
DOES DEMOGRAPHICS HAS AN ASSOCIATION WITH USAGE PATTERNS AND LEVEL OF SATISFACTION TOWARDS PUBLIC TRANSPORT SYSTEMS: A CASE OF METRO CHENNAI RAIL

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ABSTRACT

Personal demographics play a role in the usage and satisfaction of metro rail. It may be due to the level of awareness, and the usage interest has a close association with the earnings and age. Gender helps free movement of people without time frame and constraints. Hence, modern transport systems usage has a moderate level of association with the personal and social demographics of the commuters is observed in the study. For the survey, three divisions of metro rail are taken up, and the sample size of 683 is arrived at using the scientific method. The present research is descriptive, and the data collection tools are prepared and tested with reliability alpha and found it as 0.896 and found reliable. The results observed that gender, lifestyle, and occupation significantly affect the usage and satisfaction towards metro rail in the sample. On the other hand, age, level of income, frequency of travel has no association with the level of usage and satisfaction.

Keywords: Speed- Modern- Satisfaction- usage- demographics- occupation-frequency of travel.

INTRODUCTION

Public transport is one important solution for the commutation needs of urban dwellers in the country. Public transport operators are forced to emphasize the monitoring and improvements of the services provided to address the transport issues. This study focuses on traveller's satisfaction with service quality attributes. Using a self-rate questionnaire to investigate overall customer usage and satisfaction and factor that influence public transport users' satisfaction. The present study is trying to find out the association between the personal demographics of the commuters and the usage patterns and satisfaction towards metro rail in Chennai city. Contrary to the existing servicescape and service quality impact on usage and satisfaction, the current study is trying to identify the association between the personal demographics of the proposed hypothesis, no relationships and no differences in the various subgroups categories of age, education, and income are detected in terms of service usage and satisfaction. Consequently, customers'

demographic characteristics and the usage of metro rail by because each segment of the customers' demographic profiles individually expect a customized service in public transport.

LITERATURE REVIEW

Ruining Wu (2018) measured the level of satisfaction of commuters towards China high-speed rail system. This research paper discovers the relationship between service factors such as ticketing service, station area, and service process & station staff and commuters experience. The study revealed that the satisfaction and understanding of commuters are moderately low, and HSR authority has to upgrade their technology-oriented system for high-speed rail service in china.

Ahmad Faisal Dahlan and Anna Fraszczyk (2019) research article observed the commuters view and their willingness towards the new modern metro transit system in Jakarta, the capital city of Indonesia. The researchers towards the social demographics designed a survey questionnaire, commuters' attitude, and their perceptions of Jakarta MRT services. The questionnaire was distributed to the MRT group and the other group. A total of 516 commuters from two groups were gathered using Stratified random sampling through online forum discussion, social media and personal networking approaches. The result of chi-squared analysis of homogeneity shows that Metro services play a substantial role in dismissing congestion in the city is not statistically significant among the two groups. Hence, commuters make their willingness to use Jakarta MRT services in future.

Sayeduzzafar Qazi et al. (2019) determine the commuter's level of satisfaction towards High-Speed Haramain Railways Services in Saudi Railways. The study covers three main categories: onboard facility, catering facility, & station facilities in the research instrument. The researchers framed 18 statements, and empirical data were drawn from 248 commuters through the survey method. The weighted average method was used, and the result shows that catering facilities (4.57), onboard facility (4.68) and station facilities (4.69) were the overall averages evaluated by the commuters. Hence the study exposed that level of satisfaction achieved by the commuters is relatively high in Haramain high-speed rail services.

STATEMENT OF THE PROBLEM

A modified combination of light rail and suburban railway, known as the "metro railway," serves a network of metros in many countries. It is the only sustainable, cost-effective, reliable, and environmentally friendly means of public transportation and is built explicitly for metropolitan areas. Despite the significant growth in travel demand, public transport usage has been on the decline during the previous decade in India. The fall in public transportation usage is due to inadequate infrastructure, low-quality services, and a negative image associated with public transportation organizations. Chennai Metro's shift in commuter perceptions drastically affected the way in which people view public transportation services. As a result, the current study focuses on determining the impact of demographic variables on metro rail service utilization patterns in Chennai.

