

TRAVEL DEMAND FOR AIR-CONDITIONER BUSES IN KALYAN-DOMBIVALI REGION

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Abstract :Bus service has been gaining increased importance in the whole country, because of the continuous diversion of passenger traffic from other means of transport, especially from railways to bus services. As the living standard of the people is rising in the region, they need better and quality buses service for their travelling. This quality buses services is include deployment air-conditioner buses for the passenger. Therefore it is important to know the demand for air-conditioner buses in the region. In this research paper the researcher has made an attempt to find out the requirement of air-conditioner buses on the various routes in Kalyan-Dombivli region.

Key words:Air-conditioner, Buses and Demand.

1.1 INTRODUCTION:

Bus services are vital part of public passenger transport which provides door to door services. It is also important feeder mode of transport that feeds the traffic on other mode of transport system. In Kalyan-Dombivali region there is no option of air-conditioner buses available for high class people, those want to use public transport. There are two important sources of passenger transport which are available in the study area viz. Road and Rail transport. Rail transport is a popular mode of mobility which transmits around 1.76 lacs people from one place to another and also considered as most crowded mode of transport. The road transport are categorized as public passenger and private transport. Public passenger transport are vital part of transportation system in any part of the world, Similarly in Kalyan-Dombivali Municipal Corporation (KDMC) region also there is availability of public passenger transport like KDMT buses, MSRTC buses, NMMT buses and UMT buses which is not in good shape. Therefore, the higher income people do not use public transport and thus forced to use private vehicles. In the above situation it become important to know the possibility of introducing the air-conditioner buses and find out the demand for A/C buses on the various routes in the region.

REVIEW OF LITERATURE

Nambiar (2014) reported the consumer preference about air conditioned buses in the area. Edvardo (2001) analyzed the condition of the urban transport issues in developing countries, taking it as a prime subject. Black (1995) explained the urban transport problems including congestion, mobility and ancillary impact for transit. Ali (2012) formulated an ideal bus structure for state transport undertakings. Amudhan (2011) focused on quality function deployment in bus transport sector- for seats. Goel (2003) presented a comparative study on assessment of the quality of service provided by private and public bus transport in Delhi.

OBJECTIVE OF THE STUDY

1. To find out the possibility for deploying air-conditioner buses in the region.

2.To analyses the affordability of passenger for air-conditioner buses.

Hypothesis

H1: There is significant relation between income of the passenger and demand for air-conditioner buses.

Research Methodology

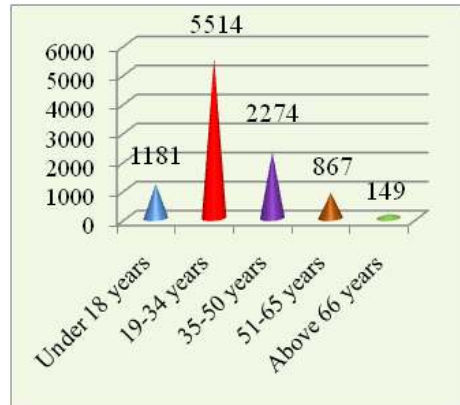
The primary data for the study is drawn from a Kalyan-Dombivli Municipal Transport (KDMT) commuters by conducting survey in Kalyan-Dombivli Municipal Region, Thane District of Maharashtra during January, 2014. The sample sizes are of 10,000 commuters which covered 92wards of KDMC by quota convenience selection. The data is being presented in simple two-way tables.The researcher selected non parametric test (i.e. Chi-Square test) and it is used in testing of hypothesis to check the validity of hypothesis.

Research Work

From the table 1, it is found that out of total respondent 71% are male and 29% are female which shows that male travels more than the female in KDMT buses. Most of the males and females respondents are from working class and college going young crowd. It also exhibits the age wise distribution of respondents travel by KDMT buses. It is found that the maximum respondents travelling by buses falls under the age group of 19 to 34 years (55.20%) which is followed by age group of 35 to 50 years (22.70%). This gives clear picture that the average age of commuters of KDMT buses are between 19-34 years and these young generations uses KDMT bus service either for travelling to their work place or to school or colleges.

