



A STUDY ON OPERATIONAL PERFORMANCE OF TNSTC IN COIMBATORE DIVISION

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ABSTRACT :

The transport system in the state occupies an important position in the basic infrastructure facilities in India. Faster industrialization, urbanization and ever-growing state economy have triggered an unprecedented increase of vehicle population in the state. The transport department is one of the major revenue earning departments of the state government. The economic development of a country and the advancement of civilization depend, inter alia, on the road transport system. The importance of the road transport system came to be realized only in the recent years. In India for this purpose the Central Government passed the Road Transport Corporation Act in 1948, empowering State Government to undertake the Organization of Road Transport Service. It covers the period from 2000-01 to 2015-16. The Corporation's activities have expanded considerably which is revealed by the average daily kilometers operated. The cost of operation per km of Coimbatore division has increased due to inflation and hike in prices of fuel, oil, spares, tools, etc. The earnings per km shows increasing trend on account of introduction of new routes and fare revision. On the whole, the overall productivity of the Corporation is satisfactory as indicated by the above parameters.



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KEYWORDS : advancement of civilization , transport system , industrialization, urbanization.

INTRODUCTION

The word "Transport" has been derived from the Latin word Transportare. Trans means across and "Portare" means to carry. From this, it is obvious that the word transport refers to the carrying of goods and persons from one place to another. Provisions for a continuous and un interrupted mobility of persons and materials are a basic necessity of the society. It is a well-established truth that development of a country is largely conditioned by the adequate, efficiency, regularity, safety, and purity of the transport system. Transport plays a crucial role in the economic development of a nation and social and cultural life of its people.

History to a large extent has belittled the role of transport in the development of modern society and transport has played a key role in the advancement of civilization and also Transport has virtually constitutes the nervous system, not only of an economy but also mobilization and migration of public. It is held that immobility progress. In the complex process of modern economic development transportation plays a special role in achieving various national goals, such as getting land into production, marketing of agricultural commodities, making forest and natural wealth accessible for

developing industry, expanding trade, planning and executing health and education programmes and above all exchanging ideas.

The Keskar commission "on road transport taxation observed, it large areas of the world lack of transport is a primary obstacle to economic and social development poor transport is a major factor in world hunger", it further states, "There is a definite relation between mobility and poverty."

Economic and commercial importance of the greatest magnitude is now a days, attached to the development of transport, "The transport industries which undertake nothing more than the more movement of persons and things from one place to another, have constituted one of the most important activities of men in stage of advanced civilization. It can never but be emphasized that the bage, the hedroct and backbone of a country's development lies in its efficient transport organization. The greater the emphasis on solving the transport problems and there by bridging distance and people the greater are benefits that accrue.

In the words of an economist, Jeremy Bentham, "Roads are the veins and arteries of a country through which channels every improvement circulates". It is interesting to quote here the observation made by a famous author regarding the general significance of roads in the modern world, "The road is one of the great fundamental institutions of mankind". It develops with man's advance; it retrogrades with the break downs of a social order. A people without roads would be a people without intercourse with outside world, without the attributer of civilization. Man-the road builder, thus cannot be separated from man-the builder of civilization. Road Transport is the basic and fundamental necessity of mankind. It can function in an unexceptionally flexible and diversified manner in relation to other means Transport.

PUBLIC ROAD TRANSPORT IN INDIA

Although track of travel by human beings and animals existed from time immemorial, mechanized road transport has a short history in India. The role of mechanized transport in India started in the beginning of the nineteenth century and the first motor vehicle was imported to India in 1998. For several years it remained the novelty and luxury indulged in the prices and by the rich with the steady increase in the number of vehicles there was several provisional enactments to control and regulate their movement with a view to safeguard the lives of pedestrians, and for the purpose of the registration. The Motor Vehicle Act 1914 was the first all Indian enactment dealing with control over the operation of vehicle.

The growth of road transport in India actually began in the early 1920's as diversion of surplus army vehicle to civil market after the First World War. The growth was unprecedented and by the end of 1920's there were a large number of vehicles operating in various parts of the country. The mushroom growth of private vehicles led to unhealthy competition and even rate cutting among operators. Having realized the government made various attempts through legislative and administrative measures to control the multiplicity of bus operators but without any applicable results. The Indian Motor Vehicle Act 1914 could not cope with the new pressure and had to be introduce some degree of regulation and had to be supplemented by enactment made in various provinces in order to introduce some degree of regulation and control, "In the late 1920's the problems of unhealthy competition become more active and the shrinkage of traffic accentuated by the world-wide depression had brought to the fore the need for regulation of the transport industry, both internally and in relation to the railways".

