



Organizational behavior of Para Transit System in Mehsana City

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Abstract —Para transit is urban passenger transportation service operating on public street and highway in mixed traffic provided by private and public operator. It is an alternative mode of flexible passenger transportation. Paratransit mode play important in urban transport sector of developing countries. IN many cities, more than half of public transport demand are carried by them. Paratransit is the backbone of Gandhinagar city's non personalized public transport because the contribution of public bus system in Gandhinagar city's transportation is negligible because of very high waiting time, inadequacy of passenger buses and at same time availability of para transit. Paratransit system consist of small passenger capacity vehicles operate on flexible routing and scheduling or fixed routing and flexible scheduling according to usage of trip makers. There are major types of paratransit modes operating In the study area mainly jeeps, auto richshaws, Maruti vans, Tata Magic. The characteristics of each mode have been established by conducting different survey such as modal split, vehicular occupancy and operator survey. The survey carried out all important road distributed all over the city. The percentage share of paratransit in term of urban passenger movement has been found out with respect all modes. The approach to transportation system is to focus not just increasing vehicles movement, but improving paratransit mode in city.

Keywords- Para Transit System, Mode of Transport, Vehicle Occupancy, Modal split traffic assignment

I. INTRODUCTION

Para transit is urban passenger transportation service operating on public streets and highways in mixed traffic provided by private or public operators. It is an alternative mode of flexible passenger transportation. The significant features of Para transit system are their flexibility and door to door service. Moreover, Para transit service offers mobility especially for the trip makers who do not own or have access to private vehicles. These people entirely depend on public transport for their daily movements, but in many occasions public transport are unreliable and inadequate. The Para transit modes are classified into following four major groups: 1) Type of usage: 2) Ownership of vehicles or system: 3) Service type by routing: 4) Method of getting service:

II. SCOPE OF STUDY

- Classification of Para transit types and their estimates.
- Determine the physical characteristics of Para transit system.
- Combination between Para transit system and public servicing system.
- Identify problems and issues of Para transit system.
- Main road coverage by Para transit system.
- Suggest a set of improving of Para transit system and future model of management of this system.

III. STUDY AREA

The study area is located in the Mehsana city at a distance of about 72 km from Ahmedabad State Highway No. 41. Mehsana is an administrative district of Gujarat with its head quarters located at Mehsana city. It is bounded by latitude 23° 35' 39.54"N to longitude 72° 22' 44.26"E. The district is bounded by Banaskantha district in the north, Patan and Surendranagar districts in the west, Gandhinagar and Ahmedabad districts in south and Sabarkantha district in the east. The total area covered by the district is 4,384 sq. km with total population of 18,37,696. Modhera Sun Temple, Siddhpur and Patan are popular sites to visit in Mehsana. As of 2001 India census, Mehsana had a population of 98,987. Males constitute 53% of the population and females 47%. Mehsana has an average literacy rate of 77%, higher than the national average of 59.5%: male literacy is 81%, and female literacy is 72%. In Mehsana, 11% of the population.

IV. SURVEY AND DATA COLLECTION

Surveys & Data Collections

Mainly there are three of surveys will be conducted modal split survey, vehicular occupancy survey and public transport survey.

Public Transport Survey

Public transport survey is conducted to find out the existing routes of the public transportation system in Mehsana City. This survey is gives us an idea about the existing fare system for the public transportation. The fare matrix for the public transportation system is shown below.

Table: Fare Matrix for Mehsana city Bus-Service (Rs.)

Origin/Destination	Toranvdi chock	Radhanpur circle	Modher circle	B.K cinema circle	Ruturaj flats	Nagalpur circle	ManavAshram circle	Palavsna circle	Dediysan G.I.D.C.	Good luck party plot	Ramosna circle
Toranvadi chock	0	5	5	5	5	7	10	10	10	-	7
Radhanpur circle	5	0	5	5	7	7	10	5	10	-	5
Modhera circle	5	5	0	5	5	5	10	5	5	-	5
B.K.cinema circle	5	5	5	0	5	5	10	7	10	-	7
Ruturaj flats	5	7	5	5	0	5	10	5	7	-	7
Nagalpur circle	7	7	5	5	5	0	10	5	5	-	5
Manav-Ashram circle	10	10	10	10	10	10	0	10	10	-	5
Palavsna circle	10	5	5	7	5	5	10	0	7	-	10
Dediysan G.I.D.C	10	10	5	10	7	5	10	7	0	-	7
Good luck party plot	-	-	-	-	-	-	-	-	-	-	-
Ramosna circle	7	5	5	7	7	5	5	5	10	-	7

From this survey we can identify the minimum fare is about Rs.5 and Maximum fare is about Rs.7 and per kilometer average fare is Rs.1.5.