Table 1:Age and gender wise distribution of the respondents

Age	Male	Female	No. of respondents	%
Under 18 years	828	353	1181	11.90
19-34 years	3892	1622	5514	55.20
35-50 years	1641	633	2274	22.70
51-65 years	621	246	867	8.70
Above 66 years	117	32	149	1.50
Total	7099	2886	9985	100



Source: Primary data

Chart 2: Qualification of the respondents



Chart 2 shows that out of total respondents 21% have done their matriculation, 30% have done higher secondary, 29% are Graduate, 8% are post graduate and remaining respondents are diploma holders or having qualification in some other field. It also reveals the information that the literacy rate among the respondents are high and almost all respondents are literate. Thus, the data collected from respondents can be considered as sensible and the accuracy of data is more near to fact.

Table No. 2: Income wise distribution of the respondents

Annual Income	No. of respondents	Percentage
Less than 1,00,000	2221	22.20 %
1 to 5 Lakhs	3907	39.10 %
5 to 10 Lakhs	367	3.70 %
10 to 15 Lakhs	55	0.55 %
Above 15 Lakhs	19	0.20 %
Not disclosed	3416	34.25 %
Total	9985	100.00 %

Source: Primary data

Table 2 shows that 39.10% respondents are from middle income working class which is followed by lower middle class group i.e. 22.20% whereas the upper income respondents are only 4.45% and remaining respondents has not disclosed their income. This reflects that the maximum numbers of commuters travel by KDMT buses are lower middle class and middle class people which puts question on their affordability for Air-condition buses.

Table 3: Other Mode of Transport used by respondents other than KDMT buses

Mode of Transport	Train	Auto	Personal Car	Two wheeler	Society/Company bus	Total
Train	-	2446	151	430	854	3881
Auto	2446	-	95	398	525	3464
Personal Car	151	95	-	38	15	299
Two wheeler	430	398	38	-	40	906
Society/Company bus	854	525	15	40	-	1435
Total	3881	3464	299	906	1435	9985

Source: Primary data

From table 3, it is revealed that respondents are not only use bus services but they also use other mode of transport for their day to day travelling. 38.86% respondents use train along with buses for their travel which is followed by auto service for their travelling i.e. 34.70%, whereas travelling by society or company buses are 14.37%. The private vehicles are also used for travelling purpose by respondents along with bus services which is around 9% for two wheeler and 3% for personal cars.

Chart 3: Travel frequency of the respondents

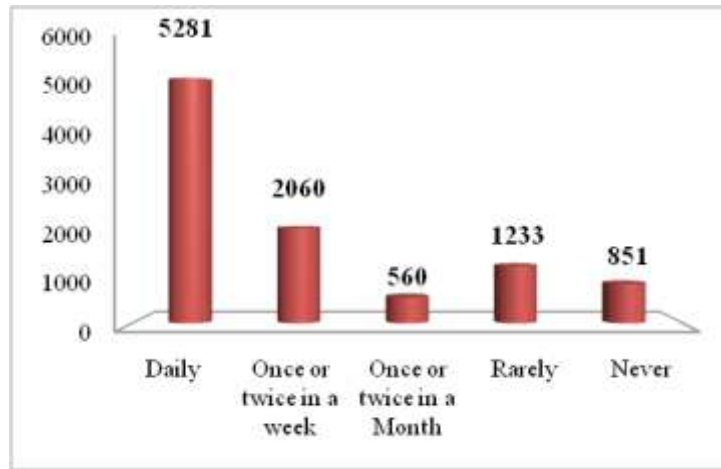


Chart 3 exhibits that out of total respondents 52.90% are daily traveller, 20.60% respondents travel once or twice in a week, whereas 5.60% respondents travels once or twice in a month. The respondents that travel rarely are 12.30% and 8.60% respondents said they never travel by bus. It shows that maximum respondents are regular commuter and feedback from these people is very important in the framing of future passenger transportation policy by KDMT officials.