The organization of the commercial road haulage in India really began shortly after the World War 1. The boom conditions assisted and induced the operators to demand more and more vehicle to be used for transport purpose and gradually the passenger and goods haulage showed signs of progress. Consequently, the number of motor vehicle of all kinds imported in to India went up from 4419 in 1913-1914 to 259590 in 1927-1928. The motor transport was totally under the private sector, which emerged as a competitive force to the railways owned by government. In order to protect the railways, the government wanted to impose conditions and as such a number of committees and study groups were appointed to regulate the transport industry.

NATIONALIZATION OF STUS IN TAMIL NADU

The nationalization of the bus transport in Tamil Nadu has two phases. During the first phase, the madras state transport corporation was formed on the basis of the Road Transport Corporation Act 1950 consequently in 1970, up on the change of the name Madras State Transport Corporation (MSTC) it was covered into Pallavan Transport Corporation (PTC) and Thiruvalluvar Transport Corporation (TTC). The Pallavan Transport Corporation was totally earmarked to meet out of Public Transportation of Madras City. Thiruvalluvar Transport Corporation (TTC) started its service of the general public by connecting all the important thousand cities.

The second phase of in nationalization Tamil Nadu was carried out of lines with the companies Act of 1956. Actually, it is the second phase of nationalization of bus transport in Tamil Nadu alone can be considered as the real nationalization because that bus transport map of Tamil Nadu. From then onwards the spread and the speed of nationalization was rather very smooth and barrier a few routes, almost the entire state witnessed the total nationalization, with enlargement of the operation of the Transport Corporations. Mainly on the basis of bifurcation of relatively large Corporations had been functioning throughout the state.

IMPORTANCE OF THE STUDY

In India for this purpose the Central Government passed the road Transport Corporation Act in 1948, empowering State Government to Undertake the Organization of Road Transport in Tamil Nadu was introduced in the year 1967. the total number of buses in Tamil Nadu was 9,565, of these 4,918 buses belonged to public sector. These buses were owned by 7 Government owned Transport Corporations formed on the regional basis. After 1996 Tamil Nadu has 21 State Transport Corporations. Now it clubbing 7 divisions. The total number buses in our State Corporation were 19,921 out of 18,596 buses. The Coimbatore division has two divisions; division-I and division-II. The division-II is providing service to Erode District.

Even in modern times in India many rural areas are not yet connected with road transport system. Now in the recent years the concerned State Government transport corporations are taking initiative steps to operate their own fleets in the rural areas for the enlistment and betterment of general public. The bulk passenger as well as freight traffic in India is carried only by rail and road transport. As the road transport, busses from the main and cheap sources have the public movement and mobilization, the performance of Tamil Nadu State Transport Corporations (TNSTCs). The State Government is operating the bus transport mainly for the public convenience. The corporation operates its fleet to almost all parts of Tamil Nadu providing 24 hour's service, i.e. round the clock service. Being a public service area the overall performance of the corporations it totally increased, the total cost of operation can considerably be reduced, so that it can profitably and provides better service at a cheaper price to the general public.

OBJECTIVES

1. To study the history, growth of road transport system in India and Tamil Nadu.
2. To estimate the growth and performance of TNSTC in Coimbatore Division.
3. To analyze the operational efficiency of TNSTC in Coimbatore Division.

METHODOLOGY

The present study is based on secondary sources. The data have been collected from Tamil Nadu State Road Transport Corporation and Central Institute of Road Transport, Pune for the period 2000-01 to 2015-16. In order to examine the various objectives of the study, the study has employed Compound Growth Rate (CGR) and Physical Performance of financial ratio.

