

Financial Performance of Bangalore Metropolitan Transport Corporation - A Hard Task to Manage

Pavithra S T

Assistant Professor

R V Institute of Management, Bangalore, India

&

Research Scholar

Dept. of Management Studies, Bangalore University, Bangalore, India

Dr. T V Raju

Director - Planning

R V Educational Institutions, Rashreeya Sikshana Samithi Trust, Bangalore, India

&

Research Guide

Dept. of Management Studies, Bangalore University, Bangalore, India

Abstract

The public transport system operates under a great deal of stress in the country's major cities. Not that its operations are healthier in smaller cities. There is even more stress in cities where only buses operate without being supplemented by suburban Electrical Multiple Units (EMUs) and the rapid transit system, the Metro Rail, better known by its popular name, Metro. The researcher attempts to examine certain aspects of the operations of the Bangalore Metropolitan Transport Corporation (known by its acronym BMTC) that operates buses across the length and breadth of the sprawling city of Bangalore. Like its peers in other major cities, the BMTC walks a tightrope with factors like resource crunch, absence of freedom to fix the fare at least to make both ends meet and the fits-and-starts release of financial support by the government in the form of loan/subsidy/grant hobbling its growth. The researcher's investigation reveals that there is no significant improvement in the operating profit and net profit generated by the corporation. A closer look at the two worms reveal that even when the operating profit was in the negative zone, the net profit was in the positive zone during some years. The anomalous outcome may have to do with the subsidy released by the government and / or other income generated by the corporation and / or a one-time income generated by the corporation during the period under review.

Keywords: Acronym, Profit Motive, Tightrope, Revenues.

Introduction

It is incumbent on a government to provide cheap and safe transport service to its people. The provision of the service assumes even more importance in the urban pockets of the state owing to their economic relevance to the growth of the state. If urban economy is to grow and stabilise, the grievances of several associated stakeholders need to be addressed. The workforce has to commute to the workplace which by and large operates outside the city limits. The student community has to commute to schools and colleges, there are other people who have to criss-cross the city for various other purposes like availing healthcare services, buying or shopping for goods and services needed to run the household etc. These segments of the society have to be helped to commute affordably, safely and reliably - something which cannot be entrusted to the private sector for obvious reasons. The system cannot be run purely on profit motive. Nor can it be run gratis. The government has to walk a tightrope – it has to render the service affordable for the commuters and at the same time, ensure that what the commuters pay is good enough to at least keep the transport system going, even if it does not make any profit in the process.

The Bangalore Metropolitan Transport Corporation, abbreviated as BMTC, is a Government unit that operate as the public transport bus services in Bangalore, India. The story of BMTC is that of a resurrection. It was formed on August 15, 1997, when the Bangalore depots of the troubled Karnataka State Road Transportation Corporation [KSRTC] were separated by Mother Company. Prior to that since 1961 it was under MSRTC / KSRTC.

BMTC is the nationalized public transport unit. BMTC has a lead, as it is the only public Bus Transport Corporation within the Bangalore city limits, and sub-urban areas of Bangalore in a radius of 40.4 Kms and the area of operation is expanded to 5130 Sq. Kms in the view of Greater Bangalore to ferry more than 5 million commuters per annum. During the year 2017 the corporation had a fleet of 6165 buses operating daily services around 12 lakh effective kms with 6219 number of schedules and realising average traffic revenue of Rs. 485.06 lakhs per day.

Statement of the Problem

The country's metropolitan transport corporations (MTCs) have been entrusted with an onerous and unenviable task. On the one hand, they have to carry the commuters at an affordable fare and on the other hand, they should remain self-sustaining entities. With each passing day, the MTCs are required to carry more commuters and any rise in the costs of inputs that go into their operations cannot be automatically passed on to the commuter even partly. This is because the MTCs are required to foot the social cost occasioned by carrying the commuters. They have to walk a tightrope trying to keep all the associated stakeholders happy, in particular the urban commuter and the state government concerned. The latter once in a while comes to the rescue of the MTCs by financing them in one form or the other. State governments may infuse additional capital into them, release soft loans to them and subsidise them to a certain

extent to alleviate some of their problems. But operate they must, come rain or shine. Even if they do not make a profit, they must make both ends meet in the larger interest of the economy of the country.

Review of Literature

1. Decline in ridership and rising operational costs, not to mention mounting fuel bills were leading the Bengaluru Metropolitan Transport Corporation (BMTC) to incur a daily loss of INR 88 lakh (Naveen, 2018). In the past two months, diesel prices surged several times. Hence, the corporation had not dropped the proposal to raise fares. The cost per kilometre (CPKM) and the earnings per kilometre (EPKM), a yardstick BMTC used to assess performance every month, had revealed an alarming gap between April and August. The corporation was losing a whopping INR 18.31 per km on air-conditioned buses and INR 6.31 per km on non-air-conditioned buses. The cumulative loss stood roughly at INR 88 lakh a day. The AC buses run 1.35 lakh km a day and the ordinary buses run close to 10 lakh km a day. The prospect of a fare-hike leading to a further fall in ridership had put the corporation in a catch-22 situation.
2. Buses are the transport system of choice for the poorest commuters in Indian cities. But the losses they incur can be attributed to their failure to hike fares (**Saravan, 2018**). Bengaluru is India's third most-populous city. But its bus system is India's largest, with 6,448 buses (in 2015-16). It also lost the least money (INR 1.01 billion) over six years to 2016, among the eight metropolitan bus systems, according to an India Spend analysis of transit data. Buses tend to be the mass alternative for a city's poorest residents. For instance, the cheapest bus ticket in Delhi is INR 5 for non AC buses and INR 10 for AC buses, according to the Delhi Transport Corporation (DTC) website, compared to INR 10 for the cheapest metro ticket; in Bengaluru, the minimum fare on the metro is INR 10, compared to INR 5 for the bus (general service). Managed better than its metropolitan counterparts, the Bangalore Metropolitan Transport Corporation (BMTC) incurred losses in 2013-14 and 2014-15, although it was the only Indian metropolitan bus-movement system to make profits over the last six years that the researcher considered.
3. Presently, the Delhi urban area continues to suffer from an inefficient public transport system. It has led to an inadequate and unhealthy modal split, leading to hardly 50 percent of the commuters using the public transport system (**Sarkar, 2018**). Delhi's population will be around 20 million in 2018. It is the largest commercial centre in northern India. In 2018, the city registered a vehicular growth of more than 10 percent for the past five years, transforming it into one of the fastest growing cities in the region. Presently, the Delhi urban area continues to be plagued by an inefficient public transport system, leading to an inadequate and unhealthy modal split of less than 50 percent in favour of the public transport system.

