ₄	Count	Percent	Zy ₄	Count	Percent
-2	50	7.55	-2	192	29.36
-1	176	26.59	-1	267	40.83
0	149	22.51	0	103	15.75
1	229	34.59	1	81	12.39
2	58	8.76	2	11	1.68
TOTAL	662			654	
Missing	12			20	

*Source: Primary data***Table-5 : Coded Scores for Social Orientation**

K.T.C.L.			PRIVATE OPERATORS		
Zx ₅	Count	Percent	Zy ₅	Count	Percent
-2	22	3.34	-2	72	11.11
-1	84	12.77	-1	243	37.50
0	123	18.69	0	197	30.40
1	232	35.26	1	116	17.90
2	197	29.94	2	20	3.99
TOTAL	658			648	
Missing	16			26	

Source: Primary data

Table-6 : Test of Significance for Difference in Quality

Quality	Means		Difference	Standard Error	Z-Values
	KTCL	Private Operators			
Safety	3.444	-3.250	6.694	0.214	31.28
Punctuality, regularity & frequency	3.112	-3.332	6.444	0.232	27.78
Comfort & Convenience	0.600	-0.306	0.906	0.245	3.70
Crew Quality	0.395	-3.120	3.515	0.227	15.48
Social Orientation	3.372	-1.336	4.408	0.210	20.99
Overall	10.373	-11.407	21.780	0.760	28.66

Source: Primary data

ANNEXURE I

FUNCTIONAL ASPECTS OF COMPONENTS OF QUALITY

1) SAFETY

- a) Over speeding
- b) Running condition of the vehicle
- c) Slowing down at turnings
- d) Running in competition with other vehicles
- e) Stopping enough time for the passengers to get in and get down; and
- f) Sudden braking (Related to rash driving).

- c) Punctuality in maintaining the timings at intermediate stops
- d) Cancellation of scheduled trips
- e) Breakdown; and
- f) Frequency of availability.

2) PUNCTUALITY, REGULARITY AND FREQUENCY

- a) Punctuality in leaving the origin
- b) Punctuality in reaching the destination

3) COMFORT AND CONVENIENCE

- a) quality of seats
- b) quality of gangway
- c) leakage during monsoon
- d) quality of shutters and wind screens
- e) provision of luggage racks
- f) cleanliness of stage carriages.

4) QUALITY OF CREW

- a) behaviour of crew
- b) efficiency of crew in the discharge of duties
- c) first aid capability of crew
- d) honesty of crew
- e) stopping of stage carriages at stops; and
- f) dress and cleanliness of crew.

5) SOCIAL ORIENTATION

- a) operation of late night trips
- b) operation of early morning trips
- c) trips to interior villages
- d) trips exclusively for the benefit of students
- e) extra trips for special occasions; and
- f) provision of concession in fares to students and handicapped.

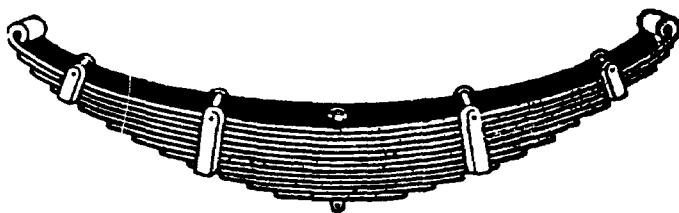
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