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# Characteristics of Paratransit Service a Case Study of Hyderabad City

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**Abstract:**
This study examines the Characteristics of the paratransit service and its operations in Hyderabad, Andhra Pradesh State, India, with a view to identifying its challenges and contributions to informal transport and equitable service distribution to the residents of Hyderabad. Paratransit systems are created to improve mobility, employment opportunities, and access to community services for individuals who are mentally or physically disadvantaged. Paratransit system consists of small passenger capacity vehicles operate on flexible routing and scheduling or fixed routing and flexible scheduling according to the usage of the trip makers. In Indian condition, paratransit plays an important role for the urban passenger transportation, particularly in the small and medium size cities. Hyderabad city has been selected in this study. Paratransit modes are the only means of public transportation system in Hyderabad. The study gives the detail information about the urban transit scenario of Hyderabad city. There are three major types of paratransit modes operating in the study area mainly, auto-rickshaws, Tata magic and Ape Piaggio. The analysis has been conducted based on the public's response, by using Multiple Linear Regression Model using the public perception of the quality of service. These models illustrate the characteristics and important variables to establish whether the public will use more paratransit in the future once improvements will have been made.

**Keywords:**
Para-transit systems, service quality, vehicular occupancy, operator survey.

## I. INTRODUCTION:

In India, the percentage of urban population with respect to total population has been increasing over last three decades at an average rate of 40% per decade. The urban population growth forced cities to spread and expand into pre-urban areas. This expansion in the cities has resulted in an increased need for mobility. Also the increase in affordability index due to economic growth has led to higher aspiration amongst people [1]. Unfortunately, in most of the Indian cities, the public transportation system has not been able to keep pace with cities growth and developmental needs [2]. This lack of public transportation system, growing need for connectivity and comfort has led to increased usage of private transportation. The increased use of private transportation has led to unexpected pressure on transportation infrastructure. For example, city centers are usually compromised of high building density but there roads are designed for low traffic density [3]. This existing situation reduces the scope for expansion of the road widths [4]. Further encroachment on carriage way by informal traders and unorganized vehicle parking especially in the business areas reduces the effective width. Many researchers recommend an integration of Paratransit as a feeder for public transit systems to enhance performance of urban transportation. This idea not only provides easy connectivity but helps in utilizing existing resources and advantages that should not be overlooked [5].

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In addition, the future of public transit is based on its performance as well as how people perceive the quality of services it provides. Paratransit operations are available not only in developing countries but also in some developed countries. In Hyderabad city, the population growth has been increasing rapidly that has yet to be expansion of Paratransit operations in busy corridors [6]. Bus systems and Paratransit operations are major competitors. Typically, passengers wait at the curb for a bus to arrive and Para-transit operators interlope on the scheduled service; the result is that passengers will probably board the vehicle that comes first.

### Paratransit System in India:

In India, although primary emphasis is on integration of land use and transport planning, megacities (with population above a million) continue to address these two problems in isolation [7]. Transport planning in these cities is intended merely to cater to the immediate mobility needs of growing urban sprawls by encouraging the growth of personalized motorized modes, rather than preventing rapid growth [8]. Urban and land-use planning in these cities are rarely aimed at shaping the structure of the city or pivoting its future growth towards a sustainable foundation. While cities struggle to meet the ever-increasing demand for public transport, investments often do not sufficiently benefit the poor who remain transport marginalized.

## II. OBJECTIVES OF THE PRESENT STUDY:

1) To identify problems and issues of public transportation system(PTS)
2) Classification of paratransit types and their universe estimate
3) To identify key service attributes (or factors) essential for high-quality paratransit services
4) To evaluate the perceived service quality of current paratransit operations fromthe rider's perspective
5) To find out the socio-economic status of the paratransit operator.

### Study Corridors:

One important road corridor of the city of Hyderabad in Andhra Pradesh state, India is taken up for the present study. Greater Hyderabad Municipal Corporation (GHMC) is an Metropolitan city with a linear pattern of transport network having predominant East-South commuter movements. Passengers move towards East for work trip in the morning hours and return back towards the South in the evening hours. Hence one main corridor has been chosen for this study. Major road like Eastern National Highway road extending to the east (Corridor), Dilsukhnagar to L.B Nagar are taken. The corridor was overlapped on the GIS base map of Greater Hyderabad Municipal Corporation. This corridor has a whole cover of 58 street segments with 5 signalized intersections.

