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RESEARCH ARTICLE

ROLE OF ELECTRIC RICKSHAWS IN RURAL TRANSPORT SYSTEM OF BARPETA DISTRICT, ASSAM

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ABSTRACT

Electric rickshaws are three wheel battery operated vehicles. They are considered as an upgrade to the conventional cycle rickshaws and economically better than auto-rickshaws and other fuel variants. A continuous attempt was made by Anil K. Rajvanshi for the improvement of the cycle rickshaw at Nimbkar Agricultural Research Institute (NARI), Maharashtra and had designed his first model of a Motor Assisted Pedal Rickshaw (MAPRA) and tested on Phaltan road in Maharashtra in 1996. After the introduction of MAPRA, he had further worked for the improvement of it. Finally, with the help of funding from the Ministry of Non-conventional Energy Sources (MNES), Govt. of India, he had designed and developed the first electric rickshaw, ELECSHA, in India in the year 2000. The present study has been an attempt to study the role of E-rickshaws as a means of transportation in the rural areas of Barpeta district of Assam. An attempt has also been made to examine some of the demographic features of the drivers and the scope of E-rickshaws in employment and income generation. Both primary and secondary data have been used for the study. Primary data have been collected through field survey, which has been carried out during the period of June to July, 2019 by using a structured interview schedule. A total of 140 E-rickshaw drivers were interviewed from the different rural areas of Barpeta district. The collected data have been analyzed by using simple statistical tools. The study has found that electric rickshaws have become a popular means of transportation and also a new source of livelihood in the study area. The E-rickshaw drivers work for almost 12 hours every day to earn some amount of income, which is quite low but help them to fulfill their basic needs to a certain extent. Many E-rickshaw drivers have also faced some problems during their work hours mainly the problem of parking and the competition from the alternative means of transportation available in the study area.

INTRODUCTION

Electric Rickshaws have become popular as a new means of transportation in the urban as well as in the rural areas in all over India. They have also become a new source of livelihood for the unskilled and illiterate or very less educated people in India recently. Electric rickshaws are three wheel battery operated vehicles. They are known as E-rickshaws or *Tuk-Tuk* or *To-To*. They are popularly known as *Pil-Pili* in the rural areas of Barpeta district of Assam. They are considered as an upgrade to the conventional cycle rickshaws and economically better than auto-rickshaws and other fuel variants. A continuous attempt was made by Anil K. Rajvanshi for the improvement of the cycle rickshaw. He had worked on the improvement of the conventional cycle rickshaw at Nimbkar Agricultural Research Institute (NARI), Maharashtra and had designed his first model of a Motor Assisted Pedal Rickshaw (MAPRA) and tested on Phaltan road in Maharashtra in 1996. After the introduction of MAPRA, he had further worked for the improvement of it. Finally, with the help of funding from the Ministry of Non-conventional Energy Sources (MNES),

Govt. of India, he had designed and developed the first electric rickshaw in India in the year 2000. It was known by ELECSHA and got the trademark registered. Since E-rickshaws are battery powered and have zero emission, they are considered almost pollution free and thus, environment friendly means of transportation. They are easy to operate and have low maintenance and running cost. But, they offer more returns to the investment made by the owners. E-rickshaws have more seat capacity in comparison to the conventional rickshaws and also auto-rickshaws. They require a minimum initial investment and less human effort to earn a living. Thus, E-rickshaws are providing an important source of livelihood for the less educated or illiterate and unskilled labourer in India. E-rickshaws are also playing a significant role as a means of local transportation for the shorter distances in the rural transport system in the state of Assam and India, the country as whole. Now-a-days, E-rickshaws have become popular as a cheaper means of transportation in the urban and also in the rural areas where alternative transport services are either not available or quite inadequate and also the other means of transportation are dearer than E-rickshaws.



MAPRA, 1996



ELECSHA, 2000

They are also more popular than conventional pulled cycle rickshaws because they take less time and provide less expensive transport services in comparison to pulled cycle rickshaws. E-rickshaws are more popular in the rural areas of Barpeta district of Assam as they are providing transport services to those remote areas where there are no bus services and helping in connecting villages in the rural areas. Thus, the present study has been an attempt to study the role of E-rickshaws in rural transport system of Barpeta district of Assam.

