



# Performance Evaluation of Bangalore Metropolitan Transport Corporation (BMTc) During and Post Pandemic

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**Abstract:** In Bangalore, BMTc buses are the main form of public transportation but due to the spread of Coronavirus and the lockdowns imposed by the government impacted the performance of public transportation as well. The objective of the present study is to examine the working conditions of BMTc employees and to analyze the operational and financial performance of BMTc during and post pandemic. Secondary data is collected from BMTc, Karnataka Economic Survey, journals and articles. Mean, Standard deviation, Co-efficient of Variation, Compound Annual Growth Rate and Percentage method are used to analyze the data. Line graph and Bar graph are used to present the findings of the study. The study finds that the gross revenue and the traffic revenue of BMTc declined drastically during and post pandemic. The operational efficiency of BMTc has declined significantly; staff shortage and non-induction of new buses have impacted city bus services; bus operated by the corporation which covered a distance of 200 kms per day before Covid 19 has come down to 170 kms (The Hindu, June 10, 2022). The study also finds that the employees' salaries were delayed and due to which they were not in a position to pay rent, buy groceries and other essentials. The Shakti scheme implemented by the Government of Karnataka post pandemic offers free bus travel for women has increased the daily bus ridership of BMTc by 30 lakh; female passengers surges from 39 percent in May 2023 to 57 percent (Times of India, June 23, 2023).

**Key Words:** Operational Efficiency, Financial Performance, BMTc, Pandemic & Shakti Scheme.

## 1. INTRODUCTION:

The largest city in India's state of Karnataka is Bangalore, also referred to as Bengaluru. The government-run Bangalore Metropolitan Transport Corporation runs the city's bus system for commuters. BTC (Bangalore Transport Company Ltd.), established in 1940 served the entire city with a fleet of 98 buses, was the precursor to BMTc. KSRTC was divided in 1997, and BMTc was established as one of its divisions. In 1997, as the city expanded, Bangalore Transport Service (BTS) was established; one of the three companies of Karnataka State Road Transport Corporation. Later, BMTc replaced Bangalore Transport Service (BTS). The only company in Bengaluru that offers public bus transportation for urban, suburban, and rural areas is the Bengaluru Metropolitan Transport Corporation. The major bus stations in Bengaluru are Satellite bus stand, Shantinagar BMTc bus stand, KR Market bus station, Shivajinagar bus station, Banashankari bus stand, and Kempegowda bus station, also known as Majestic bus station. The BMTc is renowned for its several lengthy routes. The longest route, Route 600, travels 117 kilometers around the city in a clockwise direction in around 5 hours. There are 5 journeys, and each bus is completely full. In India, BMTc is the first STU (Secure Terminal Unit) to run air-conditioned city buses for urban transportation. A significant and dependable mode of public transportation in the city is provided by BMTc buses. Special airport services, free transportation from the central bus station to the railway station, air-conditioned vehicles, reductions in fares, In addition to offering these amenities, BMTc has been making most use of IT (Information Technology) systems in public transportation by integrating electronic ticketing machines, a common fare payment method using smart cards, LED (Light-Emitting Diode) destination boards, a vehicle tracking system, and a real-time passenger system.

## 2. LITERATURE REVIEW:

The overall rating of the organization is satisfactory in terms of the financial statements of the company. The current liabilities increased over the period of time than current assets which indicated less liquidity position of the firm. In 2008-09, the net profit is high at 0.66 and thereafter it was gradually decreasing and reached to 0.35 by the year 2012-