The Mehsana city bus service provides following route service:

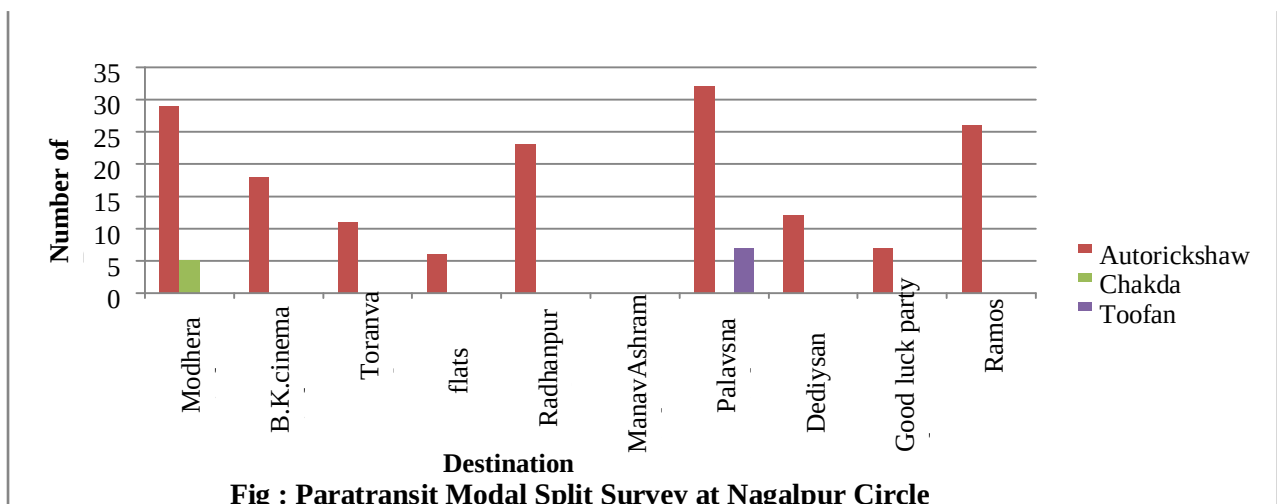
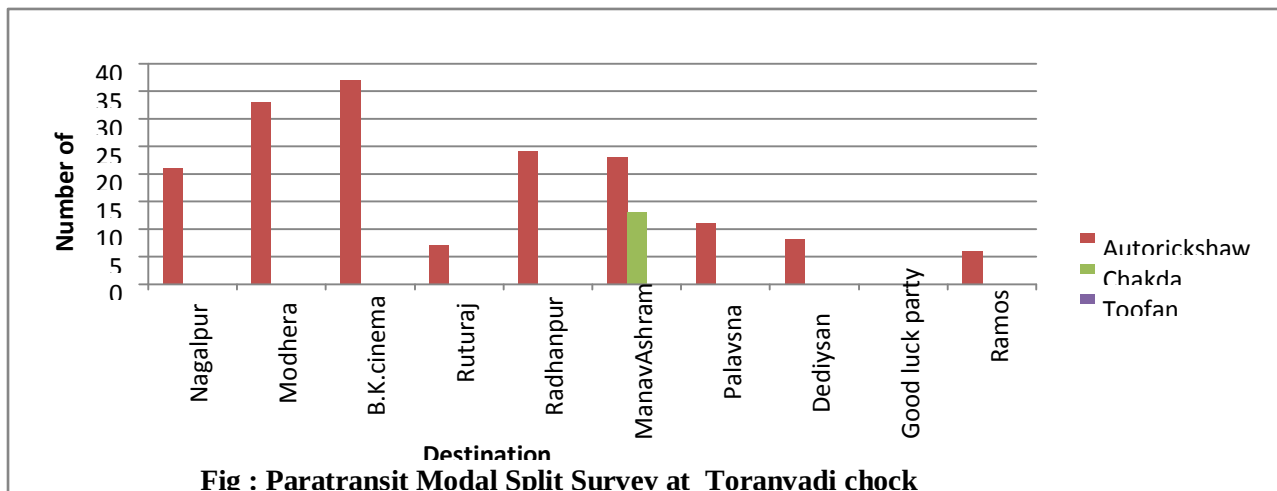
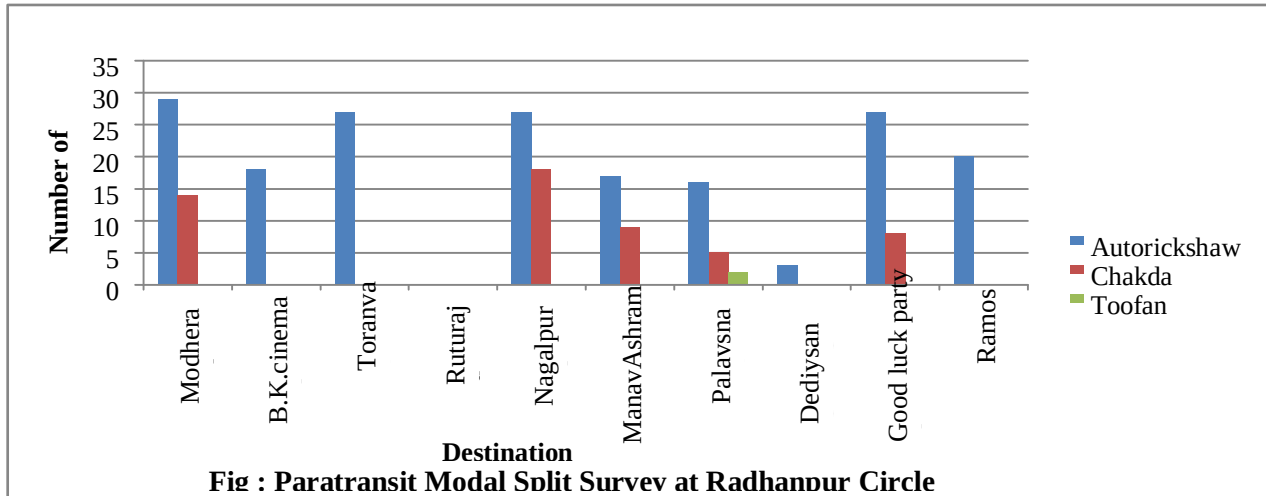
Modal Split Survey