Figure 1: Selected Corridor of Hyderabad City

## III. METHODOLOGY:

The driver and passenger surveys for this Study were based on face-to-face interviews. A total of 50 drivers and 50 passengers were surveyed for the study. Paratransit is the main mode of urban transport in Hyderabad. It is a form of public transport for passengers and does not have a fixed schedule. Paratransit operations in Hyderabad are either fixed route or non-fixed route. The surveys conducted are.

i) Paratransit Operator Survey
ii) Passengers Survey
iii)Traffic Volume Count Survey

### 1. Paratransit Operator Survey:

Paratransit operator survey was carried out to understand the socio-economic status of the paratransit operators, performance and some of the techno-

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economic characteristics of paratransit vehicles. The survey was conducted at the parking lots and garages when the operators were resting or waiting for passengers.

| Paratransit Operator Questionnaire | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| Ownership of the Vehicle | Own | Own | Lease | Lease | Lease | Lease | Own | Own | Lease | Lease |
| Reason for Choosing Your Service | | | | | | | | | | |
| i.) Lack of Public Transport | √ | √ | √ | √ | √ | √ | | | √ | |
| ii.) People Require Quick Transport | | | √ | | | √ | √ | √ | | √ |
| iii.) Helps Connect People to Main City | √ | | | | √ | | | √ | | √ |
| iv.) Others | | √ | | | | | | | | |
| Customers Satisfactions | | | | | | | | | | |
| i.) Satisfied | √ | √ | √ | | √ | | | √ | √ | |
| ii.) Neutral | | | | √ | | | √ | | | √ |
| iii.) Dissatisfied | | | | | | √ | | | | |
| Main Purpose to use Paratransit | | | | | | | | | | |
| i.) The Cost of Service is Reason | √ | √ | | | | | | | √ | √ |
| ii.) Easily Accessible to All | | √ | √ | √ | √ | √ | √ | √ | | √ |
| iii.) Passenger Feel Safe using this Service | | √ | √ | | √ | | | | √ | √ |
| iv.) Vehicles are Clean & well Maintenance | | | √ | | | √ | | √ | | |
| v.) Friendly and Helpful | √ | | | | | | | √ | √ | |
| Overload of Vehicle | | | | | | | | | | |
| i.) Demand From passengers | | √ | | | | | √ | √ | | |
| ii.) Weak Law Enforcement | √ | √ | | | √ | √ | | | | |
| iii.) More Profit | √ | | √ | √ | √ | √ | √ | √ | √ | √ |
| iv.) Low Pricing | | √ | | | | | | | | |
| v.) Others | √ | | | √ | | | | | | √ |
| Working Hours | | | | | | | | | | |
| i.) Average Kilometer Per day | 120 | 125 | 80 | 130 | 100 | 150 | 130 | 150 | 100 | 110 |
| ii.) Average Charges (In Rupees) | 8 | 25 | 6 | 8 | 8 | 10 | 20 | 25 | 10 | 8 |
| iii.) Average No. of Passengers Perday | - | - | - | - | - | - | - | - | - | - |
| iv.) Average Trips | 12 | 14 | 8 | 13 | 10 | 14 | 15 | 15 | 10 | 10 |
| Cost of New Vehicle (In Lakhs) | 3.75 | 1.7 | 4.05 | 4.05 | 3.75 | 4.05 | 1.7 | 1.7 | 3.75 | 4.05 |
| i.) Average Maintenance Cost (In Rupees) | 800 | 600 | 1200 | 800 | 850 | 800 | 1000 | 800 | 1200 | 1500 |
| ii.) Facilities Available | - | - | - | - | - | - | - | - | - | - |
| Monthly Income (In Rupees) | 12000 | 14000 | 8500 | 10000 | 11000 | 16000 | 12000 | 18000 | 11000 | 10500 |