13. Capital turnover ratio from 2008-09 to 2012-13 are 0.81, 0.76, 0.81, 0.84, and 0.78 respectively. It indicated that the company had not performed well to improve the sales to increase capital turnover ratio. The negative working capital is very good sign for management of current assets and current liabilities. In the year 2008-09 to 2012-13 the company has working capital turnover ratio 61.34, -53.33, 24.39, 140.38 and -11.91 respectively (**Sridhara and Sathyanarayana, 2014**). The causes of the significant and ongoing tariff hikes for Bangalore city bus services provided by Bangalore Metropolitan Transport Corporation between 2011 and 2014. According to the report, BMTC bus fares jumped by 70–80 percent between 2011 and 2014, which was an average of five times more across all services and stages than 2011 rates. From the three-year period (2008–2011), BMTC fare hikes increased by 20–30 percent, while in the subsequent three-year period (2011–2014), the fare increased by about 70–80 percent. This increase was primarily brought on by an increase in diesel prices and an increase in staff costs between 2011–2013, which resulted in a loss of about Rs. 130 crore for the BMTC (**Baindur and Rao, 2016**). The comparative evaluation of socio-economic impact of alternate bus city service. The comparative performance of alternate service that is closed BRTS system (corridor with fully dedicated lane) and alternate service that is open BRTS system (corridor with no dedicated lane) is evaluated during peak hour. The methodology proposed in the study uses BRTS (Bus Rapid Transit System) service in Bhopal city. The Socio-Economic Impact Index of Services (CSEIs) is developed to indicate the overall socioeconomic impact of bus service in a city. The study finds that the value of all comparative performance indices closed BRTS system are greater than one which indicates that the closed BRTS system gives better performance than existing BRTS system. Similarly, all the values of open BRTS are less than 1 which shows that open BRTS gives inferior performance than existing BRTS system. The results also finds that closed BRTS service is considered better than then the existing service and open BRTS service is considered inferior than existing service excluding from city society impact of city bus service (**Agarwal and Gupta, 2016**). The study highlights on the public utility transport system in Bengaluru. Primary data collected from 600 respondents the commuters availing BMTC services in the city. The data was collected by using judgmental and convenient sampling technique through a well-structured questionnaire. Mean, standard deviation, ranking analysis and percentage analysis used to analyze the data. The study finds the classification of respondents based on behaviour aspects viz convenience, economy and affordability. The mean response of respondents on convenience found to be 76.5 percent compared to mean response of affordability 76.3 percent and economy 70.5 percent on services of BMTC and BMRC. The overall response on the services by the respondents observed to be 74.0 percent. 48.7 percent of the residents showed moderate service reception level followed by low level with 28.3 percent and 23.0 percent found with high level of service reception level (**Uma and Ramachandra, 2017**). The early days of the big data system, which includes connected passenger information systems with mobile apps established by India's Bengaluru Metropolitan Transport Corporation and automated vehicle monitoring and electronic ticketing machines that create gigabytes of data per day. To evaluate the system, field interviews and document analysis were performed. The goal was to develop a smart transportation system that would allow for both real-time bus and passenger journey tracking. According to the study, more than 6,000 BMTC buses operating in the city have GPRS-enabled vehicle tracking units (VTUs) mounted near the driver's seat. These VTUs were created by Trimax. Every 10 seconds, it broadcasts location information in real time, along with the vehicle's identification number and the shift number of the bus's conductor and driver. The study of the driving behaviour, including problems like skipping bus stops and deviating from the intended route, is made possible by the short-interval data gathering. It provides information on the traffic situation where the buses are now located. In the event of a crisis, such as an accident or breakdown, the driver will be able to communicate with the control room. The survey also revealed that the Passenger Information System (PIS) offers details on buses departing from a specific stop or location, including the destination, the route the bus will take, an expected arrival time, etc. Android users can get the BMTC mobile application from the Google play store. It is claimed to feature a straightforward user interface that enables real-time bus tracking, including an estimation of when each bus will arrive at a certain bus stop. Additionally, the program offers a trip planner, route maps, and buses timetables (**Rakesh and Heeks, 2018**). The policies that can be implemented in order improve the ridership of BMTC. The study finds that fare restructuring, increases the short and short-medium length trips (6-12 km) of BMTC buses by around 13 - 14 percent while decreasing the ridership of other private modes in same trip length range by more than 15 percent. The Bus Rapid Transit (BRT) lanes increase the ridership of BMTC for short as well as medium long trip distances by significant amount due to faster connectivity with dedicated bus lanes. The study shows that the BRT can be implemented as a good substitute for metro on many corridors promoting long but faster trips by public transport and it can also act as a complementary service to the upcoming metro lines in the city which will improve the ridership of BMTC by almost 2 percent while BRT lanes increases the ridership by almost 4 percent from the existing ridership. Both the scenarios will help in reducing the usage of car as well as auto in the modes of private transport (**Harsha and Verma, 2019**). In 2017 profit ratio of BMTC is negative 12.33 further the ratio increased showing more negative balance of 18.46 in 2018-19. In 2019, profit ratio is depicted as 30.40 and the reasons are the economic downturns, expansion expenditures which led to negative net profit



