

A Study on Preference of Best Bus in Mumbai Region

¹Mr. Rahul N. Wadekar and ²Dr. K.Y. Shinde

¹Assistant Professor, MMS department, DES's NMITD, University of Mumbai, India

²Principal, Bharat Education Society's Sant Gadge Maharaj College of Commerce and Economics,
Khetwadi, Girgaon, Mumbai

¹Rahul.wadekar@despune.org and ²Shinde_keshavrao@yahoo.co.in

Abstract

BEST buses are the state owned buses operating in Mumbai city. The motive of the study was to identify the preference of the passengers towards BEST buses for various purposes. The study uses statistical test. The results revealed that gender and income has a significant role towards preference of BEST buses. The males from lower income prefers buses more than the higher income group and females travel by buses irrespective of their income. Future studies can be conducted on the air conditioned buses introduced by the BEST buses.

Keywords: Best Bus, Commuters Perception, Commuters Preference

INTRODUCTION

BEST stands for Brihanmumbai Electricity Supply and Transport. It refers to a medium of civic transportation in the suburban city. It also provides electricity in the Mumbai region and works as a public body which is located in the Maharashtra state in the city of Mumbai. The Brihanmumbai Electricity Supply and Transport was being founded in year 1873 in the form of a tramway company that was known as the "Bombay Tramway Company Limited". In November 1905, the same company established a captive thermal power station that is situated at Wadi Bunder. It was being built to generate electricity to the city areas by way of trams. After that the company was further rebranded and renamed to "Bombay Electric Supply & Tramways". BEST started their operations in motor buses from the year 1926. In 1947, the company changed their name to "Bombay Electric Supply & Transport" when it was brought under the Municipal Corporation. In 1995, it was further renamed into "Brihanmumbai Electric Supply & Transport". The organization has been working as an autonomous body that is run under Municipal Corporation.

The BEST is regarded as India's biggest transportation association which is running the most number of buses in any city or state for the

purpose of daily transportation. This transportation of bus coverage consists of the whole city of Mumbai and the service is also extending to the cities adjoining the main city in the neighbouring urban areas. Also with adding to the buses, the BEST also extends their services in the ferry transportation within the city extending to the northern side of the city. Also BEST is also operating in the department of electricity providing electricity to the major part of the city and is also considered among the few electricity boards in the country which earns an annual profit.

BEST is currently being headed and managed by the general manager who is currently Mr. Lokesh Chandra.

It has been seen that the preference of the commuters traveling in bus has seen changes over the last few years. The introduction of metro services in the main cities, introduction of Ola and Uber cabs has changed the whole scenario of traveling in the city. But still it is been seen that the middle class people are still preferring to travel in the BEST buses for their daily commutation. Women too prefer in using the BEST services but are hesitant to use the same services in the late hours of the day. Also the BEST has reduced the cost of traveling tickets because of the competition they are facing because of the introduction of the new

modes of transportation. The BEST can devise more plans for gaining the confidence of the daily commuters so as to increase their revenues. Also it must make the travel safe, secure and efficient for the daily traveling of the commuters.