Table 1: Paratransit Operator survey Data

| Paratransit Operator Questionnaire | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| Ownership of the Vehicle | Lease | Lease | Own | Own | Lease | Own | Lease | Lease | Lease | Own |
| Reason for Choosing Your Service | | | | | | | | | | |
| i.) Lack of Public Transport | √ | | | √ | √ | √ | | √ | | √ |
| ii.) People Require Quick Transport | √ | √ | √ | | | √ | √ | √ | √ | √ |
| iii.) Helps Connect People to Main City | | √ | | √ | | | | | | |
| iv.) Others | | | √ | | √ | | | | √ | |
| Customers Satisfactions | | | | | | | | | | |
| i.) Satisfied | √ | √ | √ | √ | √ | | √ | √ | √ | |
| ii.) Neutral | | | | | | √ | | | | √ |
| iii.) Dissatisfied | | | | | | | | | | |
| Main Purpose to use Paratransit | | | | | | | | | | |
| i.) The Cost of Service is Reason | | | | | | | √ | | | |
| ii.) Easily Accessible to All | √ | √ | √ | √ | √ | | | √ | √ | √ |
| iii.) Passenger Feel Safe using this Service | √ | | √ | √ | | √ | | √ | | √ |
| iv.) Vehicles are Clean & well Maintenance | | √ | √ | | √ | √ | √ | | √ | √ |
| v.) Friendly and Helpful | | | | √ | | | √ | | | |
| Overload of Vehicle | | | | | | | | | | |
| i.) Demand from Passengers | | | √ | | | √ | | √ | | |
| ii.) Weak Law Enforcement | | | | √ | | | | √ | | √ |
| iii.) More Profit | √ | √ | √ | √ | √ | | √ | | √ | √ |
| iv.) Low Pricing | | | | | | √ | | | | √ |
| v.) Others | | √ | | | √ | | | | √ | |
| Working Hours | | | | | | | | | | |
| i.) Average Kilometer Perday | 100 | 80 | 90 | 120 | 100 | 110 | 120 | 100 | 80 | 110 |
| ii.) Average Charges | 20 | 05 | 25 | 8 | 10 | 30 | 08 | 10 | 20 | 10 |
| iii.) Average No. of Passengers Perday | - | - | - | - | - | -- | - | - | - | - |
| iv.) Average Trips | 10 | 08 | 09 | 12 | 10 | 12 | 12 | 10 | 8 | 10 |
| Cost of New Vehicle | 1.7 | 3.75 | 1.7 | 4.05 | 4.05 | 1.7 | 4.05 | 3.75 | 1.7 | 3.75 |

Table 2: Paratransit Operator survey Data

## 2. Passenger Survey:

The passenger survey questionnaire was developed to collect specific estimates of commuter characteristics. A random sample of 50 was drawn from a population of commuters who travelled by Paratransit vehicles.

The questionnaire consisted of the following:

1. Details of travel
2. Cost and waiting time
3. Satisfaction of passengers with share auto
4. Satisfaction with aspects of the journey
5. Satisfaction with the driver
6. Demographic information for classification purposes

## 3. Traffic Volume Count Survey:

The survey was aimed to find the types of travel modes and their number on a road. Vehicles were counted for each mode separately on all the important roads. The survey was repeated for 2 to 3 times at the same place on different days and at different hours of the day to obtain an average traffic flow.

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| Time period | Motorized Passenger Vehicles | | | | Motorized Goods Vehicles |
|---|---|---|---|---|---|
| | Two Wheeler | Auto Rickshaw | Car/Jeep | Buses | Trucks & Trailers |
| 6:00-6:15 PM | 932 | 175 | 230 | 36 | 4 |
| 6:15-6:30 PM | 953 | 179 | 243 | 61 | 3 |
| 6:30-6:45 PM | 969 | 206 | 222 | 52 | 4 |
| 6:45-7:00 PM | 920 | 188 | 210 | 46 | 2 |
| 7:00-7:15 PM | 965 | 138 | 243 | 41 | 5 |
| 7:15-7:30 PM | 990 | 147 | 232 | 53 | 2 |
| 7:30-7:45 PM | 1008 | 169 | 289 | 59 | 1 |
| Total | 7690 | 1398 | 1866 | 411 | 27 |

**Table 3: Traffic Volume Count from Dilsukhnagar to L.B Nagar**

## 4. Method of Survey:

Ten surveyors distributed the questionnaire on-board. Surveyors approached passengers personally to ask them to fill in the questionnaire. In most cases, surveys that were personally and courteously handed to customers during the service-delivery process yield higher response rates. After completing the questionnaire, respondents were rewarded with "thank you money." Some passengers were most willing to fill out the questionnaire, but others required more detailed explanation.