OBJECTIVES

Following are the objectives of the present study

- To study some demographic features of the E-rickshaw drivers in the study area.
- To examine the role of E-rickshaw as a new means of transportation, and in employment generation.
- To study the earning from and maintenance cost of E-rickshaws.

METHODOLOGY

The present study has adopted a research methodology in which both primary and secondary data have been used. In order to meet the objectives, primary data are collected through direct personal interview method during the period of June to July, 2019 by using a structured interview schedule.

A total of 140 E-rickshaw drivers were interviewed from the different areas of Barpeta District. Secondary data have been collected from the different published and unpublished sources like books, journals, internet, etc. The collected data have been analyzed by using simple statistical tools, like percentage analysis. The analyzed data have been presented through table and also diagram.

STUDY AREA: The present study has selected Barpeta district of Assam to examine the role of E-rickshaw in the rural transportation system. Further, the present study has selected the Barpeta town as the centre point and has also selected Kayakuchi Bazar, Bhawanipur, Howly Town, Mandia, Bhella and Palhaji Bazar as the surrounding areas of the Barpeta town, which is the centre point of the present study. Kayakuchi bazaar is situated 13 kilometers (kms) away from the Barpeta town. Bhawanipur is located 16 kms away from Barpeta town. Howly town is 13.2 kms away from Barpeta town. Mandia is located at 9.2 kms away from Barpeta town. Bhella is 8.7 kms away from Barpeta town and Palhaji Bazar is situated at 10.3 kms away from Barpeta town. From each of these seven locations 20 E-rickshaw drivers were interviewed randomly. Therefore, a total of 140 (=20x7) E-rickshaw drivers were interviewed. The location distribution of the sample E-rickshaw drivers is presented in Table-1.1 given below.

RESULTS AND DISCUSSION

The first objective of the present study is to study some demographic features of the E-rickshaw drivers in the study area of Barpeta district. With respect to the first objective, sex and age composition, marital status, educational attainment, religion, caste, family types and sizes of the E-rickshaw drivers have been examined. It has been found that only 100 per cent of the sample E-rickshaw drivers are male, which is presented in the following Table-1.2. The involvement of females in driving of commercial vehicles is rare to find in India and the reason behind it is the social factor that restricts the entry of female in this occupation. Our society does not allow the females to run a commercial vehicle. From the study of age composition of the E-rickshaw drivers, which are presented in the following Table-1.3 and Figure-1.1, it is found that 24.29 per cent of them are in the age group of 15- 25 years; 45.71 per cent are in 25-35 years; 22.86 per cent in 35- 45 years and only 7.14 per cent are in the age group of 45- 55 years. Thus, the majority of the E-rickshaw drivers, i.e., 92.86 per cent are below 45 years as it requires a long hours of service in day and night to earn some amount of money which is required to fulfill the basic family needs of the E-rickshaw drivers. The study of marital status the E-rickshaw drivers presented in the Table-1.4 has revealed that 67.86 per cent of the E-rickshaw drivers are married and 32.14 per cent are unmarried. The Table-1.5 is presenting educational attainment of the E-rickshaw drivers. The study has found that 30 per cent of the E-rickshaw drivers are illiterate; 42.14 per cent studied up to class-IV; 17.14 per cent studied up to class-VIII; 7.14 per cent studied up to class-X, and only 3.57 per cent are studied upto class-XII. Thus, the E-rickshaw drivers are found either illiterate or less educated. The illiteracy and less education status of the sample E-rickshaw drivers are the results and also causes of their poor economic condition. The religion distribution of the E-rickshaw drivers is presented in the above Table-1.6 and Figure-1.2 given below. With respect to religion, the study has found that 61.67 per cent of the drivers are Hindu and 38.33 per cent are Muslim.