4. Indian cities rely predominantly on buses for public transport (**Mulangi, 2018**). The public transporters operate under severe operating conditions and financial constraints. The public bus systems impart greater mobility to people commuting between urban and rural areas. Through increased mobility, road transport also contributes immensely to social and economic development of the different regions of the country. Public transport is provided mainly in the form of surface road transport, with State Road Transport Undertakings (SRTUs) and private operators plying buses. The researchers undertake a scientific analysis of the performance of SRTUs at different levels. They reckon the physical and financial parameters through multivariate techniques, non-parametric techniques and qualitative techniques. A comprehensive study of all the SRTUs of Karnataka at depot and divisional level is undertaken to decide on the right quantitative method for depot level and division level studies. From the quantitative and qualitative studies of SRTUs, strategies are developed, and recommendations are made to improve the performance of SRTUs. Further, the routes are analyzed to reduce the dead kilometre. The researchers conclude that KSRTC has been the best operating unit among the SRTU's considered for the study. The same has been observed from the analytical hierarchy approach (AHP) as well as perception surveys carried out as part of the study.

Research Gap

The reviewed research has been rather revealing and informative. However, it has not thrown light on the basic metrics one considers in an entity like the public transport operator. If commuters who use their own vehicles for the purpose can be persuaded to use the public bus system instead, to that extent road space will be freed for additional public buses. If BMTC can trigger a modal shift from car to the bus system, one can visualise the benefits that will accrue to all the stakeholders: the BMTC bus that can on-board commuters will see a significant improvement in its collection. According to one of the researchers, the urban public transport systems meet a social objective and hence the losses they inflict on the exchequer should not be viewed cynically. But the learned researchers cannot dispute the statement that the systems should at least be self-sustaining. Otherwise, they will ebb away sooner than later.

Scope of the Present Study

The study covers the operations of BMTC in Bangalore (Urban) and Bangalore (Rural) districts.

Objectives of the Study

1. Examine the impact of Operating Profit and Net profit generated by BMTC.
2. Analyse the different sources of revenue generated by BMTC
3. Ascertain how Operating Profit, Net Profit and revenue earned by BMTC have impacted each other to improve the financial health of BMTC

Research Methodology

The study is descriptive in nature and has used the 'fact-finding' method.

Sources of data

The study is purely secondary data driven. Secondary data has been collected from the annual reports of BMTC.

Data Processing and Analysis Plan

Statistical tests like standard deviation and compounded annual growth rate (CAGR) have been undertaken to process and analyse the data.

Statistical Analysis

An attempt has been made to fit the trend for the given data with the help of time series. The following are the statistical analysis used in the study.

a. Mean Absolute Error (MAE)

$$\text{MAE} = \sum(e_i)/N$$

b. Mean Absolute Percentage Error (MAPE)

$$\text{MAPE} = \frac{\sum \left| \frac{Y_t - \hat{Y}_t}{Y_t} \right|}{N} \times 100$$

c. Root Mean Square Error (RMSE)

$$\text{RMSE} = \sqrt{\frac{\sum (Y_t - \hat{Y}_t)^2}{N}}$$

d. R Squared

The coefficient of determination or R^2 is mainly used to analyze how well a variable can predict another one.

Data Analysis

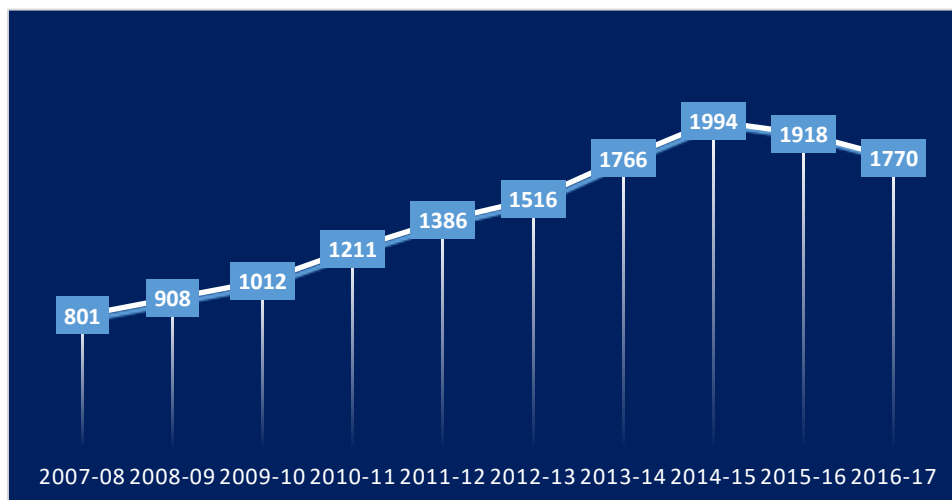
1. Total revenue generated by BMTC during FY 2008-17

Table 1: Total revenue generated by BMTC during FY 2008-17 (in INR Crs)

| Year | Total Revenue | YoY growth (%) |
|--------------------|---------------|----------------|
| 2007-08 | 801 | |
| 2008-09 | 908 | 13.23 |
| 2009-10 | 1012 | 11.55 |
| 2010-11 | 1211 | 19.65 |
| 2011-12 | 1386 | 14.45 |
| 2012-13 | 1516 | 9.36 |
| 2013-14 | 1766 | 16.46 |
| 2014-15 | 1994 | 12.94 |
| 2015-16 | 1918 | -3.82 |
| 2016-17 | 1770 | -7.69 |
| CAGR (%) | | 9.21 |
| Standard deviation | | 432.64 |

Source: Annual Reports of BMTC

Chart 1: Total revenue generated by BMTC during FY 2008-17 (in INR Crs)



The total revenue generated peaked in FY 2015 only to register a fall in the next two years. The fall was particularly significant in FY 2017 - falling to ₹ 1770 crores from ₹ 1918 crores the previous year.

The total revenue grew at a Compounded Annual Growth Rate (CAGR) of 9.21 percent during the period under review. It was nothing to write home about. The standard deviation of the

total income generated was ₹ 432.64 crores. Such a wide dispersion of total revenue from the average or mean value was on the high side.

2. Operating profit generated BMTC for the period FY2008-17

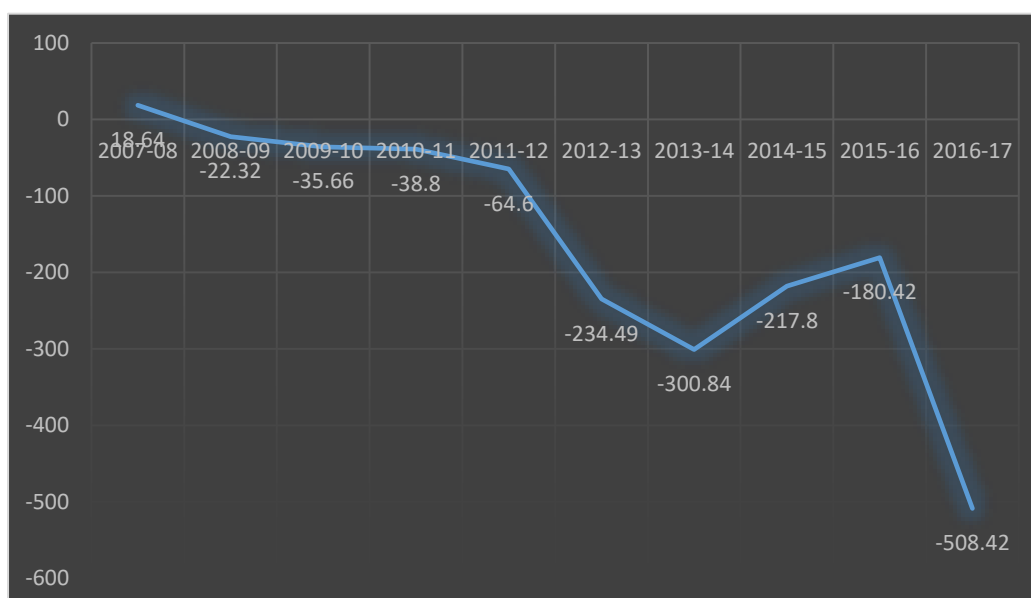
Considering the social cost involved in operating it, one does not expect BMTCs operations to be in the black all the time. However, one cannot be faulted if one expects the BMTC to at least make a cash profit or profit that does not reckon depreciation, amortized expenses and other non-cash expenses. In other words, cash profit is net cash receipts as reduced by all cash expenses. The following Table and Chart capture the relevant numbers.