## IV. DATA INTERPRETATION AND ANALYSIS:

### Profile of the Drivers

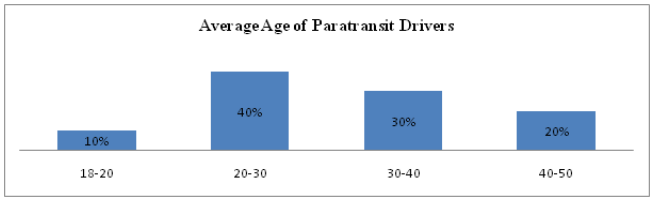


**Figure 2: Average age of paratransit operators**

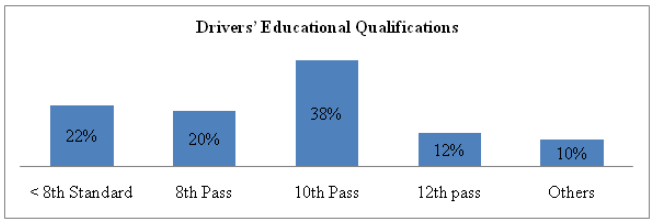


**Figure 3: Operators Educational qualifications**

Eighty per cent of Paratransit drivers fall in the age group of 18-40 years. Only twenty percentages in the age group of 40-50. This poses a question of 'social security', as those older than 50years will no longer be physically competitive to earn a living.

### Travel Conditions

### Authorized Capacity per Type of Share Auto

| Type of Paratransit Vehicle | Authorized Capacity |
|---|---|
| Bajaj | 3+1 |
| Ace Piaggio | 7+1 |
| Tata Ace Magic | 7+1 |

**Table 4: Seating capacity of paratransit vehicle**

The Study observed that during peak hours, i.e. in the mornings from 8 am to 11am and in the evenings from 5 pm to 8 pm, most Autos carry more than the allowed capacity. The drivers were of the opinion that their vehicles had enough space to accommodate more passengers than allowed and didn't consider it overcrowding.

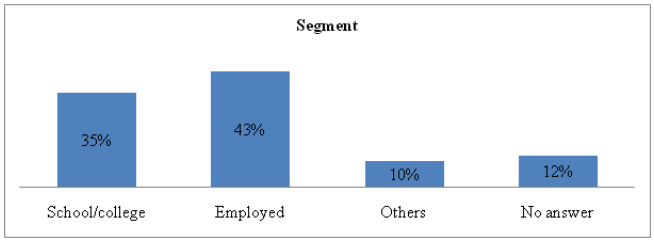


**Figure 4: Segment**

The Study revealed that 80 per cent of paratransit passengers were in the age group of 18-40. Only 20 per cent of the passengers were in the age group of 40-70. Forty three per cent of the Passengers are employed and 35 per cent are students. This shows that most passengers use Paratransit vehicles to go to their places of employment or education.

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## Evaluation of Various Modes of Transportation

| Category of Vehicle | Accessibility | Flexibility | Safety | Well Maintained | Reliable | Drivers are friendly and Helpful |
|---|---|---|---|---|---|---|
| Bus | 26 | 71 | 28 | 39 | 64 | 58 |
| Auto Rickshaw | 99 | 83 | 94 | 90 | 67 | 64 |
| Share Auto | 65 | 81 | 82 | 81 | 85 | 80 |

Table 8: Evaluation of various modes

## Multiple Linear Regression Model:

A linear regression model that contains more than one predictor variable is called a multiple linear regression model. The following model is a multiple linear regression model with two predictor variables, $x_1$ and $x_2$.

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \epsilon$$

The model is linear because it is linear in the parameters $\beta_0$, $\beta_1$ and $\beta_2$. The model describes a plane in the three dimensional space of $Y$, $x_1$ and $x_2$. The parameter $\beta_0$ is the intercept of this plane. Parameters $\beta_1$ and $\beta_2$ are referred to as partial regression coefficients. Parameter $\beta_1$ represents the change in the mean response corresponding to a unit change in $x_1$ when $x_2$ is held constant. Parameter $\beta_2$ represents the change in the mean response corresponding to a unit change in $x_2$ when $x_1$ is held constant. Consider the following example of a multiple linear regression model with two predictor variables, $x_1$ and $x_2$.