in BMTC. The study portrays the return on capital employed in BMTC during the year 2017-18 which was 6.79 and in the year 2018-19 it was 20.13 which further increased to 37.81 in the year 2019-2020. The study also depicts the non-operating expenses ratio; during 2017-18 the non-operating expenses ratio value was 4.91 and it decreased to 3.23 in 2018-19 and in 2019-2020 the non-operating expenses ratio further declined to the value 2.85 (Saminathan and Hemalatha,2020).

### 3. OBJECTIVES :

- To examine the working conditions of BMTC employees during and post pandemic
- To analyze the operational and financial performance of BMTC during and post Covid-19

### 4. METHOD:

The present study is descriptive in nature. Secondary data is collected from BMTC, Karnataka Economic Survey, journals and articles. Mean, Standard deviation, Co-efficient of Variation, Compound Annual Growth Rate and Percentage method are used to analyze the data. Line graph and Bar graphs are used to present the findings of the study.

### 5. ANALYSIS:

#### Performance Evaluation of BMTC during Pandemic

Initially the Corporation provided services like ferrying essential workers, including medical staff to hospitals; inter-state and international passengers from railway stations and airports to quarantine centres during the pandemic. The BMTC issued guidelines to employees during pandemic: Practice good personal hygiene; Avoid close contact with people suffering from acute respiratory infections; Do not touch your eyes, nose and mouth with your hands; Cover your mouth and nose when you sneeze or cough; Use mask if you suspect that you are sick or are helping sick people (Times of India, March 3, 2020).

BMTC staff compulsorily underwent health check-up; all depots provided with infrared thermometer to test bus crew and employees provided with mask, gloves and sanitizers; Buses disinfected daily, minimal cash transaction, promoting monthly and weekly passes and QR code scanning for fare collection (Economic Times, May 2020). Employees aged above 50 years suffering from breathing problems, heart-related issues, diabetes, kidney problems were availed leave during Covid 19 (Deccan Herald, 30 June, 2020). Due to surge of cases, BMTC buses reduced from 4000 to 3500 per day; the number of commuters in the city buses dropped from 11 lakh to 8 lakh per day due to surge in Covid 19 cases; poor ridership forced BMTC to completely withdraw its AC bus services, except for 24 Vayu Vajra AC buses and from Kempegowda International Airport (Citizen Matters July 12, 2020) 171 of its employees were tested Covid positive since they were involved in cash and ticket transactions with multiple passengers; BMTC faced a huge crisis due to Covid 19; salaries not paid, rising fuel cost and inadequate support from the state government (Times of India, July 24,2020).

The government to reimburse around Rs.2000 crore for all four corporations for various bus passes. Employees yet to get June salary and are struggling to pay rent, buy groceries and other essentials (Times of India, July 24, 2020). BMTC workers protested over delay in salaries, other demands like provision of weekly leave without any conditions, prioritizing work for women, staff in the BMTC, and setting up an employee grievance committee (The Indian Express, Feb 10, 2021). The Himalaya Drug Company collaborated with BMTC and KSRTC to ensure health and well-being of over 60,000 staff through the provision of hand hygiene products. (CSR Mandate, March 26, 2021).