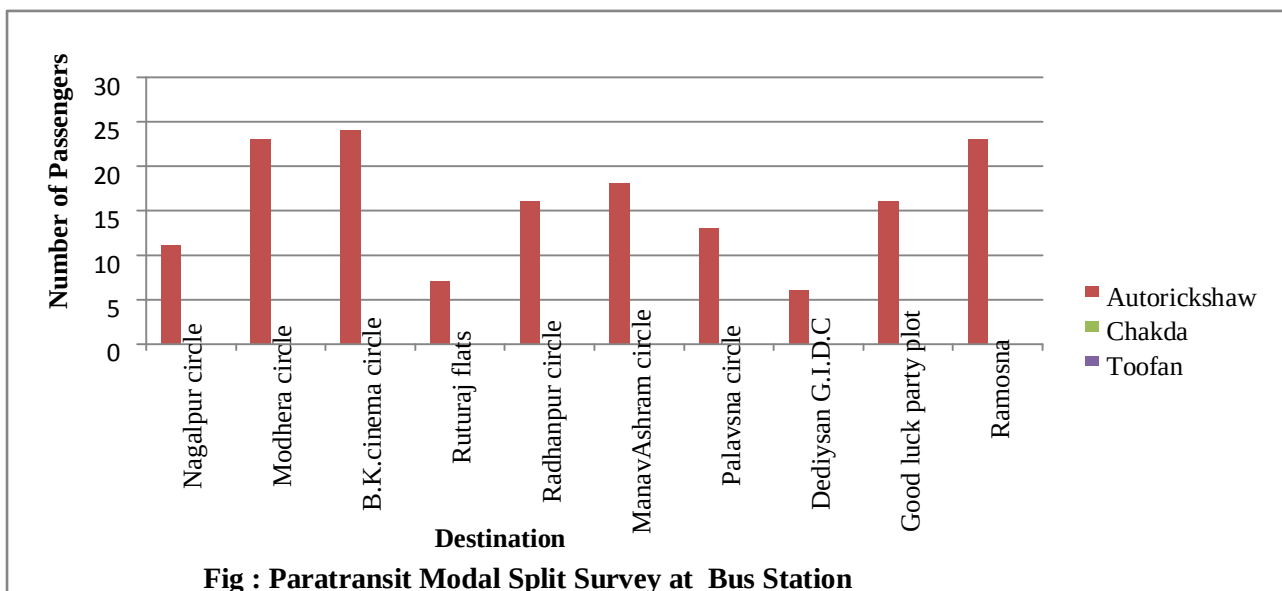
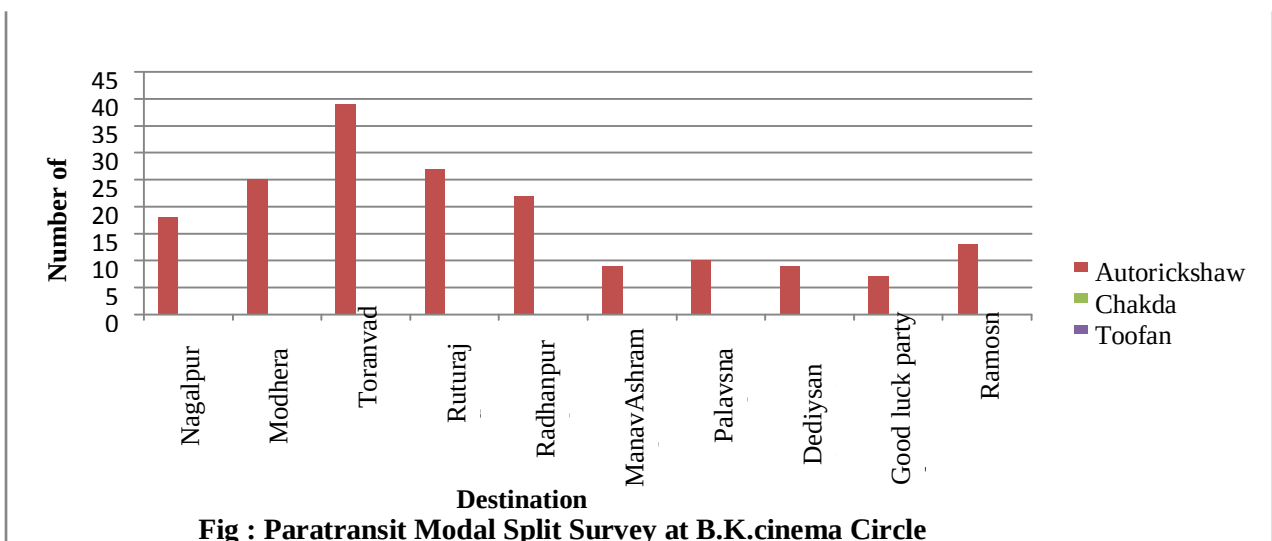
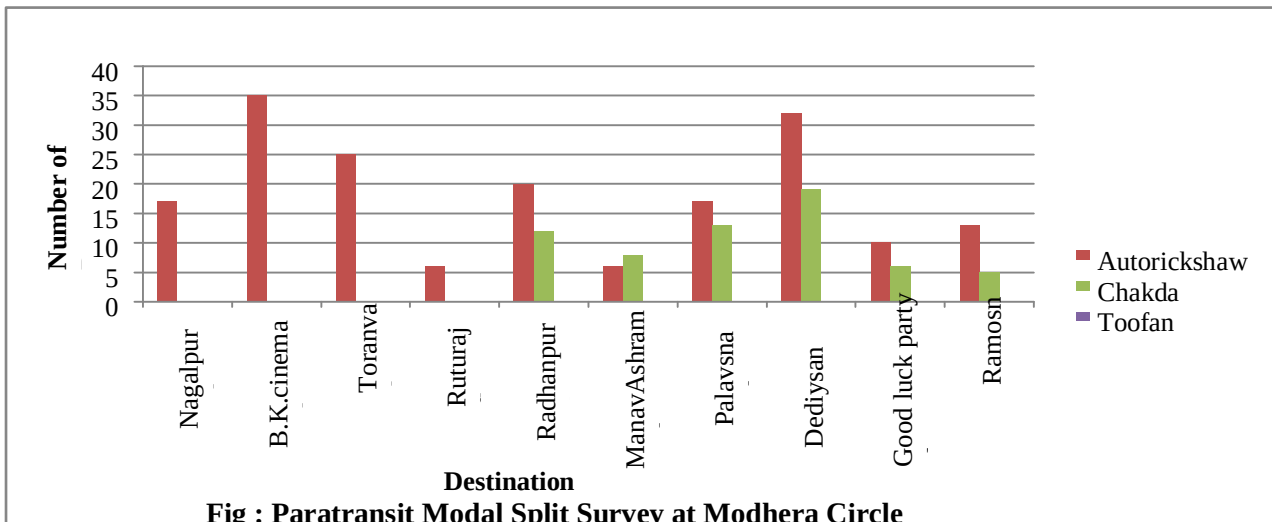
Modal split survey is conducted to know the number of modes available in a particular zone of the city. The survey is conducted for each one hour in different spots and the numbers of vehicles are counted.