The below data is obtained from the above tables
In the below table
Q Represents Quality of Service
A Represents Age of Paratransit Operator
B Represents Sex
C Represents Main Purpose to use Paratransit
D Represents Public Transport is Available but
E Represents Customers Satisfaction
F Represents Overload of Vehicle
G Represents Number of Passengers

Both the Qualitative and Quantitative data are considered in the model. The qualitative data are quantified by using Rank order method. The Qualitative variables are main purpose to use paratransit, Overload of Vehicle, Customer Satisfaction, Age.

| DEPENDENT VARIABLES | INDEPENDENT VARIABLES | | | | | | |
|---|---|---|---|---|---|---|---|
| Q | A | B | C | D | E | F | G |
| 5 | 0.4 | 1 | 0.8 | 0.7 | 0.7 | 0.7 | 3 |
| 3 | 0.3 | 1 | 0.45 | 0.6 | 0.1 | 0.7 | 7 |
| 2 | 0.4 | 1 | 0.6 | 0.3 | 0.6 | 0.7 | 8 |
| 4 | 0.3 | 1 | 0.45 | 0.7 | 0.65 | 0.2 | 2 |
| 3 | 0.4 | 1 | 0.5 | 0.7 | 0.65 | 0.7 | 3 |
| 3 | 0.3 | 1 | 0.6 | 0.5 | 0.65 | 0.1 | 4 |
| 4 | 0.4 | 1 | 0.6 | 0.5 | 0.85 | 0.2 | 9 |
| 2 | 0.4 | 1 | 0.4 | 0.7 | 0.85 | 0.7 | 3 |
| 2 | 0.2 | 1 | 0.5 | 0.5 | 0.6 | 0.7 | 6 |
| 1 | 0.1 | 1 | 0.8 | 0.4 | 0.7 | 0.7 | 8 |
| 2 | 0.3 | 1 | 0.9 | 0.4 | 0.6 | 0.7 | 4 |
| 3 | 0.2 | 1 | 0.6 | 0.4 | 0.65 | 0.7 | 3 |
| 3 | 0.4 | 1 | 0.4 | 0.7 | 0.85 | 0.7 | 10 |
| 5 | 0.4 | 1 | 0.8 | 0.6 | 0.65 | 0.1 | 5 |
| 4 | 0.1 | 1 | 0.4 | 0.9 | 0.65 | 0.2 | 8 |
| 3 | 0.3 | 1 | 0.6 | 0.7 | 0.3 | 0.7 | 3 |
| 2 | 0.2 | 1 | 0.8 | 0.7 | 0.6 | 0.7 | 2 |
| 1 | 0.3 | 1 | 0.35 | 0.6 | 0.3 | 0.2 | 9 |
| 5 | 0.4 | 1 | 0.9 | 0.7 | 0.65 | 0.7 | 8 |
| 3 | 0.3 | 1 | 0.8 | 0.5 | 0.7 | 0.7 | 4 |

By exporting the above data in to **STATISTICAL PACKAGE FOR SCINTIFICAL SOLUTION (SPSS)** software we get the below data as the output and it is shown below.

## Regression

### Variables Entered/Removed[a]

| Model | Variables Entered | Variables Removed | Method |
|---|---|---|---|
| 1 | G, F, A, E, C, D[b] | | Enter |

a. Dependent Variable: Q
b. All requested variables entered.

### Model Summary:

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .625[a] | .384 | .294 | 5.35872 |

a. Predictors: (Constant), G, F, A, E, C, D

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**ANOVA[a]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 799.653 | 6 | 158.721 | 4.098 | .017[b] |
| | Residual | 1405.707 | 44 | 32.187 | | |
| | Total | 2205.36 | 48 | | | |

a. Dependent Variable: Q

b. Predictors: (Constant), G, F, A, E, C, D

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 8.758 | 3.053 | | -1.016 | .045 |
| | A | 5.944 | 2.729 | .513 | 2.178 | .118 |
| | C | 11.754 | 2.085 | .553 | 2.270 | .018 |
| | D | 6.100 | 3.181 | .728 | 1.918 | .151 |
| | E | -1.848 | 1.383 | -.321 | -1.336 | .274 |
| | F | 12.457 | 1.018 | -.514 | -2.331 | .012 |
| | G | .083 | .170 | .180 | .490 | .658 |