Table 2: Operating profit generated by BMTC during FY 2008-17 (in INR Crs)

| Year | Operating Profit |
|---------|------------------|
| 2007-08 | 18.64 |
| 2008-09 | -22.32 |
| 2009-10 | -35.66 |
| 2010-11 | -38.80 |
| 2011-12 | -64.60 |
| 2012-13 | -234.49 |
| 2013-14 | -300.84 |
| 2014-15 | -217.80 |
| 2015-16 | -180.42 |
| 2016-17 | -508.42 |

Source: Annual Reports of BMTC

Chart 2: Operating profit generated by BMTC during FY 2008-17 (in INR Crs)



Only one segment of the worm lies above the X-axis, conveying that during just one period of the ten periods, the corporation generated an operating profit. During the remaining periods, it incurred operating losses. The lone instance of operating profit clocked amounted to a paltry ₹ 18.64 crores.

3. Net profit generated by BMTC for the period FY 2008-17

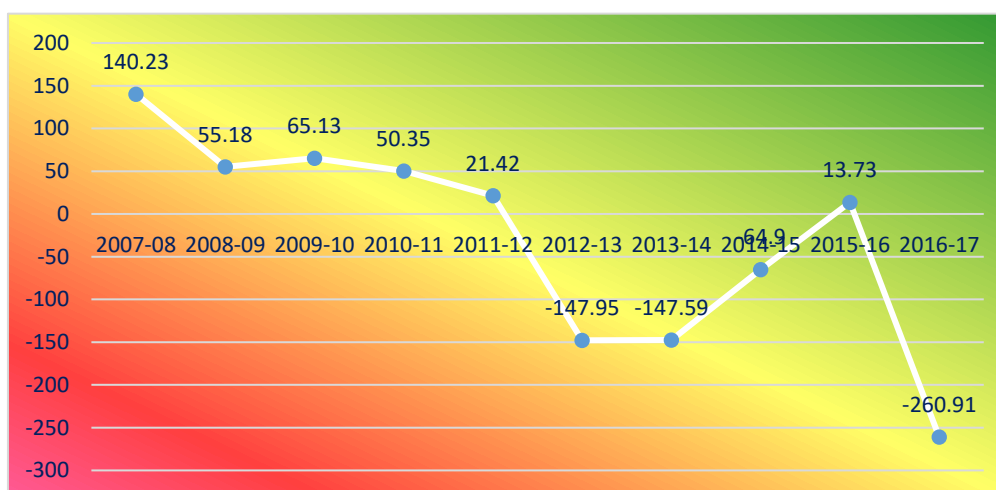
With operating profit being what it is, one is inclined to analyse the net profit clocked by the corporation during the period under review. The following Table and Chart capture the relevant numbers.

Table 3: Net profit generated by BMTC during FY 2008-17 (in INR Crs)

| Year | Net profit |
|---------|------------|
| 2007-08 | 140.23 |
| 2008-09 | 55.18 |
| 2009-10 | 65.13 |
| 2010-11 | 50.35 |
| 2011-12 | 21.42 |
| 2012-13 | -147.95 |
| 2013-14 | -147.59 |
| 2014-15 | -64.90 |
| 2015-16 | 13.73 |
| 2016-17 | -260.91 |

Source: Annual Reports of BMTC

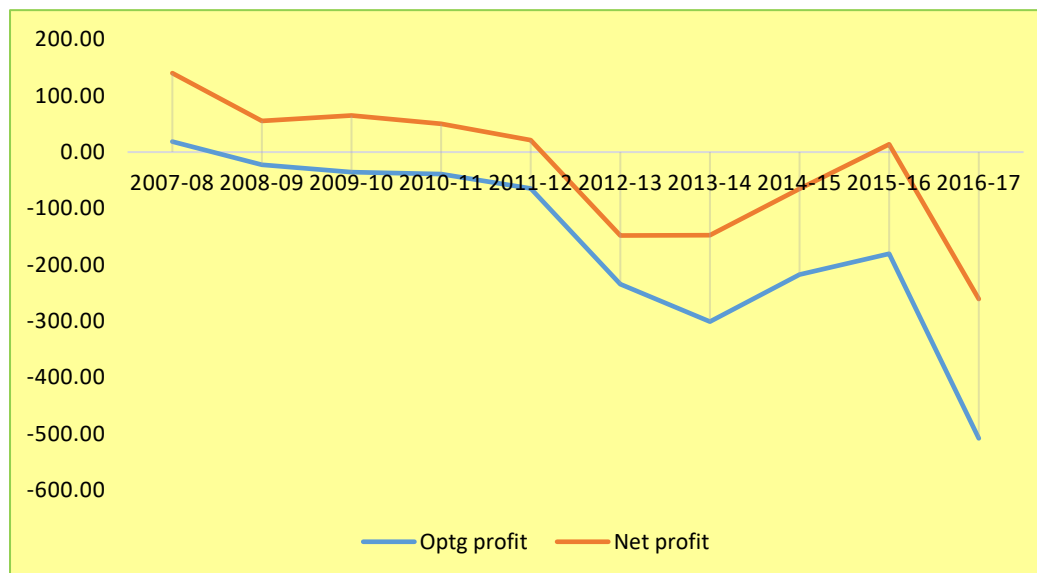
Chart 3: Net profit generated by BMTC during FY 2008-17 (in INR Crs)



Five segments of the worm lie above the X-axis conveying that the corporation generated profit during the first five years of the period under review or up to FY 2012. The maximum loss of ₹ 260.91 crores was incurred in FY 2017. A stray instance of profit was witnessed post FY

2012 or in FY 2016 to be more precise, when the corporation made a modest profit of ₹ 13.73 crores. In the post FY 2012 phase, FY 2013, 2014, 2015 and 2017 saw the corporation clocking huge losses.

Chart 3.1: Operating profit and net profit generated by BMTC during FY 2008-17 (in INR Crs)



A closer look at the two worms reveal that even when the operating profit was in the negative zone, the net profit was in the positive zone during some years. The anomalous outcome may have to do with the subsidy released by the government and / or other income generated by the corporation and / or a one-time income generated by the corporation. Out of the ten financial years, the corporation has incurred operating loss during nine financial years. Out of the ten financial years, the corporation has incurred a net loss only during four financial years - a skewed outcome indeed.