Table-1
Physical Growth Indicators in Coimbatore Division

| S. No | Year | No. of buses held | No. of buses on Road | Fleet Utilisation | Effective Kms (In lakhs) | Buses Utilisation Per day | Occupancy Ratio | Accident Per 1,00,000 kms | Break down Per 10,000 Kms |
|----------------|---------|-------------------|----------------------|-------------------|--------------------------|---------------------------|-----------------|---------------------------|---------------------------|
| 1 | 2000-01 | 2377 | 2305 | 96.8 | 3365.2 | 410.2 | 72.52 | 0.62 | 0.15 |
| 2 | 2001-02 | 2333 | 2251 | 96.2 | 3257.58 | 406 | 72.55 | 0.76 | 0.13 |
| 3 | 2002-03 | 2286 | 2226 | 97.05 | 3370.57 | 422.7 | 68.13 | 0.72 | 0.11 |
| 4 | 2003-04 | 2328 | 2269 | 97.5 | 3451.49 | 415.6 | 69.64 | 0.37 | 0.06 |
| 5 | 2004-05 | 2342 | 2273 | 97.1 | 3484.24 | 420 | 72.46 | 0.32 | 0.05 |
| 6 | 2005-06 | 2351 | 2260 | 96.1 | 3557.29 | 431.2 | 74.77 | 0.33 | 0.04 |
| 7 | 2006-07 | 2437 | 2395 | 98.3 | 3688.78 | 422 | 79.57 | 0.16 | 0.15 |
| 8 | 2007-08 | 2769 | 2571 | 92.8 | 4098.37 | 435.5 | 78.35 | 0.29 | 0.02 |
| 9 | 2008-09 | 2838 | 2660 | 93.7 | 4279.08 | 440.8 | 78.61 | 0.27 | 0.01 |
| 10 | 2009-10 | 2902 | 2712 | 93.5 | 4385.47 | 433 | 78.81 | 0.24 | 0.01 |
| 11 | 2010-11 | 2990 | 2751 | 92 | 4481.49 | 446.3 | 108.27 | 0.22 | 0.01 |
| 12 | 2011-12 | 3130 | 2838 | 90.7 | 4563.01 | 398.3 | 99.63 | 0.18 | 0.005 |
| 13 | 2012-13 | 3095 | 2893 | 93.5 | 4560.40 | 431.9 | 69.48 | 0.17 | 0.003 |
| 14 | 2013-14 | 3195 | 2927 | 91.6 | 4645.53 | 431.9 | 68.24 | 0.17 | 0.004 |
| 15 | 2014-15 | 3184 | 2779 | 87.3 | 4588.33 | 452 | 68.04 | 0.16 | 0.004 |
| 16 | 2015-16 | 3331 | 2977 | 89.4 | 4867.88 | 448 | 68.18 | 0.20 | 0.002 |
| Mean | | 2743 | 2567.94 | 93.97 | 4040.29 | 427.83 | 76.776 | 0.32 | 0.04 |
| CGR (%) | | 2.85 | 2.19 | -0.63 | 2.93 | 0.47 | 0.36 | -9.12 | -26.06 |

Source: CIRT, Pune

The above table-1 reveals that the fleet utilization of Coimbatore division for the period 2000-01 to 2015-16. The fleet Utilization ranges from 96.8 percent in 2000-01 to 91.6 percent in 2013-14. The average fleet utilization is 93.98 percent during the study period and for the seven years 2000-01 to 2006-07 the fleet utilization was above the overall average and the same was below than overall average for the rest of years (2007-08 to 2015-16). As the table reveals the variation in fleet utilization during the period of study is meager CGR. The table arise reveals the intention of the Corporation to utilize all the buses to the maximum extent possible. This is understood from the highest utilization

percentage of 98.3 percent. The CGR rate is -0.63 percent, which shows the efficiency of the Corporation is poor maintenance.

The above table-1 reveals that the vehicle utilisation for per day ranges from 398.3 kms in 2011-2012 to 2015-16 to 452 kms per day in 2014-15. The average bus utilization was 427.84 kms per day for the study period. The utilization of bus was below than overall average for the period 2000-01 to 2004-05. Then it was increased to 431 kms per day in the 2005-06. Again, it has faced a decrease from 431 to 422 in 2006-07. Here after, the utilization of bus was above the overall average. Fleet utilisation has increased from 410.2 kms in 2000-01 to 448 kms in 2015-16. These figures reveal the operation level of Traffic and Maintenance Departments. The growth rate is 0.47 percent.

Regarding rate of breakdowns, is maximum was 0.15 in the year 2000-01 and minimum was 0.002 in the year 2015-16. This decrease in the rate of breakdowns might be due to the effective policies of the Corporation. Suddenly increase in the rate of break down in this 2006-07 might be due to careless and rash driving of buses by the drivers and mechanical defects. The mean value of breakdown 0.04 and growth rate was -26.05.