OBJECTIVE OF THE STUDY

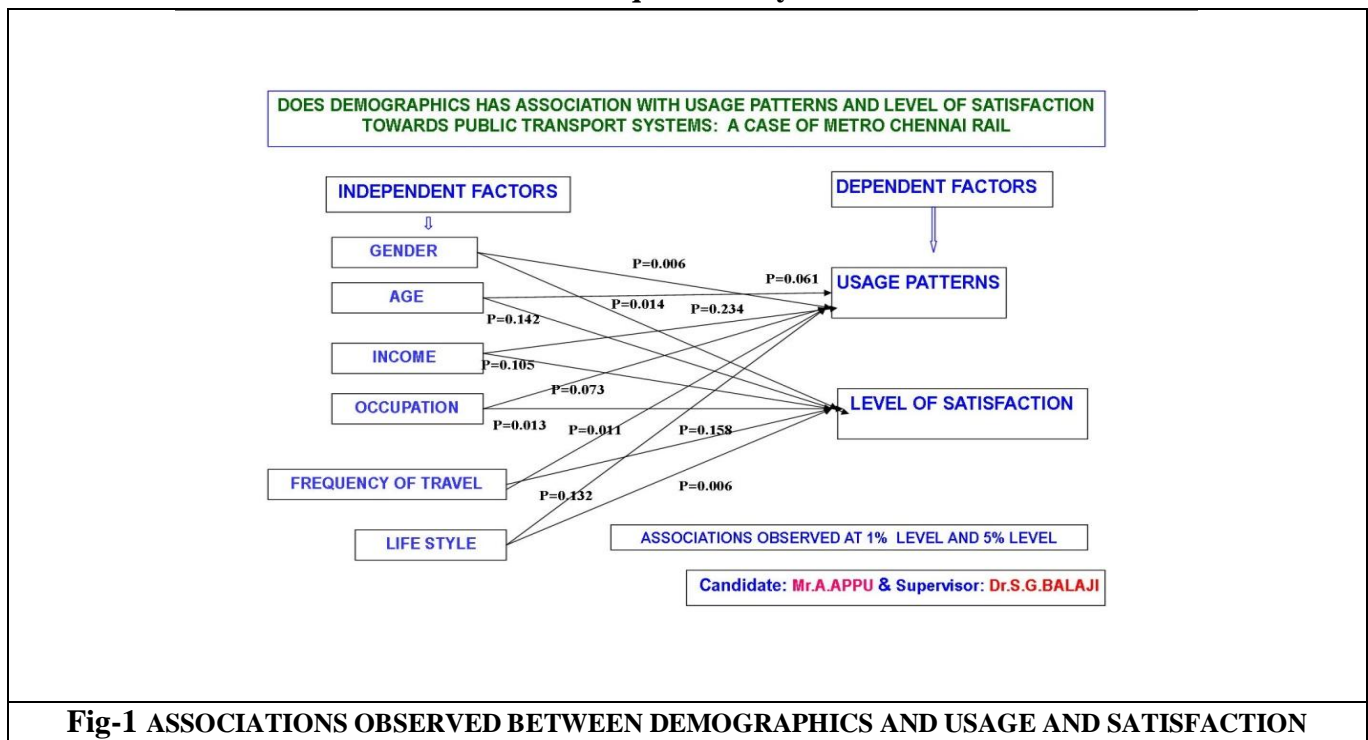
To determine the impact of commuter demographic variables on their usage habits and satisfaction with metro train services in Chennai.

RESEARCH METHODOLOGY

The present study describes the profile of metro rail commuters and assesses commuters' perspectives, usage patterns, preferences, and expectations, as well as the level of service quality received and satisfaction generated from the metro rail. In this study, a descriptive character of research approach was utilized. Upon completing the survey and collection of 785 datasheets, it was discovered that 102 questionnaires had been omitted, and 683 samples were appropriate for the study.