Chart 4: Reasons for travelling by respondents

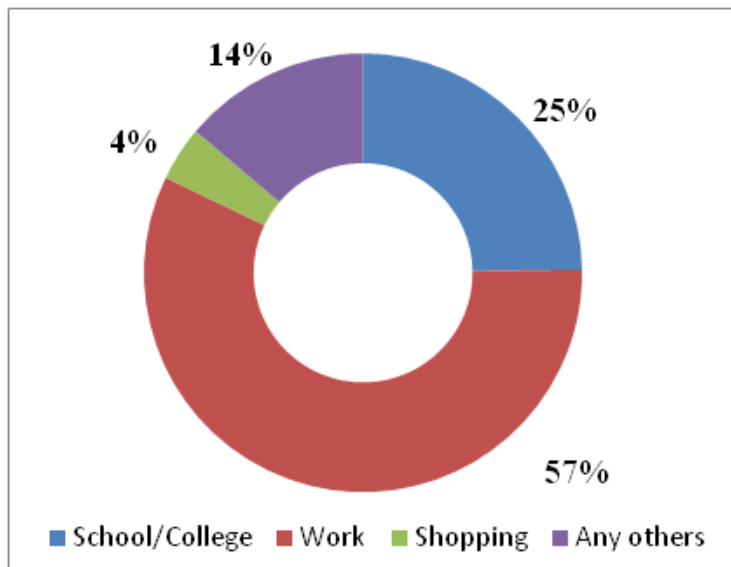
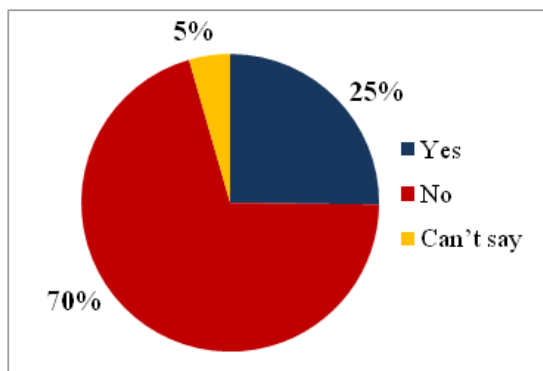


Chart 4 explains the reasons of travelling by respondents through buses and it is found that 57.40% respondents use bus services for going their work place, while 24.80 % respondents use the same service for their education purpose, 4% respondents use buses for shopping whereas 13.80 % respondents travel through bus for some other reasons. Majority of respondents who travel for the purpose of work are daily users of bus services provided by KDMT.

Table 4: Preference of A/C Buses for travel purpose by respondents



	No. of respondents	Percentage
Yes	2513	25 %
No	7026	70 %
Can't say	446	5 %
Total	9985	100%

Source: Primary data

From the above table it is understood that only 25% respondents will opt for Air-condition (AC) buses for their travel, while 70% respondents say they will not prefer AC buses for they travel, whereas 5% respondents are confused in the selection of AC buses.

Table 5: Purposed Routes for Air-conditioner Buses

Routes	No. of Potential commuters	Routes	No. of Potential commuters
1. <u>Navi Mumbai</u> Mahapa/Turbe - 455 Vashi - 228 Belapur/CBD - 42 Panvel - 810	1535	2. <u>Western Mumbai</u> Andheri - 148 Borivali - 119	267
3. <u>Central Mumbai</u> Dadar/Kurla - 20 Ghatkopar/Bhandup - 22 Thane - 561		4. <u>Other Areas</u> Bhiwandi - 781 Ambivali/Titwala - 63	
	623		

Source: Primary data

Testing of Hypothesis

Table 6: Affordability for Air-conditioner buses

Annual Income	Yes	No	Can't Say	Total
Less than 1,00,000	450	1674	97	2221
1 to 5 Lakhs	1153	2617	137	3907
5 to 10 Lakhs	159	183	25	367
10 to 15 Lakhs	29	18	8	55
Above 15 Lakhs	01	18	00	19
Not disclosed	721	2516	179	3416
Total	2513	7026	446	9985

Table 6 exhibits that out of the total positive respondents, (45.90 %) respondents belongs to income group between 1 to 5 lakhs, while 17.90 % respondents are having their annual income less than 1 lakh. The above tables reveals that only 1342 respondents can afford AC buses for their travelling purpose. Source: Primary data