BMTC operated 2000 services in major routes of Bengaluru city from June 21 between 6AM to 7 PM; Vaccination made compulsory for the staff (Mint, June 20, 2021).

108 BMTC employees died due to covid-19 in which 39 deaths during the first Covid wave and 69 during the second Covid wave and only four families received Rs.30 lakh compensation; Wife of a BMTC driver who died due to Covid 19 committed suicide after killing her son and daughter has the family was said to be in financial dismal condition after the death of the husband in August 2020 (Times of India, Oct 4, 2021).

“The cost of diesel increased from Rs 65 per litre last year to more than Rs 90; Operational cost increased by Rs.10 per km due to soaring fuel prices and reduced ridership, ticket revenue reduced from Rs 5 crore before Covid to Rs.2.7 crore; ridership reduced from Rs 35 lakh to 20 lakh” (BMTC officials to Times of India, Oct 4, 2021).

**Table.1.** Traffic Revenue of BMTC (Rs. in Crore)

Year	Traffic Revenue (Rs. in Crore)
2011-12	1386.24
2012-13	1516
2013-14	1765.57



2014-15	1994.11
2015-16	1918.03
2016-17	1770.47
2017-18	1764.71
2018-19	1838.84
2019-20	1807
2020-21	699.97
<b>Mean</b>	1646.094
<b>Standard Deviation</b>	377.3473081
<b>Co-efficient Variation (%)</b>	22.95

Source: BMTC Annual Administration Report, 2020-21.

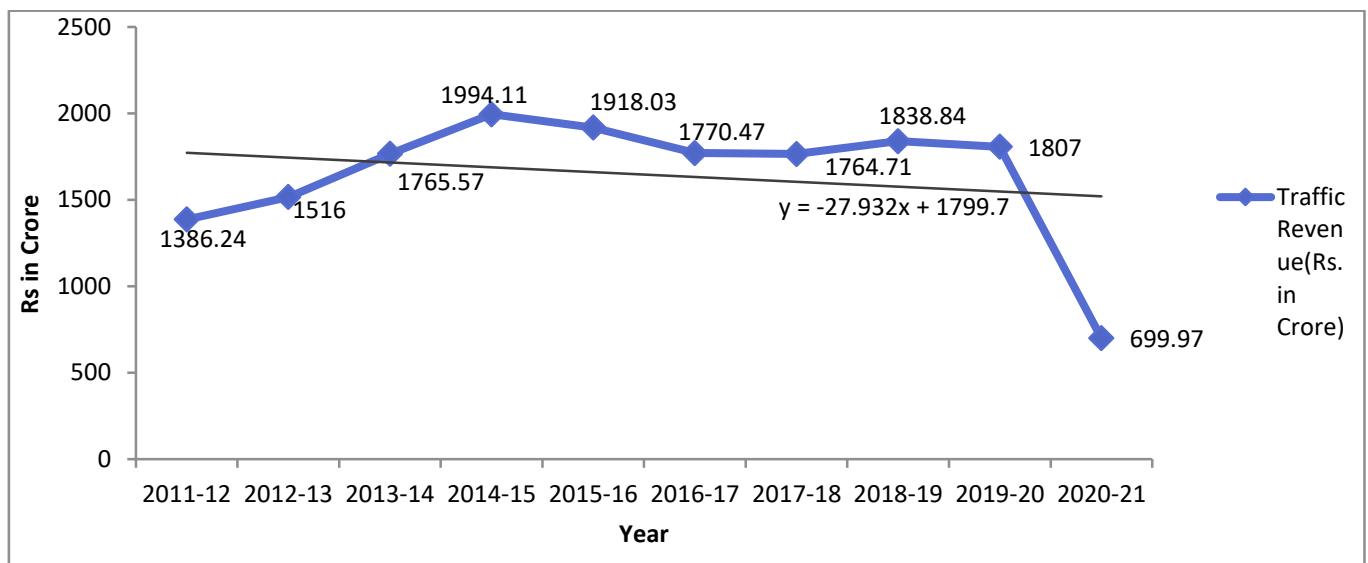


Fig.1: Traffic Revenue of BMTC (in Crore).