The occupancy ratio ranges from 72.52 percent in 2000-01 to 96.63 percent in 2011-12. The maximum occupancy ratio was 108.23 percent in 2010-11. The average occupancy ratio was 76.75 for the study period. The occupancy ratio for the first 10 years is below then overall average and for the other rest of the years it was increasing above average. As the table reveals, there is considerable variation in the occupancy ratio and only for 6 years the occupancy ratio is more than 77 percent, which shows that the Corporation operates many uneconomic routes for the benefit of the public and the growth rate is 0.36 percent.

The above table-1 reveals that the average daily kms operated ranges between 410.2 and 448 kilometers. The coverage of the Corporation has continuously increased, which shows the expansion of the operations of the Corporation. A decline in daily kilometers operated during the study period was due to the transfer of some of the routes and bifurcation. But again the coverage of the Corporation has increased due to expansion of the Corporation taking many new routes. The rate of accidents ranges from 0.002 to in 0.15 in 2000-01. The average rate of accidents per 1, 00,000 kms is 0.04. During the initial of first six years, the accidents per 1, 00,000 kms of Coimbatore division are higher than the average and remaining the rest of the study period is below. This might be due to improper driving and the growth rate is -9.12 percent. The table-1 explained that the break down per 10,000 kms ranges in 2000-01 to 0.15 and end of study period in 2015-16 to 0.002. In the beginning first three years the average of 10000 kms in breakdown rate and middle 2006-07, i.e 2000-01 to 2003-04 and 2006-07, there is high rate of breakdowns and another rest of the remaining years in low. But the indicators of Accident/1, 00,000kms and breakdown/10,000 kms have increased the negative growth rate of -9.12 percent and -26.06 percent respectively. It indicators that there is a better physical performance of Coimbatore division of TNSTC.

Table-2
Staff Performance in Coimbatore Division

| S. No | Year | Drivers | Conductors | Technical Traffic Supervisor | Admin | Others | Total |
|-------|---------|---------|------------|------------------------------|-------|--------|-------|
| 1 | 2000-01 | 2.54 | 2.63 | 0.16 | 0.64 | 1.46 | 7.43 |
| 2 | 2001-02 | 2.60 | 2.64 | 0.17 | 0.96 | 1.46 | 7.50 |
| 3 | 2002-03 | 2.54 | 2.63 | 0.16 | 0.64 | 1.46 | 7.43 |
| 4 | 2003-04 | 2.42 | 2.59 | 0.15 | 0.61 | 1.43 | 7.20 |
| 5 | 2004-05 | 2.39 | 2.56 | 0.13 | 0.58 | 1.37 | 7.03 |
| 6 | 2005-06 | 2.34 | 2.55 | 0.12 | 0.57 | 1.35 | 6.93 |
| 7 | 2006-07 | 1.94 | 2.22 | 0.08 | 0.46 | 1.12 | 5.83 |
| 8 | 2007-08 | 2.14 | 2.20 | 0.09 | 0.43 | 1.06 | 5.92 |

| | | | | | | | |
|----------------|---------|--------------|--------------|--------------|--------------|-------------|--------------|
| 9 | 2008-09 | 2.25 | 2.27 | 0.09 | 0.38 | 1.00 | 5.99 |
| 10 | 2009-10 | 2.26 | 2.25 | 0.09 | 0.35 | 0.94 | 5.88 |
| 11 | 2010-11 | 2.59 | 2.57 | 0.09 | 0.34 | 0.96 | 6.55 |
| 12 | 2011-12 | 2.51 | 2.48 | 0.09 | 0.30 | 0.88 | 6.27 |
| 13 | 2012-13 | 2.25 | 2.25 | 0.09 | 0.26 | 2.24 | 5.74 |
| 14 | 2013-14 | 2.41 | 2.25 | 0.09 | 0.23 | 2.23 | 6.12 |
| 15 | 2014-15 | 2.41 | 2.48 | 0.09 | 0.21 | 2.23 | 6.07 |
| 16 | 2015-16 | 2.41 | 2.48 | 0.09 | 0.21 | 2.23 | 6.07 |
| Mean | | 2.38 | 2.45 | 0.11 | 0.45 | 1.46 | 6.50 |
| CGR (%) | | -0.24 | -0.68 | -4.52 | -8.80 | 2.26 | -1.60 |

Source: CIRT, Pune

The Corporation staff-bus ratio range between 5.74 to 7.50 for the study period. The CIRT fixed a minimum level, which are 7.2 per bus. As against the CIRT norm of 7.2, the Corporation has a higher staff-bus ratio in initial of first five years and rest of remaining years decreasing staff ratio in the study period, in which reflects the management of Coimbatore division. When the study analyze category wise, the Coimbatore division has a lower staff bus ratio except for administrative of others category. This may be due to the decrease in fleet utilization, because of the shortage of staff ratio; the Corporation has an apt to increase staff-bus ratio and it moving to around the CIRT norm of 7.2 per bus. So the Coimbatore division staff ratio decreasing, low fleet utilization. The mean value is 6.50 and compound growth rate is -1.60.