Chi-square Contingency Table Test for Independence

		Yes	No	Can't Say	Total
Less than 1,00,000	Observed	450	1674	97	2221
	Expected	558.98	1562.82	99.21	2221.00
	O - E	-108.98	111.18	-2.21	0.00
	(O - E) ² / E	21.25	7.91	0.05	29.20
	% of chisq	9.4%	3.5%	0.0%	13.0%
1 to 5 Lakhs	Observed	1153	2617	137	3907
	Expected	983.30	2749.18	174.51	3907.00
	O - E	169.70	-132.18	-37.51	0.00
	(O - E) ² / E	29.29	6.36	8.06	43.71
	% of chisq	13.0%	2.8%	3.6%	19.4%
5 to 10 Lakhs	Observed	159	183	25	367
	Expected	92.37	258.24	16.39	367.00
	O - E	66.63	-75.24	8.61	0.00
	(O - E) ² / E	48.07	21.92	4.52	74.51
	% of chisq	21.3%	9.7%	2.0%	33.1%
10 to 15 Lakhs	Observed	29	18	8	55
	Expected	13.84	38.70	2.46	55.00
	O - E	15.16	-20.70	5.54	0.00
	(O - E) ² / E	16.60	11.07	12.51	40.18
	% of chisq	7.4%	4.9%	5.6%	17.8%
Above 15 Lakhs	Observed	1	18	0	19
	Expected	4.78	13.37	0.85	19.00
	O - E	-3.78	4.63	-0.85	0.00
	(O - E) ² / E	2.99	1.60	0.85	5.44
	% of chisq	1.3%	0.7%	0.4%	2.4%
Not disclosed	Observed	721	2516	179	3416
	Expected	859.73	2403.69	152.58	3416.00
	O - E	-138.73	112.31	26.42	0.00
	(O - E) ² / E	22.39	5.25	4.57	32.21
	% of chisq	9.9%	2.3%	2.0%	14.3%
Total	Observed	2513	7026	446	9985
	Expected	2513.00	7026.00	446.00	9985.00
	O - E	0.00	0.00	0.00	0.00
	(O - E) ² / E	140.58	54.11	30.56	225.25
	% of chisq	62.4%	24.0%	13.6%	100.0%

$$X^2 = \frac{(O-E)^2}{E} = 225.25$$

The table value of X^2 for 10 degree of freedom at 5 percent level of significant is 25.18. The calculated value of X^2 is 31.65 which is higher than the table value and hence the result of the experiment support hypothesis. Thus, the researcher can conclude that there is significant relation between income of the passenger and demand for air-conditioner buses.

FINDINGS

1. Most of the bus commuters belong to young generation that will be beneficial for KDMT to implement innovative transportation system, as youths are highly adoptive for innovative changes.
2. Around 39.10 % of the respondents belong to annual income group between 1 to 5 lakhs and can afford the fare of AC buses but 22.20 % respondents have their annual income less than 1 lakh which are not in the position to afford AC buses.
3. Train and Auto are the most popular mode of transportation along with buses of KDMT.
4. Around 52.90 % respondents are daily commuters of buses.
5. 57.40% respondents travel for going their work place and most of them are daily commuters of KDMT

buses which are followed by college/school going students (24.80%).

6. Only 25% respondents would like to opt for AC buses. Out of which 45.90% respondents belongs to annual income group between 1 to 5 lakhs rupees and can afford the fare of AC buses, 17.90% respondents are willing to opt for AC buses but they have annual income less than 1,00,000

CONCLUSION

From the above data it can be concluded that the possibility of running Air-conditioner buses are very less as 25% of the respondents like to opt for this services. But there are some of the respondents who are very positive about AC buses and that can be considered as a new opportunity to understand the requirement of AC buses. These positive respondents can be converted as potential commuters on certain routes and accordingly AC buses can be deployed on those routes. Affordability of the commuters should be considered while making a decision about running of AC buses.

REFERENCES

1. Ali Sayed Hasan, "Ideal bus for the state transport undertakings", India Journal of Transport Management, Vol. 36, January-March, 2012, pp. 35-45.
2. Amudhan Valavan, "Quality function deployment in bus transport sector- for seats", India Journal of Transport Management, Vol. 35, April-June, 2011, pp. 99-111
3. Black Allan, "Urban Mass Transportation Planning", McGraw-Hill Book Co., Singapore, 1995.
4. Dolare Salim, "KDMT bus service to improve", Times of India, Mumbai, June 25th, 2011
5. Edvardo A Vasconcellous, "Urban Transport, Environment and Equity: The case for developing countries", Earthscan publications Ltd., London, 2001.
6. Nambiar Sajana, "KDMT gets students to survey passengers", Hindustan Times, Mumbai, January 19th, 2014, pg. 11.
7. Nayak B. B., "Ladies special bus from Dombivali to Vashi", Times of India, Mumbai, October 1, 2011.
8. Tandel Faisal, "KDMT plans AC bus services on Kalyan-Vashi/Thane routes", DNA, Mumbai, July 16th, 2011.