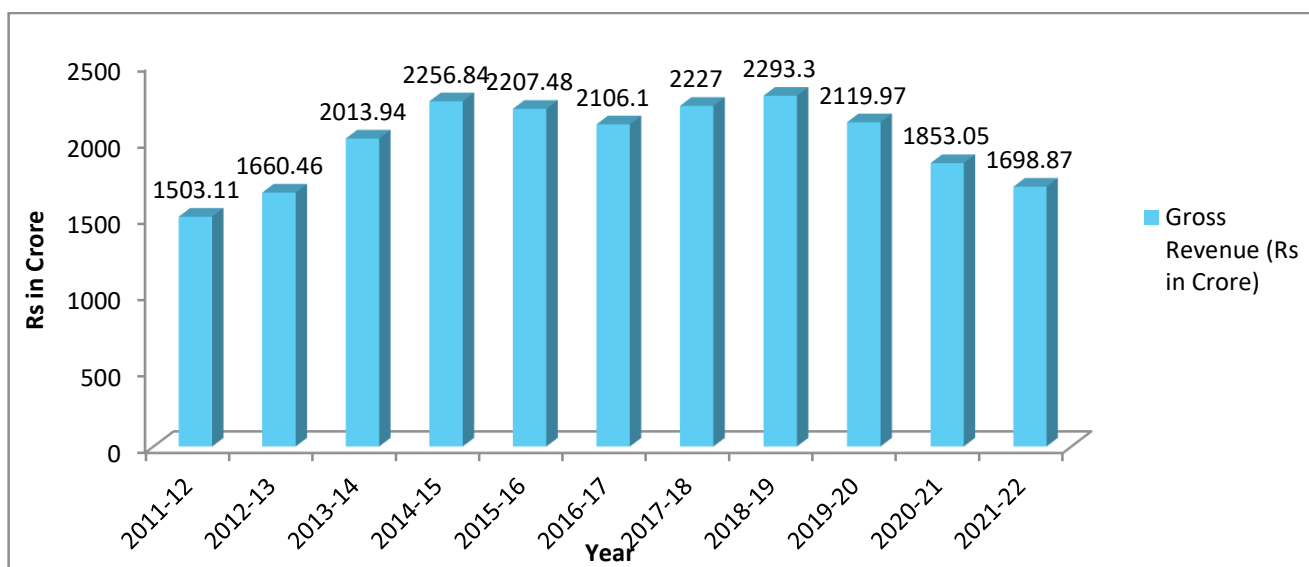
Source: BMTC Annual Administration Report, 2020-21.

The above table shows that the mean traffic revenue is 1646.094 with a standard deviation of 377.3473. The Co-efficient of Variation is approximately 22.95 percent. The co-efficient of variation suggests that the traffic revenue has a moderate level of relative variability around the mean value. The above figure shows that the traffic revenue of the BMTC has declined due to the Covid 19 and work from home arrangements.

Table.2. Gross Revenue of BMTC (Rs. in Crore)

Year	Gross Revenue (Rs. in Crore)
2011-12	1503.11
2012-13	1660.46
2013-14	2013.94
2014-15	2256.84
2015-16	2207.48
2016-17	2106.1
2017-18	2227
2018-19	2293.3
2019-20	2119.97
2020-21	1853.05
2021-22	1698.87
<b>Mean</b>	1994.556364
<b>Standard Deviation</b>	273.2302433
<b>Co-efficient of Variation (%)</b>	13.6987978

Source: BMTC Annual Administration Report, 2021-22.