DATA ANALYSIS AND DISCUSSION

Chi Square Analysis



It is noted from the sample survey that the metro rail users in the sample consist of 57percent are male, and the remaining 47 per cent are female representing fair gender equality when compared to many other cities in India. Hence, it is presumed that the metro rail is predominantly attracted both male and female members in the sample area. There is a highly significant association between gender and usage patterns of metro rail services in the sample area with the observed p-value of 0.001 and the chi-square value of 10.169. Based on the row and column percentages, it is noted that a higher level of usage patterns are observed among the male commuters in the sample. The most indispensable factor quoted by many female commuters is that the individual's safety and security are guaranteed until the last mile travel. This is viewed by many working

women executives from the IT sector working in shifts and travelling during the late hours. Hence, metro rail is a boon to the commuters and still have a lot of opportunities to penetrate the public transportation market share in the days to come

Ha₁: There is no association between occupation and usage patterns of metro rail services in the sample area.

Occupation	Level of Usage Pattern			Total	χ^2 value	p value
	Low	Moderate	High			
Businessman	30 (25.6%) [16.5%]	49 (41.9%) [15.0%]	38 (32.5%) [21.8%]	117 (100.0%) [17.1%]	14.353	0.073**
Private employee	49 (23.3%) [26.9%]	103 (49.0%) [31.5%]	58 (27.6%) [33.3%]	210 (100.0%) [30.7%]		
Government employee	34 (28.3%) [18.7%]	64 (53.3%) [19.6%]	22 (18.3%) [12.6%]	120 (100.0%) [17.6%]		
Professional	34 (32.4%) [18.7%]	54 (51.4%) [16.5%]	17 (16.2%) [9.8%]	105 (100.0%) [15.4%]		
Self employed	35 (26.7%) [19.2%]	57 (43.5%) [17.4%]	39 (29.8%) [22.4%]	131 (100.0%) [19.2%]		
Total	182 (26.6%) [100.0%]	327 (47.9%) [100.0%]	174 (25.5%) [100.0%]	683 (100.0%) [100.0%]		

Since p value observed for the null hypothesis, There is no association between occupation and usage patterns of metro rail services in the sample area is 0.073 as more significant than 0.05, and it is accepted at a 5% level of significance, and the association between the variables is found null. Based on the cross table observation, it is noted that the higher level of usage patterns are observed among the commuters hailing from private employment self-occupation and followed by government employees in the order of priority. This indicates that the commuters with time frame jobs are more using the metro rail compared to others. It is advisable to run more rail services based on the shifts of the private technology firms and others in the sample.

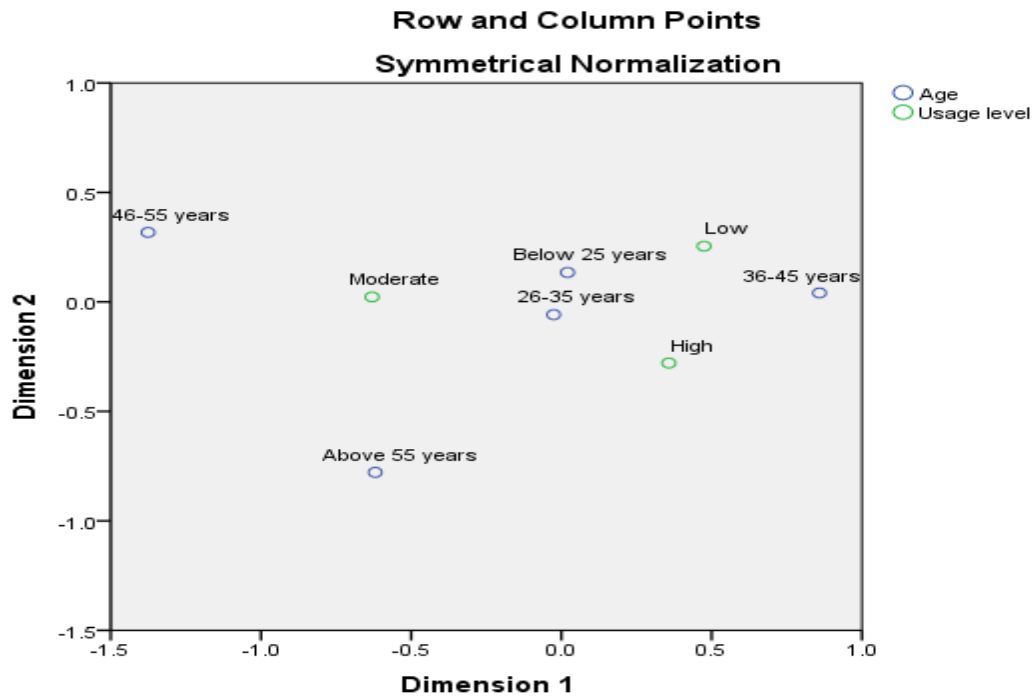
Ha₂: There is no association between frequency of travel and level of satisfaction towards metro rail services in the sample area.