Table-1.1. Location Distribution of Sample E-rickshaw Drivers

Location	Distance from Barpeta Town (in Km)	No. of Respondents
Barpeta Town	0	20
Kayakuchi Bazar	13	20
Bhawanipur	16	20
Howly Town	13.2	20
Mandia	9.2	20
Bhella	8.7	20
Palhaji	10.3	20
Total		140

Source: Field Survey

Table 1.2. Sex Distribution of the E-rickshaw Drivers

Sex	No. of E-rickshaw Drivers	E-rickshaw Drivers (in %)
Male	140	100.00
Female	0	0.00
Total	140	100.00

Source: Field Survey

Table 1.3. Age Composition of the E-rickshaw Drivers

Age (in Years)	No. of E-rickshaw Drivers	E-rickshaw Drivers (in %)
15 - 25	34	24.29
25 - 35	64	45.71
35 - 45	32	22.86
45 - 55	10	7.14
Total	140	100.00

Source: Field Survey

Table 1.4. Marital Status of the E-rickshaw Drivers

Marital Status	No. of E-rickshaw Drivers	E-rickshaw Drivers (in %)
Married	95	67.86
Unmarried	45	32.14
Total	140	100.00

Source: Field Survey

Table-1.5. Educational Status of the E-rickshaw Drivers

Educational Status	No. of E-rickshaw Drivers	E-rickshaw Drivers (in %)
Illiterate	42	30.00
Upto Class-IV	59	42.14
Upto Class-VIII	24	17.14
Upto Class-X	10	7.14
Upto Class-XII	5	3.57
Graduate & Above	0	0.00
Total	140	100.00

Source: Field Survey

Table-1.6. Religion Distribution of the E-rickshaw Drivers

Religion	No. of E-rickshaw Drivers	E-rickshaw Drivers (in %)
Hindu	35	25.00
Islam	105	75.00
Others	0	0.00
Total	140	100.00

Source: Field Survey

Table-1.7. Caste Distribution of the E-rickshaw Drivers

Caste	No. of E-rickshaw Drivers	E-rickshaw Drivers (in %)
General	110	78.57
OBC	20	14.29
SC	10	7.14
ST(P)	0	0.00
ST(H)	0	0.00
Total	140	100.00

Source: Field Survey

Table-1.8. Family types of the E-rickshaw Drivers

Family Types	No. of E-rickshaw Drivers	E-rickshaw Drivers (in %)
Nuclear	82	58.57
Joint	58	41.43
Total	140	100.00

Source: Field Survey

Table 1.9. Family Size of the E-rickshaw Drivers

Family Size	No. of E-rickshaw Drivers	E-rickshaw Drivers (in %)
Less than 5	52	37.14
5 - 8	62	44.29
9 - 12	26	18.57
Above 12	0	0.00
Total	140	100.00

Source: Field Survey

Table 1.10. Daily Working Hours of the E-rickshaw Drivers

Average Daily Working Hours	No. of E-rickshaw Drivers	E-rickshaw Drivers (in %)
0 - 6	0	0.00
6 - 12	126	90.00
12 & Above	14	10.00
Total	140	100.00

Source: Field Survey

Table 1.11. Daily Income of the E-rickshaw Drivers

Average Daily Income (in Rs.)	No. of E-rickshaw Drivers	E-rickshaw Drivers (in %)
Less than 600	16	11.43
600 - 800	105	75.00
800-1000	19	13.57
Above 1000	0	0.00
Total	140	100.00

Source: Field Survey

Table-1.12. Daily Battery Charging Cost of the E-rickshaws

Daily Battery Charging Cost (in Rs.) (X)	No. of E-rickshaw Drivers (f)	E-rickshaw Drivers (in %)	fX
50	70	50.00	3500.00
60	30	21.43	1800.00
70	40	28.57	2800.00
Total	140	100.00	$\Sigma fX = 8100.00$

Source: Field Survey

Table-1.13. Ownership Status of the E-rickshaws

Ownership Status	No. of E-rickshaw Drivers	E-rickshaw Drivers (in %)
Owned	140	100.00
Rented	0	0.00
Total	140	100.00