4. Revenue generated from sale of tickets by BMTC during FY 2008-17

In the following Table, the revenue generated by BMTC from sale of tickets during FY 2008-17 is analysed.

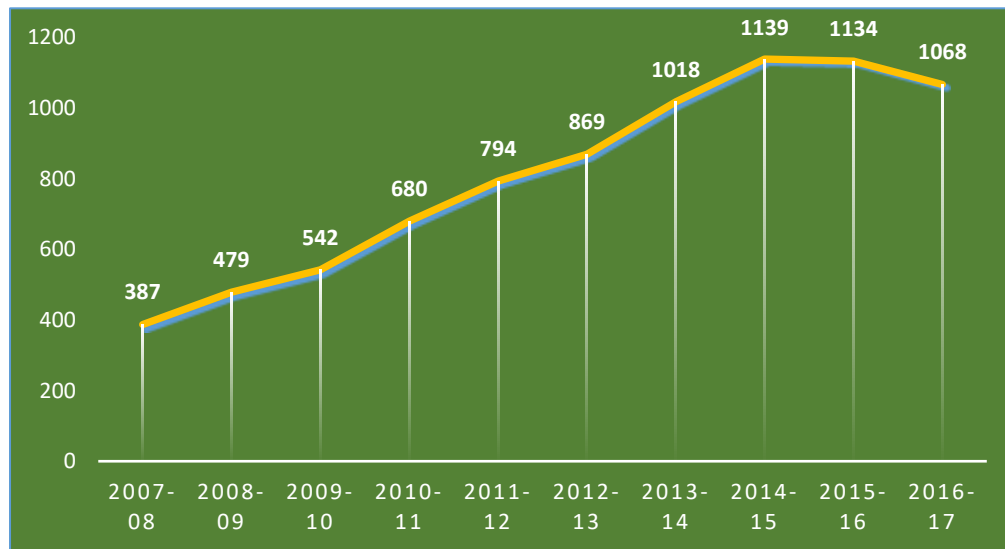
Table 4: Revenue generated from sale of ticket by BMTC during FY 2008-17

| Year | Revenue from sale of tickets | YoY growth (%) |
|---------|------------------------------|----------------|
| 2007-08 | 387 | |
| 2008-09 | 479 | 23.64 |
| 2009-10 | 542 | 13.29 |
| 2010-11 | 680 | 25.33 |
| 2011-12 | 794 | 16.77 |

| | | |
|--------------------|------|--------|
| 2012-13 | 869 | 9.52 |
| 2013-14 | 1018 | 17.11 |
| 2014-15 | 1139 | 11.91 |
| 2015-16 | 1134 | -0.49 |
| 2016-17 | 1068 | -5.82 |
| CAGR (%) | | 11.93 |
| Standard deviation | | 279.62 |

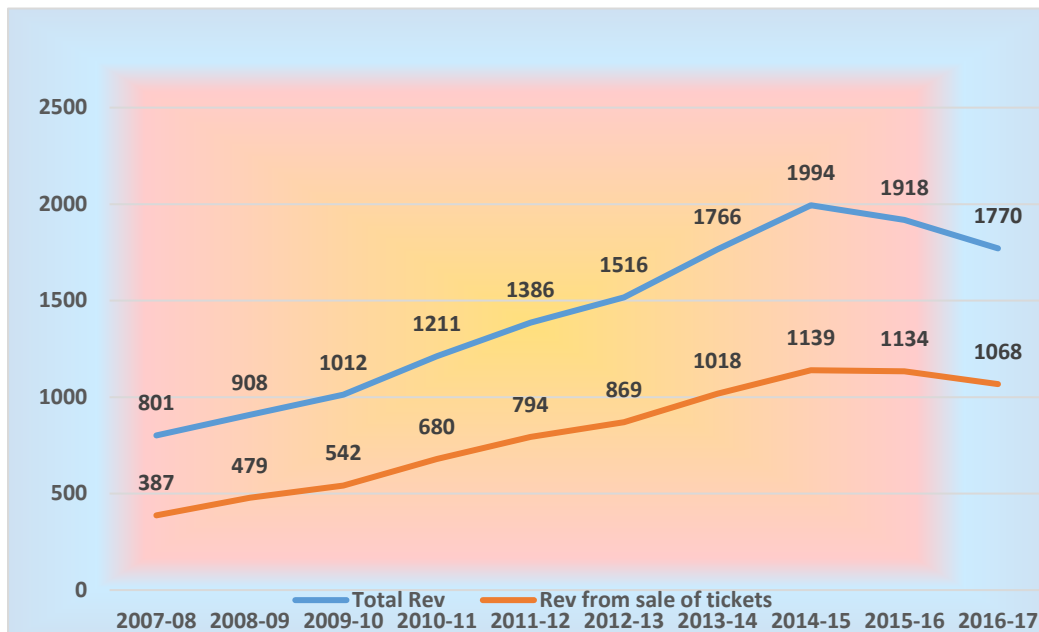
Source: Annual Reports of BMTC

Chart 4: Revenue generated from sale of tickets by BMTC during FY 2008-17



The revenue generated from sale of tickets until FY 2015 was by and large trending upward. However, two years later the revenue from sale of tickets trended downward. The peak was ₹ 1,139 crores clocked in FY 2015. The CAGR of the revenue was 11.93 percent and the standard deviation of the revenue was ₹ 279.62 crores. Both these metrics compare favourably with the metrics associated with the total revenue analysed earlier and thus offers some solace. The Chart 4.1 depicts in a tell-tale manner how the total revenue and revenue from sale of tickets have moved during the period under review.

Chart 4.1: Total revenue and revenue generated from sale of tickets during FY 2008-17 (in INR Crs)



The divergence between the two worms was noticeable from FY 2012. However, post FY 2015, the fall of the “Total Revenue” worm was steeper than that of the “Revenue from Sale of Tickets” worm.

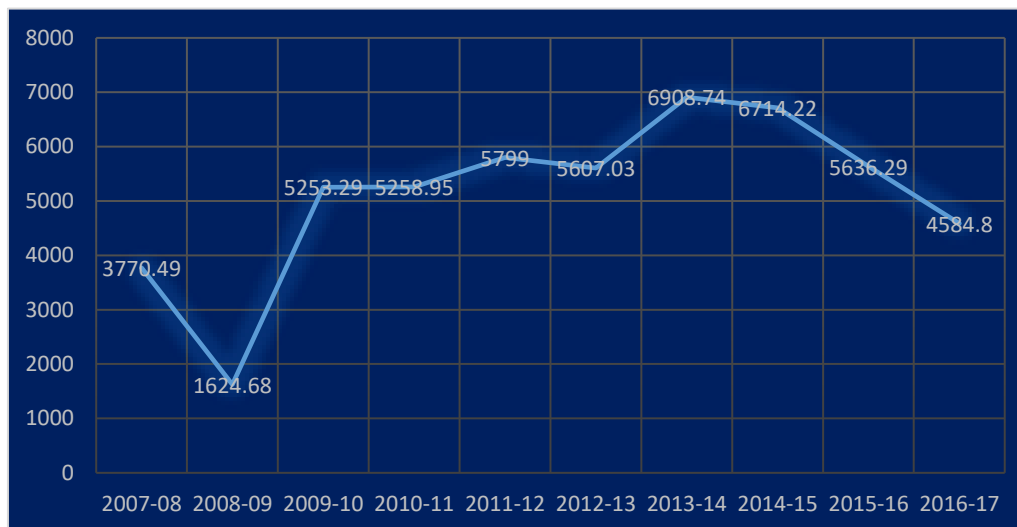
5. Revenue from contracts generated by BMTC for the period FY2008-17

Next in significance to the revenue generated from sale of tickets by BMTC is the revenue it generates from contracts. Hence the following Table and Chart capture the relevant numbers.