REVIEW OF LITERATURE

1. **Bharadwaj S. et al (2017)** examined in their research paper the problem of traffic congestion being caused on the roads which makes the travel by BEST buses a little troublesome for the passengers. It leads to more time in reaching the said destination. Also it increases the consumption of fuel and leads in increase in the emission of harmful gases in the environment. The researchers are trying to analyze the effect of the emission of harmful greenhouse gases by the buses.
2. **Rangwala L. et al (2014)** described in their research study about the present regulations which would help in incentivizing the vehicles as well building densities among the transit nodes. Strict regulations should be maintained while using buses as modes of transportation and developing an approach of comprehensive transit-oriented for to manage density of high population around transit nodes.
3. **Oudah A. (2016)** pointed out in their research paper about the recently made advancements in the different technologies that are being uses for in the BEST public transportation services. The research paper highlights about the advances technology such as GSM, Radio Frequency Identification Device, ZigBee, GPS & the RF modules that would acquire highlight about the changes made in the conventional bus systems. The paper discusses the review regarding the bus information and ticketing ways in detail. The paper tries in bringing about the solutions that would help in acquiring efficiency in terms of convenience, cost, satisfaction of the commuters.
4. **Dhingra S. et al (2012)** conducted in their research paper that BEST buses faces a lot of problems which result into congestion problems, discomfort for the commuters, increase in the time of travel and as well the environmental pollution it causes. So as to handle and resolve this problems, the BEST are trying to bring certain changes in the scheduling and increasing the number of this passenger buses so as to solve the problem of sustainability. The researchers also try to propagate the system of Integrated Mass Transportation which comprises the current Western as well as the Central Railway corridor by introducing two new vehicles which are Battery-charged vehicle and Sky bus. The benefits of this buses are explained in the research paper.
5. **Badami S. (2005)** surveyed in the research paper about the Bus Rapid Transit System (BRTS) for the region of Mumbai which would cover three routes of the east-west trunk and about five north-south routes as the most economic method to alleviate the issue of regular congestion as well as of the massive overcrowding.
6. **Desai D. et al (2019)** identified in the research paper about the 8 days strike that took place in January 2019 by the employees of the Brihanmumbai Electricity Supply and Transport (BEST) regarding demanding for higher wages. Because of the strike, nearly 3 million daily commuters had to suffer. The crisis also brought into light about how the incident stand stilled the city's transportation services. The BEST has the devised a financial assistance plan of INR 1 Billion every month. The research paper helps in understanding the challenges for the BEST and as well as offering suggestions to regain the financial stability.
7. **Bhatia G. et al (2019)** mentioned in the research study about proposing a new system which would enable the travelers to travel with ease and devising a system that would communicate with them in the native language. The system would work on the mechanism of the novel rule-based algorithm that would help in extracting the frequently used words in the sentences by performing preprocessing by applying Natural Language Processing(NLP) as well as displaying the responses to the queries which would be asked by the users. The research study

enables their focus over using a language friendly process for making it easy for the travelers.

OBJECTIVE

1. To examine interaction impact of gender and income on preference of BEST bus in Mumbai region

HYPOTHESIS

Null: There is no significant interaction impact of gender and income on preference of BEST bus in Mumbai region

Alternative: There is a significant interaction impact of gender and income on preference of BEST bus in Mumbai region

RESEARCH METHODOLOGY

The current study adopts descriptive research design and deductive approach of research. The total sample size is 80 individuals of Mumbai region. Non probability convenience sampling has been used for the current study both primary and secondary data collection source have been used. SPSS 26 tool has been used for data analysis. Multi variant two way ANOVA has been used to evaluate interaction impact of Income and gender on preference of BEST bus.

DATA ANALYSIS AND INTERPRETATION

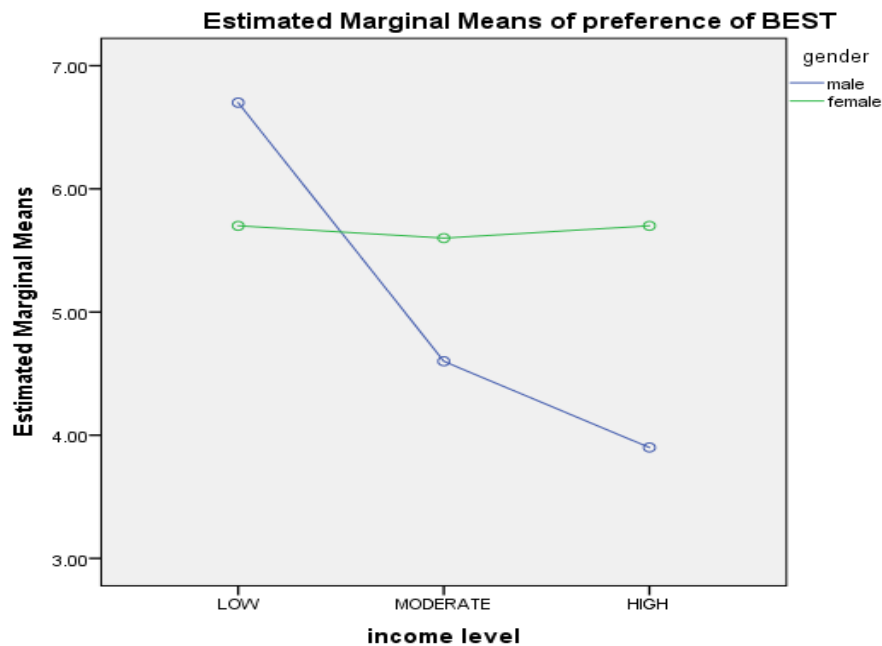
Table No: 1 Between-Subjects Factors				
		Value Label		N
gender	1.00	male		30
	2.00	female		30
income level	1.00	LOW		20
	2.00	MODERATE		20
	3.00	HIGH		20
Table No: 2 Descriptive Statistics				
gender	income level	Mean	Std. Deviation	N
male	LOW	6.7000	.48305	10
	MODERATE	4.6000	1.50555	10
	HIGH	3.9000	.99443	10
	Total	5.0667	1.59597	30
female	LOW	5.7000	1.56702	10
	MODERATE	5.6000	1.26491	10
	HIGH	5.7000	.67495	10
	Total	5.6667	1.18419	30
Total	LOW	6.2000	1.23969	20
	MODERATE	5.1000	1.44732	20
	HIGH	4.8000	1.23969	20
	Total	5.3667	1.42575	60