Frequency of travel by metro	Level of Satisfaction			Total	χ^2 value	p value
	Low	Moderate	High			
Regularly	83 (23.4%) [44.4%]	172 (48.6%) [53.8%]	99 (28.0%) [56.2%]	354 (100.0%) [51.8%]	9.293	0.158
Frequently	38 (30.9%) [20.3%]	53 (43.1%) [16.6%]	32 (26.0%) [18.2%]	123 (100.0%) [18.0%]		
Occasionally	36 (28.3%) [19.3%]	60 (47.2%) [18.8%]	31 (24.4%) [17.6%]	127 (100.0%) [18.6%]		
Rarely	30 (38.0%) [16.0%]	35 (44.3%) [10.9%]	14 (17.7%) [8.0%]	79 (100.0%) [11.6%]		
Total	187 (27.4%) [100.0%]	320 (46.9%) [100.0%]	176 (25.8%) [100.0%]	683 (100.0%) [100.0%]		

Since p value observed for the null hypothesis, there is no association between frequency of travel and level of satisfaction towards metro rail services in the sample area is 0.158 as greater than 0.05, and it is accepted at a 5% level of significance, and the association between the variables is found null. Based on the cross table observation, it is noted that commuters regularly travelling by metro rail are having a high level of satisfaction when compared to others in the sample. This may be due to availing the high-end services at economical rates that could have been perceived. In addition, regular commuters will get an additional benefit of travelling at any number of times in a day. Hence, the travel becomes cheaper to them, creating lots of delighted experience for the commuters.

Correspondence analysis

This analysis determines the usage pattern of metro rail services according to their age group of the commuters



The result demonstrates that the majority of commuters under the age of 25 favour moderate usage, while those between the ages of 26 and 35 prefer high usage and those between the ages of 36 and 45 prefer low utilization of metro rail services. This suggests that working employees and office goers in shifts use the metro train more than other age groups in the sample.

SUGGESTIONS AND RECOMMENDATIONS

- The Metro railway is designed to access the terminals in the sample area of several existing systems of public transport. Increased connectivity can be achieved by making an extra effort to connect large schools, colleges, universities, shopping malls and community halls, marriage halls, and convention centres. This is feasible by identifying and connecting with the respective companies by providing feeders or regular feeder services on a regular basis.
- The existing fares for regular commuters should be evaluated and fixed at marginally lower pricing, or linked with extra savings in the purchase of regular and season tickets. This can be utilised to enhance clients who are loyal, and it will be employed for a long time. Insurance, a fictitious extension of medical services while travelling, and regular traveller tags can all assist in identifying and serving them in some way.

CONCLUSION

The present study has been focused on assessing the role of personal demographics in the selection and usage of metro rail services in the Chennai city. Further, the factors influencing the usage patterns and satisfaction towards the metro rail as an alternative to the existing public

transport system and its implications in the sample area is discussed. Transportation and commutation needs to be improved a lot, in this country to cater the needs of the population. Hence, the local demands and potential and feasibility assessment of metro rails is need of the hour. The pilot studies in these dimensions irrespective of urban and rural areas can be conducted. The new dimension of service quality from SERVQUAL and SERVPERF models is emerging. A metro rail can be used as a entertainer, refresher, delighted travel Vehicle. The optimization of services uses need out of box thinking and making it possible with the support of technology and by allowing pre reservation facilities. The research in this direction is highly appreciable in the days to come. Hence, assessing the needs and expectations of the commuters from time to time and planning to deliver the services in such pattern and design can boost the level of satisfaction and loyalty together for the metro train services.

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