a. Dependent Variable: Q

**Correlations**

| | | A | B | C | D | E | F | G | Q |
|---|---|---|---|---|---|---|---|---|---|
| A | Pearson Correla | 1 | .[a] | -.262 | .361 | .196 | -.075 | .167 | .018 |
| | Sig. (2-tailed) | | . | .265 | .118 | .407 | .754 | .482 | .941 |
| | N | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| B | Pearson Correla | .[a] | .[a] | .[a] | .[a] | .[a] | .[a] | .[a] | .[a] |
| | Sig. (2-tailed) | . | . | . | . | . | . | . | . |
| | N | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| C | Pearson Correla | -.262 | .[a] | 1 | -.372 | .240 | .083 | -.415 | .036 |
| | Sig. (2-tailed) | .265 | . | | .106 | .307 | .729 | .069 | .881 |
| | N | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| D | Pearson Correla | .361 | .[a] | -.372 | 1 | .034 | -.012 | -.241 | .000 |
| | Sig. (2-tailed) | .118 | . | .106 | | .888 | .960 | .307 | .999 |
| | N | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| E | Pearson Correla | .196 | .[a] | .240 | .034 | 1 | -.255 | .403 | .064 |
| | Sig. (2-tailed) | .407 | . | .307 | .888 | | .277 | .078 | .788 |
| | N | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| F | Pearson Correla | -.075 | .[a] | .083 | -.012 | -.255 | 1 | -.532* | .044 |
| | Sig. (2-tailed) | .754 | . | .729 | .960 | .277 | | .016 | .853 |
| | N | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| G | Pearson Correla | .167 | .[a] | -.415 | -.241 | .403 | -.532* | 1 | -.012 |
| | Sig. (2-tailed) | .482 | . | .069 | .307 | .078 | .016 | | .961 |
| | N | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Q | Pearson Correla | .018 | .[a] | .036 | .000 | .064 | .044 | -.012 | 1 |
| | Sig. (2-tailed) | .941 | . | .881 | .999 | .788 | .853 | .961 | |
| | N | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |

*.Correlation is significant at the 0.05 level (2-tailed).

a.Cannot be computed because at least one of the variables is constant.

## V. CONCLUSION:

This study is one of the first attempts to investigate the effectiveness of paratransit services and identify key determinants influencing paratransit service quality.

This exploratory study was conducted based on the data collected from the surveys of paratransit riders in the metropolitan areas.

- Share Autos have become an unavoidable part of transportation in Hyderabad. They carry 1.8 million passengers every day and are considered the most desirable transportation for short distance travel.
- This Study revealed that most Share Auto drivers were in the age group of 20 to 40; they spent about 10-11 hours a day on the road. The Study also revealed that only 20 per cent of the drivers were in the age group of 40- 50 years. A driver's income ranges from ` 10,000 to ` 15,000 per month.
- The paratransit sector is not recognized by the government, and hence considered a part of the informal sector. Due to the absence of prescribed rules and standards, it has been noted that most Share Autos are overloaded, leading to occasional accidents.
- $R^2$ value is 0.384 and adjusted $R^2$ value is 0.294. The value of $R^2$ value is low because some of the independent variables are not much influencing on dependent variable.

## VI. FUTURE SCOPE:

- Further study can be done on how much percentage of paratransit vehicles will decrease due to Hyderabad metro rail.
- The same study can be done on all developing cities and their impact on public transportation.

## REFERENCES:

[1] Hays W.L. Quantification in Psychology. Prentice-Hall of India Limited, New Delhi, India, 1969.

[2] SHAZAM Homepage http://shazam.econ.ubc.ca/ Accessed June 30, 2004.

[3] McFadden, D. The Mathematical Theory of Demand Models, Behavioral Travel Demand Models, Edited by Peter R. Stopher and Arnim H. Meyburm, Lexington Books, D.C. Heath and Co., Lexington, Massachusetts, Toronto, 1976, pp. 305 – 214.

[4] McFadden, D. The Theory and Practice of Disaggregate Demand Forecasting for Various Modes of Urban Transportation, Emerging Transportation Planning Methods, U.S. Department of Transportation, DOT-RSPA-DPB-50-78-2, Reprinted in Transport Economics: Selected Readings, Edited by T.H. Oum at el, Seoul Press, Seoul, 1995, pp. 51 – 81.

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International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

[5] Roos, D. Public Transportation: Planning, Operation and Management, Edited by G.E. Gray and L.A.Hoel, Prentice-Hall, Inc., Englewood cliffs, New Jersey – 07632, 1979, pp. 142 – 155.

[6] Vuchic, V.R. Urban Public Transportation: Systems and Technology, Prentice-Hall, Inc., Englewood cliffs, New Jersey – 07632, 1979, pp. 592 – 634.

[7] Boyle, D.K. 1994. Jitney enforcement strategies in New York. Transportation ResearchRecord1433, 77–186.

[8] Canby, C. 1984. The Encyclopaedia of Historical Palaces, Vol 1, New York. Facts on File Publications, p.1.