Table-3
Total Cost of Coimbatore division

| Si. No | Year | Total Cost (Rs. in lakhs) | Effective kms (Rs. in lakhs) | Cost per Kilometers (in paise) |
|----------------|-----------|---------------------------|------------------------------|--------------------------------|
| 1 | 2000-2001 | 21870.62 | 3365.2 | 12.83 |
| 2 | 2001-2002 | 21682.71 | 3257.58 | 12.8 |
| 3 | 2002-2003 | 23914.47 | 3370.57 | 14.04 |
| 4 | 2003-2004 | 50436.5 | 3451.49 | 14.61 |
| 5 | 2004-2005 | 53514.43 | 3484.24 | 15.36 |
| 6 | 2005-2006 | 63134.28 | 3557.29 | 17.75 |
| 7 | 2006-2007 | 66679.19 | 3688.78 | 18.07 |
| 8 | 2007-2008 | 73169.82 | 4098.37 | 17.85 |
| 9 | 2008-2009 | 82785.06 | 4279.08 | 19.34 |
| 10 | 2009-2010 | 86515.45 | 4385.47 | 19.73 |
| 11 | 2010-2011 | 105274.74 | 4481.49 | 23.49 |
| 12 | 2011-2012 | 122749.99 | 4563.01 | 26.9 |
| 13 | 2012-2013 | 131424.35 | 4560.4 | 28.82 |
| 14 | 2013-2014 | 145125.73 | 4645.87 | 31.24 |
| 15 | 2014-2015 | 164880.59 | 4588.33 | 35.93 |
| 16 | 2015-2016 | 160889.95 | 4867.88 | 33.05 |
| Mean | | 85877.99 | 4040.31 | 21.36 |
| CGR (%) | | 14.830 | 2.93 | 7.34 |

Source: CIRT, Pune.

In table-3, the total cost has been increased during the study period. It was the highest in 2014-15, and the lowest in 2001-02. The average cost of study period is 21.36. In the initial period the cost per kms was low and remaining rest of the year's it was high, while increase in cost was due to the increase in the cost of inputs, i.e fuel, lubricating oil, etc. For example, in the year 2010-11 to 2015-16 the Corporation experienced an increase in the variable cost from due to price hike in fuel, lubricants. The increase in cost was also due to the operation of uneconomic routes. The Corporation was operating uneconomic routes which resulted in a loss. The increase in cost was due to additional bonus paid to employees on account of good performance, revision of wages and salaries and the increase in motoring vehicle tax paid by the Corporation to the Government. The cost per kms has increased during the study period with 7.34 percent growth rate.

Table-4
Financial Performance of Coimbatore Division

| S.No | Year | Income Rs.inLakhs | Effective kms (in lakhs) | Earnings per kms (in paise) |
|----------------|---------|----------------------|-----------------------------|--------------------------------|
| 1 | 2000-01 | 20455.36 | 3365.2 | 12.09 |
| 2 | 2001-02 | 21159.09 | 3257.58 | 12.30 |
| 3 | 2002-03 | 23528.54 | 3370.57 | 13.89 |
| 4 | 2003-04 | 51109.62 | 3451.49 | 14.81 |
| 5 | 2004-05 | 54885.62 | 3484.24 | 14.33 |
| 6 | 2005-06 | 57280.32 | 3557.29 | 16.10 |
| 7 | 2006-07 | 60884.45 | 3688.78 | 16.51 |
| 8 | 2007-08 | 65634.30 | 4098.37 | 16.02 |
| 9 | 2008-09 | 70311.97 | 4279.08 | 16.43 |
| 10 | 2009-10 | 72373.13 | 4385.47 | 16.50 |
| 11 | 2010-11 | 79094.10 | 4481.49 | 17.61 |
| 12 | 2011-12 | 92641.85 | 4563.01 | 20.30 |
| 13 | 2012-13 | 114623.39 | 4560.40 | 25.13 |
| 14 | 2013-14 | 123726.54 | 4645.87 | 26.63 |
| 15 | 2014-15 | 121736.08 | 4588.33 | 26.53 |
| 16 | 2015-16 | 120691.02 | 4867.88 | 24.79 |
| Mean | | 6483.30 | 3942.06 | 17.04 |
| CGR (%) | | 13.96 | 3.18 | 5.30 |

Source: CIRT, Pune.