Table 5: Revenue from contracts generated by BMTC for the period FY2008-17

| Year | Revenue from contracts (in INR lakhs) |
|--------------------|---------------------------------------|
| 2007-08 | 3770.49 |
| 2008-09 | 1624.68 |
| 2009-10 | 5253.29 |
| 2010-11 | 5258.95 |
| 2011-12 | 5799.00 |
| 2012-13 | 5607.03 |
| 2013-14 | 6908.74 |
| 2014-15 | 6714.22 |
| 2015-16 | 5636.29 |
| 2016-17 | 4584.80 |
| CAGR (%) | 2.20 |
| Standard Deviation | 1,529.99 |

Source: Annual Reports of BMTC

Chart 5: Revenue from contracts generated by BMTC for the period FY2008-17

Consistency has not been the hallmark of BMTC's revenue from contracts. The revenue moved in fits and starts from FY 2010 to FY 2014 after which it began to lose momentum. The standard deviation of the revenue generated was almost ₹ 1,530 lakhs (approximately) which does not augur well for the corporation. The CAGR was a measly 2.20 percent approximately.

6. Revenue generated from travel concession by BMTC for the period FY2008-17

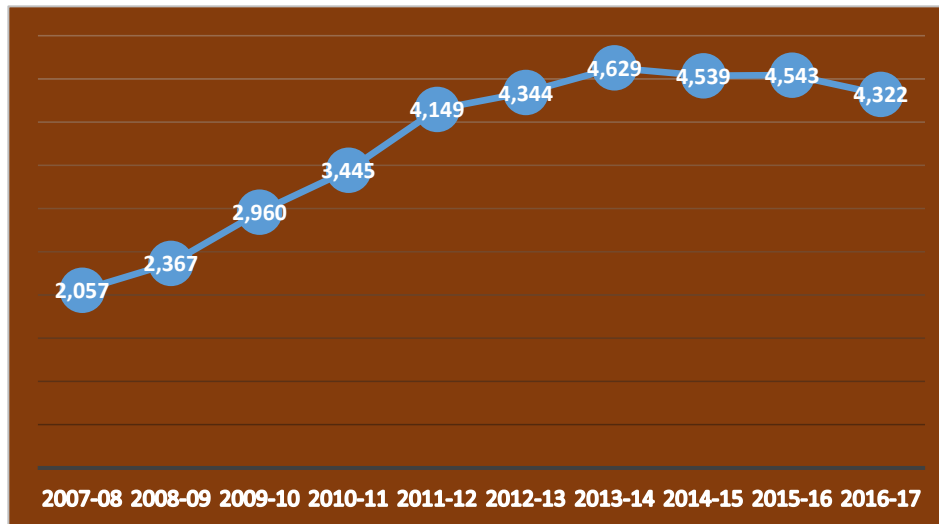
The following Table and Chart capture the relevant numbers of the revenue generated from travel concession by BMTC.

Table 6: Revenue generated from travel concession by BMTC for the period FY2008-17

| Year | Revenue from travel concession (in INR Lakhs) |
|--------------------|--|
| 2007-08 | 2,057 |
| 2008-09 | 2,367 |
| 2009-10 | 2,960 |
| 2010-11 | 3,445 |
| 2011-12 | 4,149 |
| 2012-13 | 4,344 |
| 2013-14 | 4,629 |
| 2014-15 | 4,539 |
| 2015-16 | 4,543 |
| 2016-17 | 4,322 |
| CAGR (%) | 8.60 |
| Standard Deviation | 963.71 |

Source: Annual Reports of BMTC

Chart 6: Revenue generated from travel concession by BMTC for the period FY2008-17



The revenue continued to grow until FY 2014 after which it stagnated at ₹ 4,500 lakh plus levels for a couple of years. In FY 2017, the revenue took a sharp hit of over ₹ 200 lakhs to record ₹ 4,322 lakhs, approximately. The CAGR of 8.60 percent is encouraging. The standard deviation of revenue at ₹ 963.71 lakhs could do with some improvement, though.

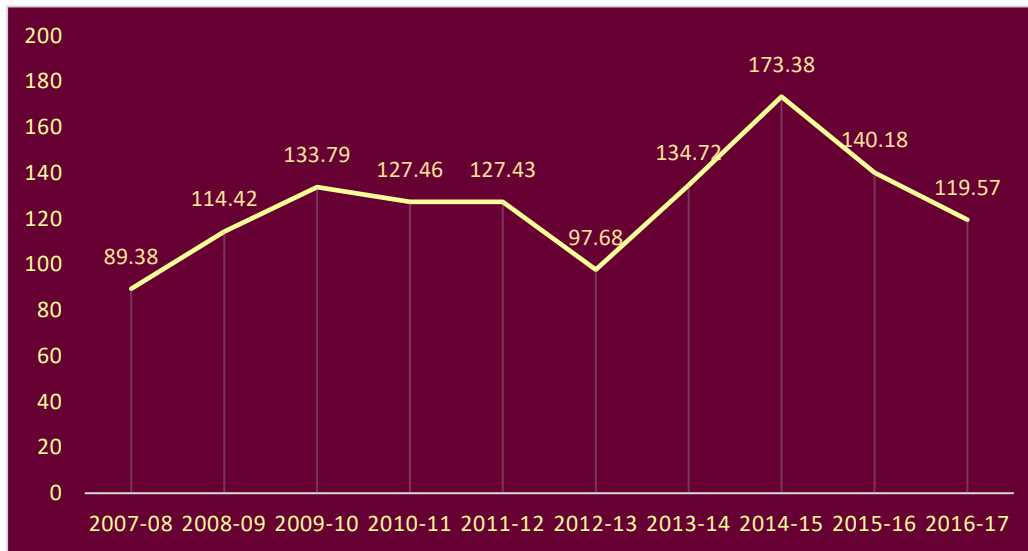
7. Fines collected from the passengers by BMTC for the period FY2008-17

Strangely but truly, fines collected from passengers by BMTC constitute a significant source of income for BMTC. Hence the following Table and Chart capture the relevant numbers.

Table 7: Fines collected from the passengers by BMTC for the period FY2008-17

| Year | Fines collected from passengers (in INR Lakhs) |
|--------------------|---|
| 2007-08 | 89.38 |
| 2008-09 | 114.42 |
| 2009-10 | 133.79 |
| 2010-11 | 127.46 |
| 2011-12 | 127.43 |
| 2012-13 | 97.68 |
| 2013-14 | 134.72 |
| 2014-15 | 173.38 |
| 2015-16 | 140.18 |
| 2016-17 | 119.57 |
| CAGR (%) | 3.29 |
| Standard Deviation | 23.35 |

Source: Annual Reports of BMTC

Chart 7: Fines collected from the passengers by BMTC for the period FY2008-17

Source: Annual Reports of BMTC

The fines collected from the passengers peaked in FY 2015 at ₹ 173.38 lakhs and hit the trough in FY 2008 at ₹ 89.38 lakhs. On one hand the corporation could be happy with the rising trend in collection of fines although civil society would be inclined to differ.