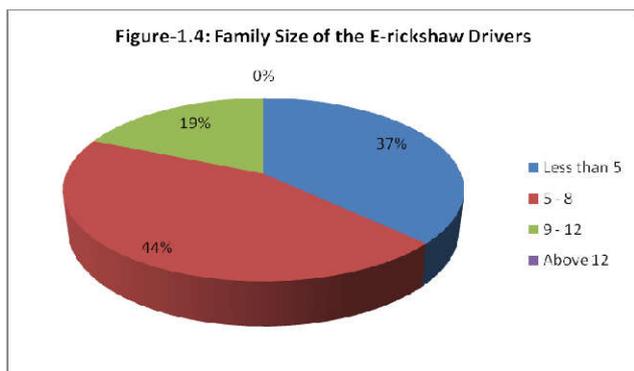
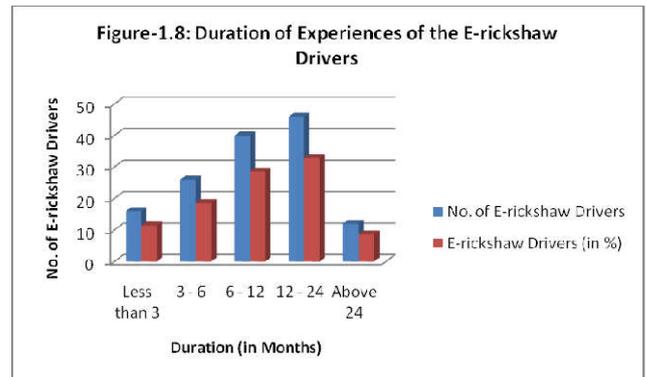
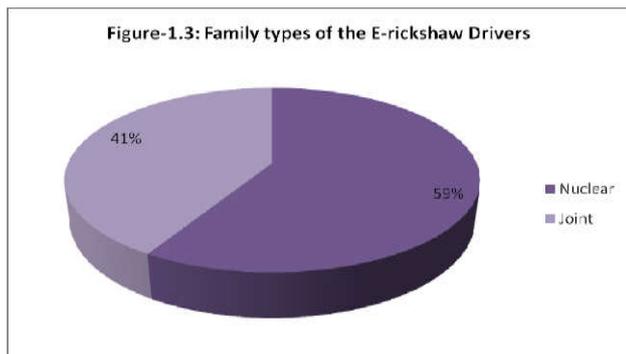
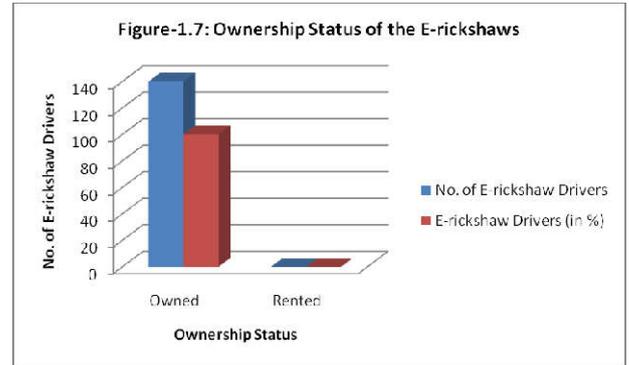
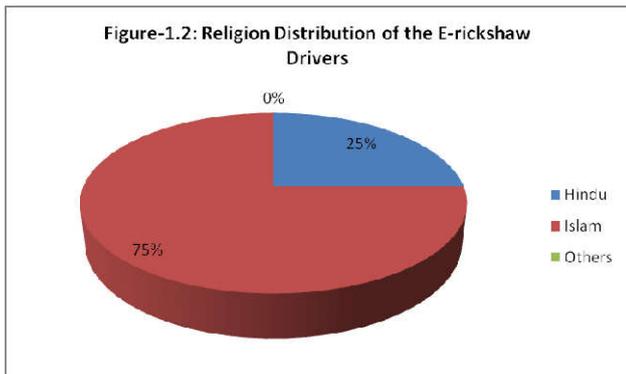
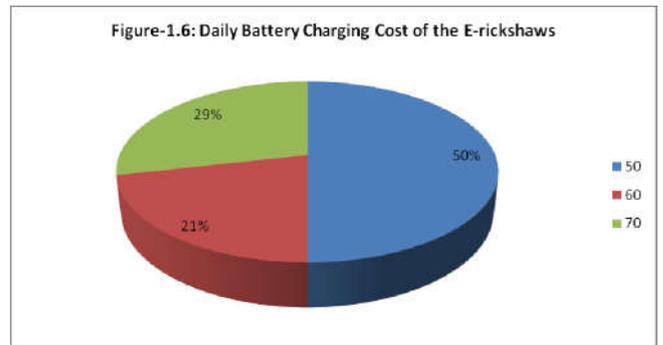
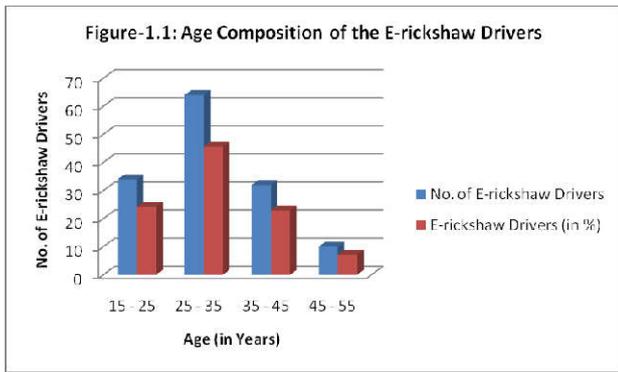
Source: Field Survey