**Fig.2:** Gross Revenue of BMTC (Rs in Crore).

**Source:** BMTC Annual Administration Report, 2021-22.

The above table shows the mean gross revenue of 1994.55 is the average value while the standard deviation of 273.23 indicates the degree of variability in the gross revenue values and the Co-efficient of variation is 13.69 percent suggests a moderate level of relative variability in the gross revenue mean. The above figure portrays the financial performance on the revenue and the cost of operation of BMTC. The gross revenue has declined over the years. The compound annual growth rate with respect to gross revenue from 2013-14 to 2021-22 has declined by -0.90 and this is due to the lockdowns during Covid 19 which led to slow resumption of service, drop in ridership since the commuters shift to other modes of commute like namma metro, other app-based vehicles and rental two-wheeler services. On the other hand, the cost of operation includes the variable and fixed cost that has been increasing mainly due to continuous increase in diesel prices, revision of salaries of the employees and increasing expenses for the maintenance of especially the air-conditioned Volvo buses.

### Performance Evaluation of BMTC Post Pandemic

The operational efficiency of BMTC has declined significantly; staff shortage and non-induction of new buses have impacted city bus services; bus operated by the corporation which covered a distance of 200 kms per day before Covid 19 has come down to 170 kms; BMTC schedule during pre-pandemic was 6,200 services declined to 5,600 services; the ridership is 26-27 lakh passengers from an average of 35 lakh passengers per day (The Hindu, June 10, 2022) The implementation of Shakti Scheme, that offers free bus travel for women; BMTC's daily bus ridership has consistently exceeded 30 lakh; female passengers surges from 39 percent in May 2023 to 57 percent (Times of India, June 23, 2023).

Rs.17 crore BMTC fraud case filed against 7 officials for forging the signatures of seniors; the fraud committed between March 2020 and September 2023; Republic world reported Rs 10.50 crore and Rs.6.91 crore were misappropriated in one file. Meanwhile, the license fee was waived off for exemption during covid19 in another file (Times Now, Oct 5, 2023).The shortage of drivers and mechanical staff directly impacted the services and in order to tackle this issue; recruitment process is commenced by the state government and the 2500 proposed conductors for recruitment (The Hindu, Oct 24, 2023).

### 6. FINDINGS :

- BMTC issued guidelines to the employees during pandemic
- BMTC staff compulsorily underwent health check-up during covid19
- Employees were provided with face shields, mask, gloves and sanitizers during the pandemic
- During pandemic more than 171 of BMTC employees were tested Covid positive since they were involved in cash and ticket transactions with multiple passengers
- Due to the poor ridership BMTC was forced to withdraw its AC bus services during the pandemic
- BMTC faced huge financial crisis during pandemic and due to these the employees' salaries were delayed; employees struggled to pay rent, buy groceries and other essential commodities.



- 108 BMTC employees died due to covid-19 in which 39 deaths during the first Covid wave and 69 during the second Covid wave.
- The traffic revenue and gross revenue of BMTC declined drastically due to the Covid 19, work from home arrangements, commuters shifting to other app-based vehicles.
- Due to the implementation of Shakti scheme, BMTCs daily bus ridership increased post pandemic.
- Recruitment for the drivers and conductors is proposed post pandemic

## 7.CONCLUSION:

BMTC is dedicated to offering excellent, secure, dependable, clean, and reasonably priced travel. In addition to its core activities of fare structuring, route network optimization, planning, and monitoring, BMTC also works to strengthen information systems by the introduction of intelligent technology solutions, focuses on the infrastructure development, user-friendly interchange facilities, fleet up-grading and augmentation, and more. Public transportation is a desirable mode of transportation for everyone because to BMTC's extensive reach in every nook and corner of the city but during the pandemic BMTC faced both operational as well financial crisis; recently with the government implementing Shakti scheme the daily bus ridership is on rise.

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