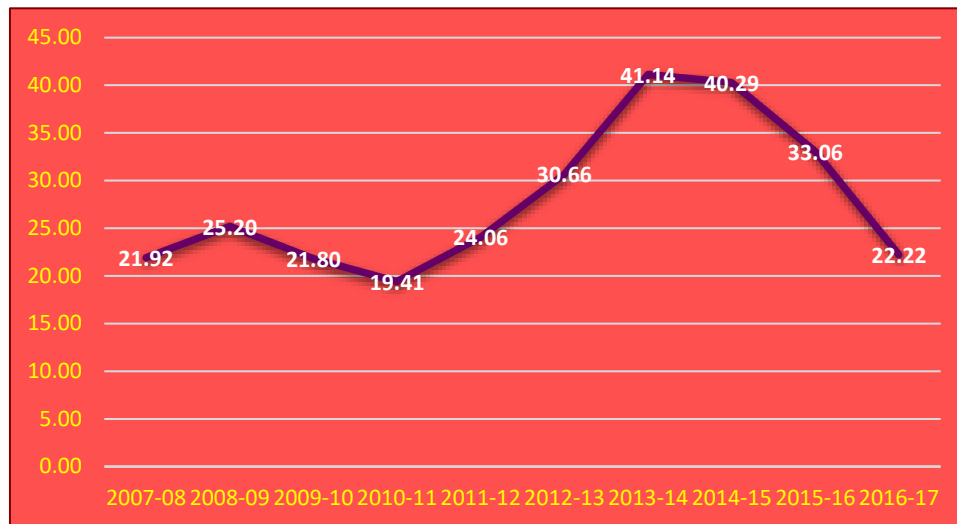
8. Revenue generated from passenger luggage for the period FY2008-17

BMTC also generates income by moving passenger luggage and personal effects. Hence the following Table and Chart capture the relevant numbers.

Table 8: Revenue generated from passenger luggage for the period FY2008-17 (in INR crores)

| Year | Revenue from passenger luggage |
|--------------------|--------------------------------|
| 2007-08 | 21.92 |
| 2008-09 | 25.20 |
| 2009-10 | 21.80 |
| 2010-11 | 19.41 |
| 2011-12 | 24.06 |
| 2012-13 | 30.66 |
| 2013-14 | 41.14 |
| 2014-15 | 40.29 |
| 2015-16 | 33.06 |
| 2016-17 | 22.22 |
| CAGR (%) | 0.15 |
| Standard Deviation | 7.90 |

Source: Annual Reports of BMTC

Chart 8: Revenue generated from passenger luggage for the period FY2008-17

The revenue generated from moving passenger luggage and personal effects peaked in FY 2014, clocking ₹ 41.14 crores. The revenue grew at a CAGR of 0.15 percent during the period and the standard deviation associated with this revenue was ₹ 7.90 crores.

Statistical Testing

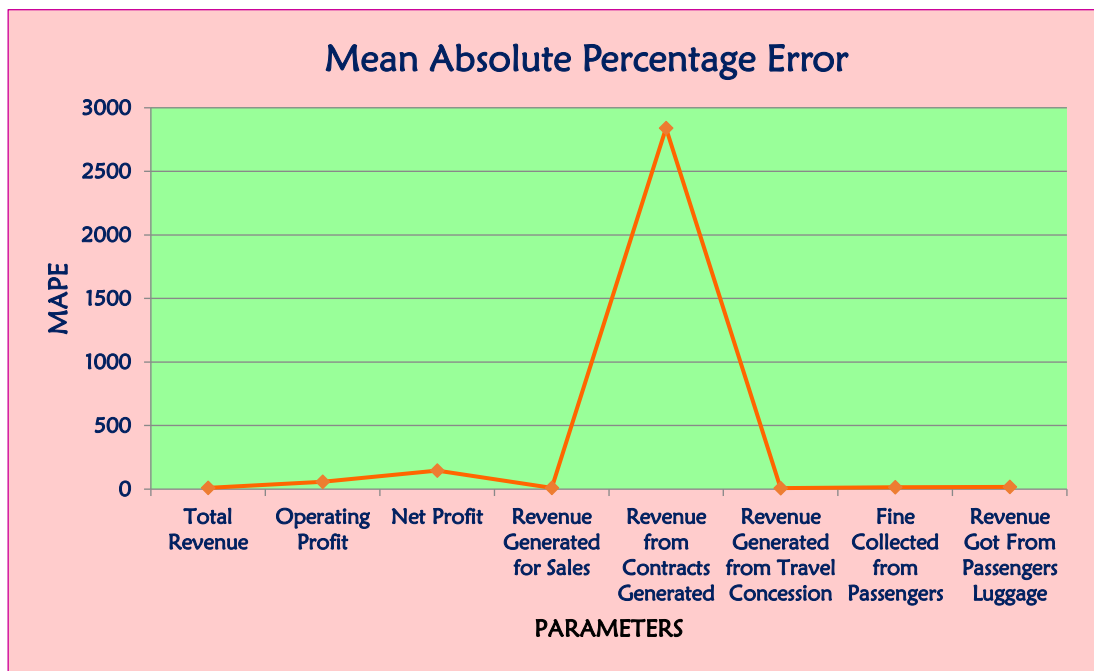
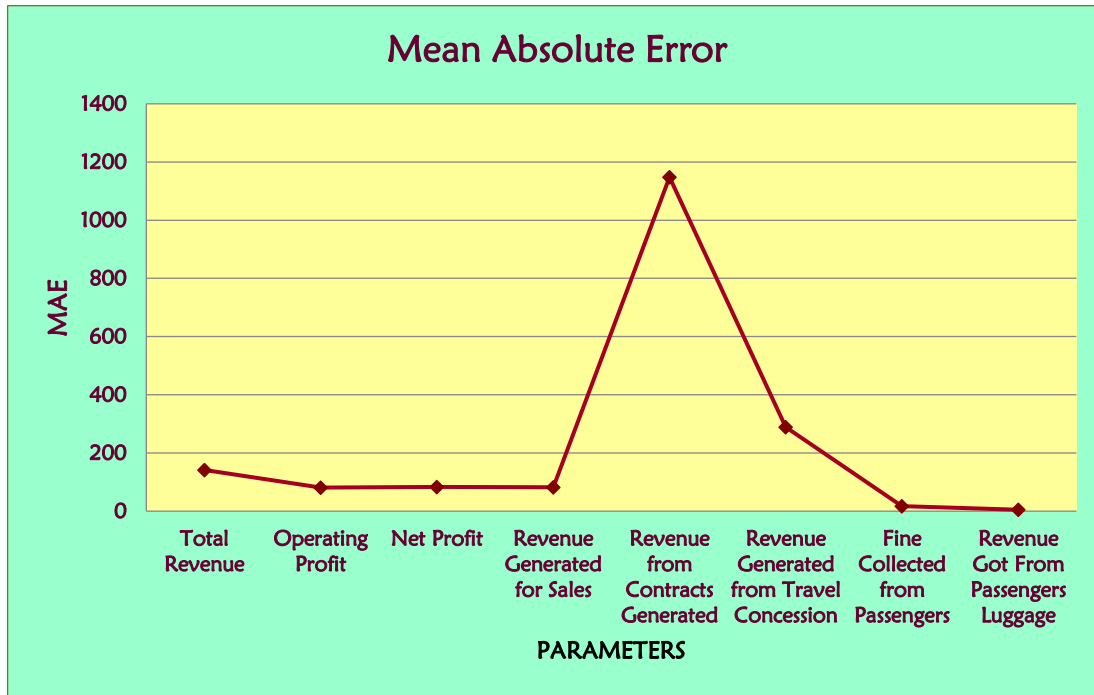
Null Hypothesis H_0