Table-1.14. Duration of Experiences of the E-rickshaw Drivers

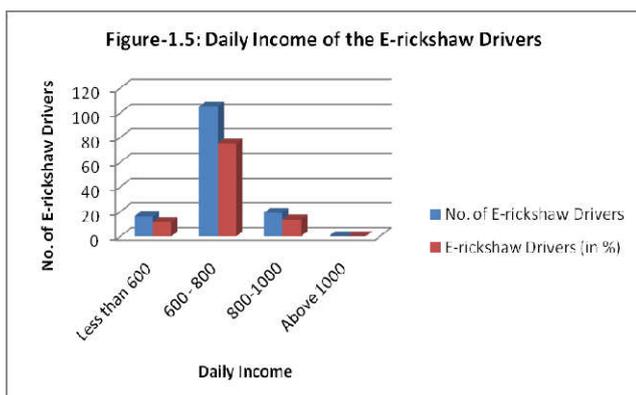
Duration of Experience (in Months)	No. of E-rickshaw Drivers	E-rickshaw Drivers (in %)
Less than 3	16	11.43
3 - 6	26	18.57
6 - 12	40	28.57
12 - 24	46	32.86
Above 24	12	8.57
Total	140	100.00

Source: Field Survey

The castes of the E-rickshaw drivers have also been studied, which is presented in Table-1.7 and found that 78.57 per cent are General category; 14.29 per cent are OBC; 7.14 per cent are SC. No one is belong to ST(P/H) category.



In the study it is found that the majority of the E-rickshaw drivers, i.e., 58.57 per cent of the E-rickshaw drivers have nuclear family and 41.43 per cent have joint family. The family size of the E-rickshaw drivers has also examined which is presented in the Table-1.9 and Figure-1.4. The study has found that 37.14 per cent of the E-rickshaw drivers have family size of less than 5 members; 44.29 per cent have 5-8 members; only 18.57 per cent have 9-12 members in the family. Thus, the majority have a family of less than 8 members.