Table No: 3 Levene's Test of Equality of Error Variances			
F	df1	df2	Sig.
3.374	5	54	.210

Table No: 4 Tests of Between-Subjects Effects					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	47.933 ^a	5	9.587	7.190	.000
Intercept	1728.067	1	1728.067	1296.050	.000

gender	5.400	1	5.400	4.050	.049
income	21.733	2	10.867	8.150	.001
gender * income	20.800	2	10.400	7.800	.001
Error	72.000	54	1.333		
Total	1848.000	60			
Corrected Total	119.933	59			

Figure No: 5 Plot



Parametric multivariate Two- way ANOVA is applied to examine interaction effect of gender and income level on preference of BEST for various purposes viz. travelling, job, hospital ,government offices, relative houses etc. Group sizes of male low income, male moderate income, male high income, female low income, female moderate income and female high income are equal thus the t-statistics/f-statistics can be quite robust to violation of normality and power of t-test/f-test also appears to be relatively unaffected by non-normality (Donaldson, 1968).p value of Levene 's test =.210 indicating homogeneity of variances in the six groups.

P(value) of interaction effect =0.001 indicating significant interaction impact of gender and income on preference of BEST bus.it is seen that male low income prefer BEST bus more as compared to male moderate and male high level income However in case of female low income, female moderate income and female high

income preference of BEST bus does not show much change, indicating irrespective of income there is no much changes in preference of BEST bus among females.

CONCLUSION

BEST buses are rightly called as the second travel life line of the Mumbai Kars. Public transport is one the essential necessity of the majority of the people in the city. The study results prove that for lower income group BEST buses are indispensable. The analysis reveals that male from the lower group prefers the buses more than the moderate and the higher group income. But, in case of females, it can be seen that irrespective of income the buses are preferred by them. It can be concluded that BEST buses needs to provide more services as they are providing access to jobs to the common man and special services can be operated for women as they are dependent more on buses due to various reasons such as feeling unsafe in other

private modes of transport or no access to personal vehicles.

REFERENCES

1. Bharadwaj S. & Ballare S. et al (2017). Impact of congestion on greenhouse gas emissions for road transport in Mumbai metropolitan region. *Transportation Research Procedia*, Volume 25, P. 3538-3551.
2. Rangwala L. & Mathews R. et al (2014). Shifting Discourse about Transit-Oriented Development in Mumbai, India: From Intensifying Built-Up Area to Managing Population Density. *Journal Indexing and Metrics*, Volume 2451, Issue 1.
3. Oudah A. (2016). RFID-Based Automatic Bus Ticketing: Features and Trends. *IOP Conference Series: Materials Science and Engineering*, Volume 114.
4. Dhingra S. & Rajaram B. (2012). Sustainable Transportation Strategy for Mumbai (Bombay) Region Using an Integrated Mass Transit Systems Approach. *Urban Public Transportation System*, Volume 17.
5. Badami S. (2005). Case for a Bus Rapid Transit System in Mumbai. *Economic and Political Weekly*, Volume 40, Issue 41, P. 4409-4412.
6. Desai D. & Rawal P. (2019). What Ails India's Public Transport Systems? The Case of Mumbai. *ORF Occasional Paper*, Volume 211, P. 1-32.
7. Bhatia G. & Tewani H. et al (2019). Pravas Sarthi - A Convenience: Multi-Lingual Virtual Assistant. *10th International Conference on Computing, Communication and Networking Technologies*.