Vehicular occupancy survey is also conducted to find out the average number of passengers carried by different modes. The survey is carried out on important roads distributed all over the city. Each type of mode is observed independently

on a road section and numbers of passengers carried by the mode type are recorded. Certain specific places are taken like market area, local roads, major roads, minor roads, important public places to study the usage of Para transit modes and its variation.

Para transit operator survey is conducted to understand the socio- cultural status of the Para transit operators, service and infrastructure facilities. The data is directly collected from the Para transit operators at their parking lots and garages where the operators are resting or waiting for the passengers. A set of questionnaire will be asked to know the characteristics of the operators.





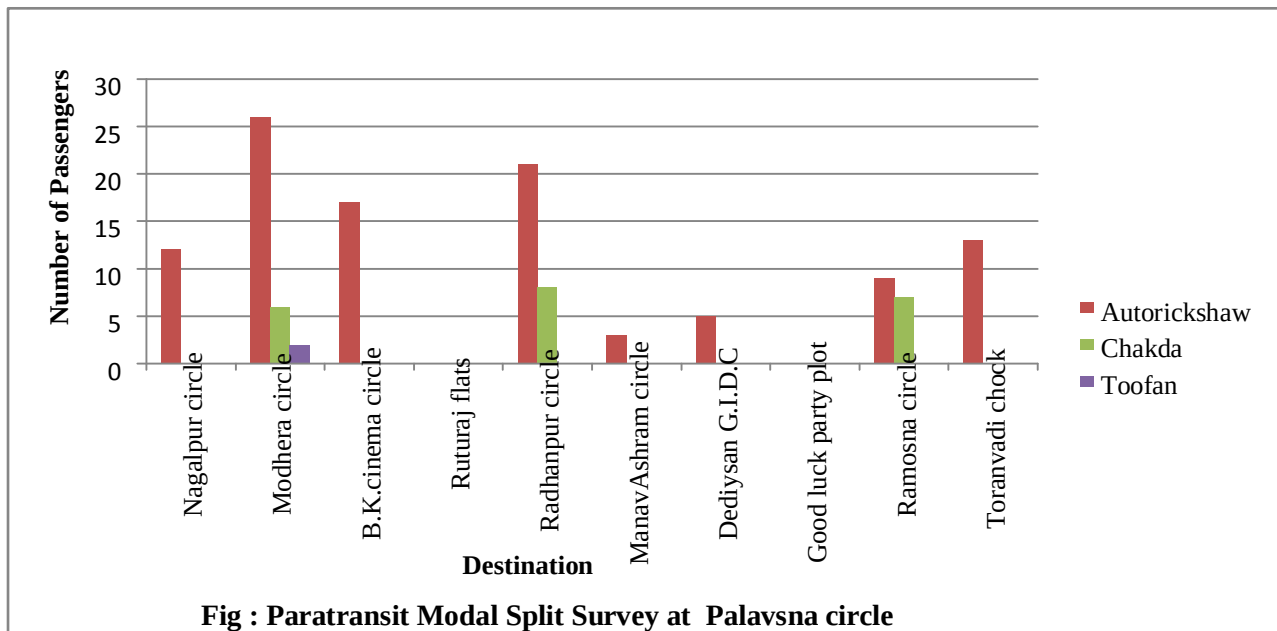


Table : Fare Matrix for shared Auto-rickshaw (Rs.)

Origin/Destination	Toranvdi chock	Radhanpur circle	Modher circle	B.K cinema circle	Ruturaj flats	Nagalpur circle	ManavAshram circle	Palavsna circle	Dediysan G.I.D.C.	Good luck party plot	Ramosna circle
Toranvadi chock	0	5	5	5	5	7	5	5	5	5	5
Radhanpur circle	5	0	5	5	7	5	5	7	5	5	5
Modhera circle	5	5	0	5	5	5	7	5	5	7	5
B.K.cinema circle	5	5	5	0	5	5	7	5	5	7	5
Ruturaj flats	5	7	5	5	0	5	7	5	5	7	7
Nagalpur circle	7	5	5	5	5	0	7	5	5	7	5
Manav-Ashram circle	5	5	7	7	7	7	0	7	7	7	5
Palavsna circle	5	7	5	5	5	5	7	0	7	7	7
Dediysan G.I.D.C	5	5	5	5	5	5	7	7	0	7	7
Good luck party plot	5	5	5	7	7	7	7	7	7	0	5
Ramosna circle	5	5	5	5	7	5	5	7	7	5	0

V CONCLUSION

In the absence of effective public bus system in Mehsana city, the auto rickshaws are serving very well but not efficiently. It needs to be optimized and should be well coordinated with respect to the public buses in terms of fares, routes and frequencies. The significant features of Para-transit system in the cities are their flexibility and door to door service. Their popularity as a public transport cannot be neglected as it is found that they carry two thirds of public transport passengers in Mehsana. This study was conducted to understand the Para transit system in the context of its overall mobility within Mehsana city. It collected spatial information and non spatial information through primary survey supplemented by stakeholder interviews. The results provide a snapshot of the situation. Some of the issues identified through this study are as follows:

- Core areas with narrow roads limit the access of public transport buses. This increases the reliance of PTS.
- Inadequate public transportation in the fringe areas resulting in near complete reliance on PTS.
- The road networks within the city are limited. Some of the roads narrow, unpaved or poorly maintained.
- A significant proportion of the right of way is infringed by vendors and unauthorized parking in resulting in narrowing of the effective width of the road.
- Extremely congested roads with an incompatible mix of both motorized and non motorized vehicles travelling at widely different speeds.
- Most of livelihoods and economic activities are concentrated in and around the core (CBD) requiring high proportion of population to travel to these areas on a daily basis. This results in peak hour congestion. Maximum traffic congestion is found in Modhera circle.
- Systems for traffic control & management is either primitive or non-existent. Limited staff with the traffic department and lack of technology causing inefficient and ineffective traffic control.
- Increasing number of traffic accidents, especially among pedestrians and motorcyclists are evident.
- High densities of vehicles on road contribute to environmental impacts including air and noise pollution.

Hence the Para Transit System is a vital transport system for the medium sized cities. Small size of settlements, Decentralized distribution of economic activities, small trip lengths, etc. does not support economic and efficient operation Public Transportation System. As an alternative Para Transit System is a panacea for the travel needs of medium sized cities. Although the problems caused by Para Transit System are serious by nature and magnitude but by taking planning, organizational, operational and educational measures principles of safety, efficiency and environmental conduciveness can be achieved. Thus the Para Transit System should be considered as a panacea and not a problem under the existing and anticipated traffic and transportation scenario of medium sized cities.

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