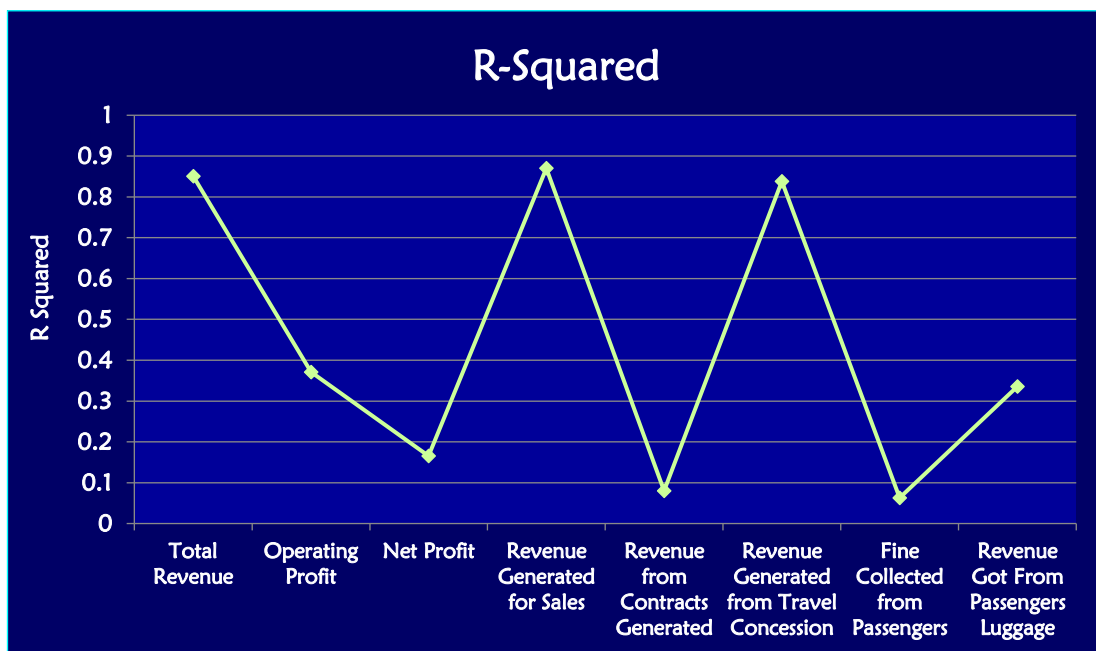
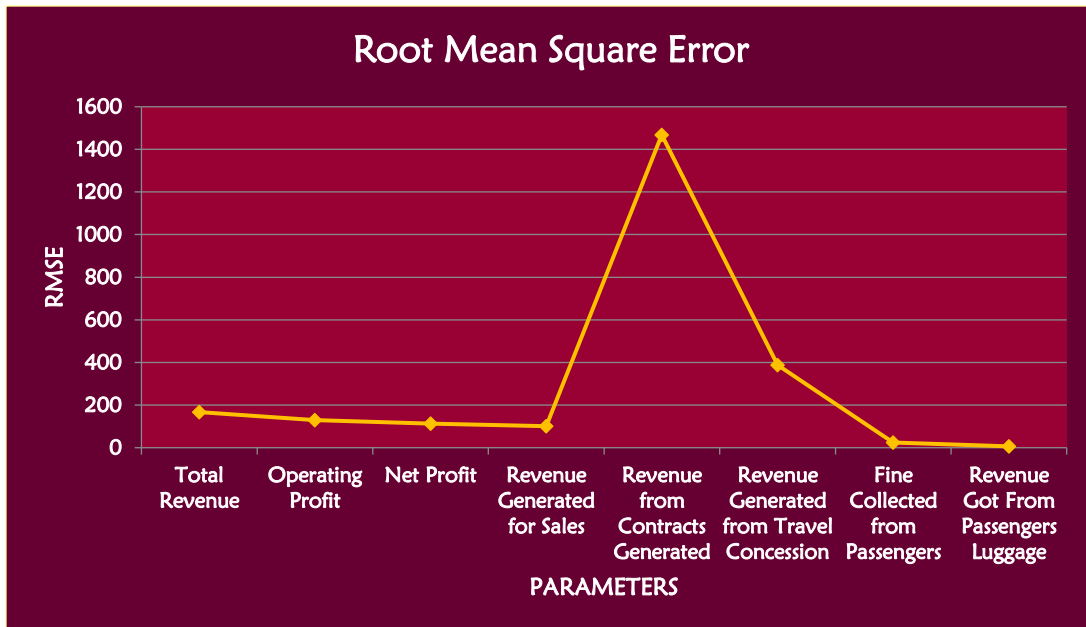
There is no significant improvement in the parameters with respect to the performance of BMTC for the period 2008 - 2017.

Tables referred : 1 to 8 (Parameters related to the performance of BMTC for the period FY 2008 - FY 2017)

Table 9: Calculation of MAE, MAPE, RMSE and R-Squared

| Parameters | MAE | MAPE | RMSE | R-Squared |
|--|---------|---------|---------|-----------|
| Total Revenue | 141.702 | 9.761 | 167.186 | 0.851 |
| Operating Profit | 81.291 | 57.513 | 129.723 | 0.371 |
| Net Profit | 83.686 | 147.142 | 113.280 | 0.166 |
| Revenue Generated for Sales | 82.302 | 10.600 | 100.733 | 0.870 |
| Revenue from Contracts Generated | 1148.02 | 2840.04 | 1468.14 | 0.080 |
| Revenue Generated from Travel Concession | 288.710 | 8.201 | 387.988 | 0.838 |
| Fine Collected from Passengers | 17.716 | 14.228 | 24.064 | 0.063 |
| Revenue Got From Passengers Luggage | 4.972 | 18.002 | 6.442 | 0.336 |





Inference

The statistical parameters such as MAE, MAPE, RMSE & R Squared give a clear picture about the trend of the parameters related to the performance of BMTC for the period 2008 - 2017. The null hypothesis is rejected, and it is inferred that there is a significant improvement in the parameters with respect to the performance of BMTC for the period 2008 - 2017. Almost all the parameters show a mixed trend which clearly depicts fluctuations happening in the performance of BMTC for the foresaid years.