The second objective of the present study is to examine the role of E-rickshaw as a new means of transportation, employment and income generation in the rural areas of Barpeta district. There are more 5000 E-rickshaws running in different rural areas of Barpeta district in every day, which claims that it becomes a new source of economic activity and thus has created a large number of employment opportunities and has become a new source of livelihood. It has provided employment opportunity to a large number of labourers for whole day. The present study has examined the daily working hours of the E-rickshaw drivers, presented in Table-1.10, and has found that 90.00 per cent of them used to work for 6-12 hours in every day; 10.00 per cent worked for more than 12 hours and none of the E-rickshaw drivers worked for less than 6 hours. They are providing transportation services at a cheaper rate to a huge number of passengers every day to the needy passengers in different rural areas of Barpeta district. E-

rickshaws have become a popular means of transportation in the study area. The E-rickshaw drivers have to work for more hours to earn some amount of money every day because E-rickshaws are low fare transport services provided for local shorter distances and also could not park for longer duration at the same stoppage due to having competitors at large numbers and some other alternatives like small four wheel van (Magic Shared Taxi) and conventional pulled cycle rickshaws and also bus services in certain areas for a fixed time period.

With respect to the third objective of examining the earning from and maintenance cost of E-rickshaws, the present study has studied the average income generation from the E-rickshaws and also the maintenance cost involved for the smooth working of their E-rickshaw per day. The daily income of the E-rickshaw drivers in the study is presented in following Table-1.11 and also Figure-1.5. In the study, it has found that 75.00 per cent of the E-rickshaw drivers on an average earn Rs.600 to Rs.800; 13.57 per cent of the E-rickshaw drivers earn an income of Rs.800 to Rs.1000 and 11.43 per cent earns less than Rs.600 and none of them earn more than Rs.1000. Though they are earning a very low level of income per day, which help them to fulfill some of their basic daily needs, but they are happy with their present income. Because they are earning more than their previous income generating activities with lesser hard works. There is daily expense involved for the charging of battery of the E-rickshaw in every day and this is only regular expenditure incurred by the drivers, along with the cost of repairment of the damage made if any. Therefore, the present study also examines the daily maintenance cost of E-rickshaws, which is presented in the following Table-1.12 and also in Figure-1.6 given below.

It has been found that the average battery charging cost is Rs. 60.83. In the study, it is also found that there is need of changing the battery of the E-rickshaws either in every six months or yearly. The cost of purchasing a new battery having six months warranty and life is Rs.4500 and Rs.8000 for a new battery having one year warranty and life. In addition of the daily battery charging cost, there is also some amount of regular cost incurred by the drivers for parking their E-rickshaws in the different places. They have to pay an amount of Rs.10 to Rs.20 to motor labour organization in certain areas every day. To examine the daily surplus income of the E-rickshaw drivers, the present study has also studied the ownership status of the E-rickshaws, which is presented in the following Table-1.13 and Figure-1.7. It has been found that 100.00 per cent of the drivers have their own E-rickshaws and some of them have bought it on credit financed by either commercial bank or the dealers themselves and many borrowed money from their relatives or moneylender to buy their E-rickshaw in cash. The price varies from Rs.1,30,000 to Rs.1,40,000 on cash and Rs.1,60,000 to Rs.1,70,000 on credit. The duration of work experience has also been studied, presented in the Table-1.14 and Figure-1.8. The study has found that 11.43 per cent are driving for less than 3 months; 18.57 per cent have experience of 3-6 months; 28.57 per cent have experience of 6-12 months; 32.86 per cent have 12-24 months of experience and only 8.57 per cent have experience of more than 24 months. Thus, it reflects that the E-rickshaw service becomes more popular in last two years in the study area. The study has also examined the problems faced by the E-rickshaw drivers and has found that the E-rickshaw drivers are facing some common problems like parking, competition from other alternative means of transportation, etc.

Conclusion

From the study, it has been realized that the E-rickshaws are playing an important role as a means of transportation for the local shorter distances as well as a means of livelihood in the rural areas of Barpeta district of Assam. E-rickshaws have provided an opportunity to earn some amount of income every day to a large no. of people. They also help in connecting the rural areas in Barpeta district. Sometimes, some of the drivers have faced some problems, but they have become very popular means of transportation for shorter distances and as a new source of livelihood for a large number of families in the study area, which helps in improving their living standard. The government can take some measures for them and in this regard, a subsidized loan for purchasing E-rickshaws or E-rickshaws can be given under a framed self-employment generating government scheme.

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