The above table-4 reveals that earning per kilometers (EPK) is an increasing trend, which ranges from the lowest of 12.09 paise in 2000-01 to a maximum of 26.63 paise in the year 2015-2016. There was fare revision only during eleven years i.e. 2000-2001 to 2010-11. However, increase of EPK in 2013-14 was only on account of increase the fuel cost and low level utilization because of low level of maintenance. In the year 2000-01 to 2009-10 revenue on account of the years the cost of EPK was low level cost of the average of the study period and remaining rest of the study period is EPK high. While, the passenger fare was increased, the benefit of fare increases given effect. Although 20, fare increase was made, the operational income increased only by percent, presumably due to consumer resistance and economic conditions of commuters. Again in 2013-14 there was fare revision. In the years of fare revision, EPK has increased over previous year by more than percent. During the other years, increase of EPK was due to increase in introduction of new buses and routes. In Coimbatore division, the total cost has reached the highest growth rate (13.96%), then effective kms (3.18 %) and cost per kms (5.30%).

CONCLUSION

The operational Performance of in the Coimbatore division in the short run means efficient and effective utilisation of the existing resources that is to say, men, money, materials, methods and markets. However, the performance of the same in the long run is determined by the creation of new resources in the form of men, money, materials, methods and markets. Operational performance in transportation should be viewed in terms of productivity of operation. The problem of internal productivity deals with criteria such as fleet utilisation, cost per kilometer, revenue collection per km, etc. Thus physical performance standards are the vital indicators of the extent of productivity. The Corporation has high fleet utilisation of 98.3 percent which indicates the efficiency of the Corporation. The average vehicles utilisation of the Corporation is approximately 448 kms which shows the operational efficiency of the Corporation. The bus—staff ratio of the Corporation shows effective utilisation of personnel of the corporation. Accident rates and breakdown rates are as low as 0.2 per 100,000 kms and 0.002 per 10,000 kms respectively which reveal the productivity of the traffic and maintenance Departments. The average occupancy ratio of the Corporation is neither too low nor too high which indicates that the corporation operates many uneconomic routes. The Corporation's activities have expanded considerably which is revealed by the average daily kilometers operated. The cost of operation per km of Coimbatore division has increased due to inflation and hike in prices of fuel, oil, spares, tools, etc. The earnings per km shows increasing trend on account of introduction of new routes and fare revision. On the whole, the overall productivity of the Corporation is satisfactory as indicated by the above parameters.

REFERENCES

1. **Fifth Years of Parliamentary Democracy (1947-1997)**, "Transport," Lok Sabha Secretariat, New Delhi, 1997.
2. **Francis & Cherunillum, (1984)**, "Developing Countries", Himalaya Publishing House, Mumbai.
3. **Hayashi (1999)**, "The Environment and Transport", Edward Hyar Publishing Limited, London.
4. **Ismail Seragoldin**, "Environmentally Sustainable Urban Transport-Defining A Global Policy" Journal of Transport Management, Vol.12, No.17.
5. **Kenneth button, (1993)**, "Transport Economics", Edward Elgar, London.
6. **Mossman F H& Moton N (1957)**, "Principles of Transportation", The Ronald Press Company, New York.
7. **Pradeep Kumar Keshari and Mridul Saggar (1989)** "A Firm Level Study of the Determinants of Export Performance in Machinery and Transport Equipment Industry of India", The Indian Economic Journal, Vol.36, No.2, January-March, pp.36-48.
8. **Rajalakshmi K. (1985)**, "Production Function Analysis of Public Sector Transport Equipment Industry in India", The Economic Journal, Vol. 33, No.2, October- December, pp.17-33.
9. **Russell E West Meyer (1952)**, "Economics of Transportation", Edward Elgar, London.
10. **Sunderasanam Padam (1999)**, "Transport Sector in India the Present Scenario" Indian Journals of Transport Management, Vol.23, No.11.



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