Summary of Findings

1. The total revenue generated peaked in FY 2015 only to register a fall in the next two years. The fall was particularly significant in FY 2017 - falling to ₹ 1770 crores from ₹ 1918 crores the previous year.
2. The total revenue grew at a Compounded Annual Growth Rate (CAGR) of 9.21 percent during the period under review. It was nothing to write home about. The standard deviation of the total income generated was ₹ 432.64 crores. Such a wide dispersion of total revenue from the average or mean value was on the high side.
3. Only one segment of the worm in the graph lies above the X-axis, conveying that during just one period of the ten periods, the corporation generated an operating profit. During the remaining periods, it incurred operating losses. The lone instance of operating profit clocked amounted to a paltry ₹ 18.64 crores.
4. Five segments of the worm in the graph lie above the X-axis conveying that the corporation generated profit during the first five years of the period under review or up to FY 2012. The maximum loss of ₹ 260.91 crores was incurred in FY 2017. A stray instance of profit was witnessed post FY 2012 or in FY 2016 to be more precise, when the corporation made a modest profit of ₹ 13.73 crores. In the post FY 2012 phase, FY 2013, 2014, 2015 and 2017 saw the corporation clocking huge losses.
5. A closer look at the two worms in the graph reveal that even when the operating profit was in the negative zone, the net profit was in the positive zone during some years. The anomalous outcome may have to do with the subsidy released by the government and / or other income generated by the corporation and / or a one-time income generated by the corporation. Out of the ten financial years, the corporation has incurred operating loss during nine financial years. Out of the ten financial years, the corporation has incurred a net loss only during four financial years - a skewed outcome indeed.
6. The revenue generated from sale of tickets until FY 2015 was by and large trending upward. However, in the two years after that, the revenue from sale of tickets trended downward. The peak was ₹ 1,139 crores clocked in FY 2015. The CAGR of the revenue was 11.93 percent and the standard deviation of the revenue was ₹ 279.62 crores. Both these metrics compare favourably with the metrics associated with the total revenue analysed earlier and thus offers some solace.
7. Consistency has not been the hallmark of BMTC's revenue from contracts. The revenue moved in fits and starts from FY 2010 to FY 2014 after which it began to lose momentum. The standard deviation of the revenue generated was almost ₹ 1,530 lakhs (approximately) which does not augur well for the corporation. The CAGR of the revenue generated from contracts was a measly 2.20 percent approximately.
8. The revenue continued to grow until FY 2014 after which it stagnated at ₹ 4,500 lakh plus levels for a couple of years. In FY 2017, the revenue took a sharp hit of over ₹ 200 lakhs to record ₹ 4,322 lakhs, approximately. The CAGR of 8.60 percent is encouraging. The standard deviation of revenue at ₹ 963.71 lakhs could do with some improvement, though.
9. The fines collected from the passengers peaked in FY 2015 at ₹ 173.38 lakhs and hit the trough in FY 2008 at ₹ 89.38 lakhs. On the one hand, the corporation could be happy

with the rising trend in collection of fines although civil society would be inclined to differ.

10. The revenue generated from moving passenger luggage and personal effects peaked in FY 2014, clocking ₹ 41.14 crores. The revenue grew at a CAGR of 0.15 percent during the period and the standard deviation associated with this revenue was ₹ 7.90 crores.

Suggestions

1. The vehicles which are not roadworthy are being plied by BMTC. It is better that such vehicles are promptly identified, scrapped and disposed off by the corporation. A lean but healthy fleet will go a long way in raising the revenue of BMTC.
2. A rise in revenue during the year FY 2013 - FY 2015 has been productive in the sense that it has reduced the losses. However, a sharp loss in FY 2017 is unjustifiable in the context of a small drop in revenue of BMTC. Possibly more buses must have been taken off the road owing to their dismal productivity.
3. Periodically, the corporation has to review the health of its fleet to identify the buses that need to be taken off the road. The purging exercise should be carried out periodically without fail. Otherwise, legacy costs will hurt the corporation heavily.
4. Ridership numbers have stagnated for a number of reasons although the major reason is unfair pricing. If one compares the fare charged by BMTC with that charged by its peers in the other southern states, this fact stands out like a sore thumb. It is nobody's argument that the fare should be identical across the southern region, but it is only natural on the part of the commuter to demur when this difference is significant. After all, players from other states also operate more or less in a similar market and under similar conditions. It is time BMTC introspected about this and streamlined the fares. This, to a certain extent, will contribute to a rise in the ridership numbers.

Conclusion

Fluctuations in revenue are to be expected in a transporter of the BMTC kind given the social obligations that weigh on such transporters. But one would expect such operators to at least stand on their own feet even if they do not generate any profit for the government, their only stakeholder. It will ensure that the money invested by the government in BMTC is recycled for catering to the commuting needs of the general public. The fits-and-starts nature of BMTC's revenue generation is a luxury the government cannot afford. BMTC should ensure that some consistency characterises its revenue generation.

References

1. ICRA. (2017, July 5). *Home:icra.com*. Retrieved from icra.com website: <file:///F:/Dad/Chamu's%20Assignments/Kamalalaya/Bengaluru%20Metropolitan%20R-05072017.pdf>
2. Naveen, M. (2018, October 10). *Home:The Economic Times*. Retrieved from The Economic Times Website: <https://economictimes.indiatimes.com/news/politics-and-nation/bengaluru-metropolitan-transport-corporation-suffers-rs-88-lakh-daily-loss/articleshow/66144481.cms>
3. Sanjay, K. S. (2017, December). *Home:researchgate.net*. Retrieved from researchgate.net website:https://www.researchgate.net/publication/322244188_State_Transport_Undertakings_in_India_Status_and_Issues
4. Saravan, P. (2018, August 17). *Home:businessstandard.com*. Retrieved from businessstandard.com website: https://www.business-standard.com/article/current-affairs/why-bengaluru-s-bus-system-is-india-s-best-and-loses-least-money-118081700117_1.html
5. Seetharaman, G. (2018, October 6). *Home:The Economic Times*. Retrieved from The Economic Times Website: <https://economictimes.indiatimes.com/news/economy/infrastructure/why-it-is-difficult-to-come-up-with-a-viable-public-transport-model-for-all-cities/articleshow/66101927.cms>
6. Srinivas, A. (2019, June 3). Spiralling operation costs bleed BMTC. (TNN, Interviewer)
7. Mulangi, R. H. (2018, January 31). *Home: etd@IISc*. Retrieved from IISc Web site: <http://etd.iisc.ac.in/handle/2005/3053>
8. Sarkar, P. K. (2018, December 3). *Home:The New Indian Express*. Retrieved from The New Indian Express Website: <http://www.newindianexpress.com/cities/delhi/2018/dec/03/national-capital-in-need-of-transportation-system-rejig-1906552.html>
9. The Times of India. (2019, June 3). *Home:The Times of India*. Retrieved from The Times of India Website: <https://timesofindia.indiatimes.com/city/bengaluru/spiralling-operation-costs-bleed-bmtc/articleshow/69624985.cms>
10. www.mybmtc.com
11. Annual Reports of BMTC from FY 2008 - FY 2017