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Analysis of Factors Affecting Tricycle Operations in Metropolitan Lagos

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ABSTRACT

This research investigates the factors affecting the performance of tricycles as a paratransit mode of transport in Lagos metropolis, aiming for the designing of appropriate management techniques and policy framework that would enhance their performance, so as to continue to be relevant in public transport system in the metropolis. The research used purposive sampling technique for the selection of 250 passengers with response rate of 85.3% and 150 operators with 84.8% response rate. The research discovered that there is significant positive correlation between the performance and the useful age of tricycle, cost of maintenance, weather condition, income trend and fare charged. It therefore recommended that realistic pricing and fare policies as well as adequate and sustainable financing mechanism for tricycle operations should be put in place. Local fabrication of tricycles should be encouraged and the mode should be incorporated into the public transport network, bearing in mind their level of safety and carrying capacity.

Keywords: *performance, tricycle, para-transit, transport*

INTRODUCTION

Public transport is regarded as all modes available to the public irrespective of ownership (Hutchinson, 2000). The importance of public transport services in a successful transport system is widely recognized (Murray et al., 1998). It provides mobility for those who cannot drive their own car, helps in creating and maintaining livable communities, relieves highway congestion, and assures long term sustainability in terms of resource consumption and the environment (Paul, 2001). It can also provide a very efficient means of moving large numbers of people with considerable flexibility, in order to meet demand throughout the city (Armstrong-Wright et al., 1987).

Motorcycles (popularly called okada) are a form of public transport readily available in the Lagos metropolis to augment the services of buses. They constitute major mobility mode especially where buses do not operate as a result of bad terrain or poor connection to motorable

roads. Some city dwellers argue that their services are quite expensive, vulnerable to weather attack, prone to accidents and most of the operators are not trained, are very reckless. But whatever negative impression people have of "okada" the fact remains that it largely supplements the existing transport services in the metropolis, acting as feeders to the major traffic collecting centres. Areas where bus services are not provided would have been rendered almost immobile but for the "okada".

Consequent upon the general perception of people about "okada" and the worsening mobility situation in Lagos, the then-Gen. Buba Marwa administration in Lagos State introduced the "three wheeler autoricksha" in 1998 as a simple transport mode which is less expensive and has lower accident rate than the Motorcycle (Okada). The government's plan for it was to serve as alternative mode of public transport and also to provide origin-to-destination purpose within the metropolis. It also serves as a poverty-alleviation gesture from the government by providing employment for the youths. This qualifies its presence on the feeder roads in the metropolis.

A lot of researches have been done on performance of public and private transport companies in Nigeria (Aworemi, 2006); Performance assessment of public transport in Nigeria (Kotun, 1985); public transport and paratransit efficiency in developing countries (Costa & Markellos, 1997); prospects and problems of tricycle in Lagos metropolis (Emmanuel, 1998); but few research works have analyzed the performance of tricycle as a means of transport. This study is an attempt to contribute to the literature by evaluating the performance of this means of public transport. In order to address these problems and fill the gap identified, this study was conceived to address the following research questions:

i. What are the factors influencing the performance of tricycle as a mode of public transport in the study area?
ii. To what extent have the identified variables affected the performance of tricycle in Lagos metropolis?
iii. Are these problems militating against the operations of tricycle and commuters' satisfaction?

TRICYCLE: CHARACTERISTICS AND OPERATIONS IN LAGOS METROPOLIS

Tricycle operation was introduced to Lagos metropolis to salvage the worsening mobility situation. It is largely made up of "three wheeler autoricksha" produced in India and mostly used in Asian countries. The decision to introduce this mode of transport system into Nigeria owes to the fact of its success in most Asian countries which have city populations comparable to that of the metropolitan Lagos. Another reason for the introduction of tricycle is to reduce the daily transportation problems being faced by those living in interior parts of Lagos where roads are not well constructed. The tricycle therefore supplements the service being rendered by motorcycles by collecting commuters from the remote parts of the metropolis where buses are not available, to the major bus collecting centres, for subsequent destination journeys.

In many areas with regular bus services operations, the presence of the tricycle has also been established, moving parallel with buses. Almost everywhere in metropolitan Lagos the tricycle

is seen supplementing existing paratransit modes, with a carrying capacity of three passengers and the rider (although most operators carry up to 4 passengers). The body is covered with light metal sheets with a fairly large seat at the back to accommodate three persons. The tricycle has a rear axle with an engine capacity of 145.5cc. The roof is not padded but has a fairly thick tarpaulin to protect it from sunshine and rainfall. The average speed of the tricycle is 35 kilometers per hour while the maximum speed limit is 75km/h. The tricycle uses normal petrol engine for propulsion, plus some quantity of engine oil, which is mixed directly with the petrol in the tank. The tank capacity is 8 litres while the fuel consumption rate is about 24km per litre. Fuel consumption is economical, with a full tank going up to a distance of 192 kilometers, unlike many other transit and paratransit modes. The tricycle tyres are very soft and tender, a development which restricts movement to smooth terrain. It is therefore not advisable to ply the tricycle on rough terrain as one stands the chance of losing the tyres. The tricycle is nevertheless rugged in some ways, and moves smoothly on very smooth terrain with appreciable speed limit.

Going by the rule of the Lagos State Ministry of Transport, the tricycle operation should be restricted to feeder roads serving majors roads which are not plied by mass transit buses and omnibuses. This decision was taken considering the nature of this mode of transport, the capability and the characteristics. Early in the morning, like minibuses and the transit buses, the tricycles are seen at different bus terminals and stops queuing behind each other waiting commuters. There seems to be no defined route network to be plied by the tricycles. They are found on both secondary and feeder roads.

Plate 1: 3-wheeler autoricksha (tricycle)

RESEARCH METHODOLOGY

The study adopted a purposive sampling technique for the selection of the operators and the passengers. The technique was chosen because it is not feasible, practical or theoretically sensible to do random sampling in the study area. The method is very useful for the situation where one needs to reach a targeted sample quickly and where sampling for proportionality is not the

primary concern. Questionnaire for the passengers were administered to 250 respondents in the study areas out of which 212 (84.8% response rate) were used in the research analysis after collation, and correction of errors of omission and non-response.

In the case of operators, 150 respondents were purposively selected out of which 128 (85.3% response rate) were used in the research analysis. In this approach, passengers were identified and interviewed at the bus stops of the tricycles, which served as the sampling frame. Questionnaire and interview schedules were administered to only those passengers who consented. To evaluate the factors affecting the performance of tricycles in Lagos State, a model was identified as relevant. The model considered the factors affecting the performance of tricycles, measured in terms of profitability. Mathematically, it expressed as

$P_0 = f(X_j)$..... (1)

Where: j=1, 2, 3, ... ,9 for tricycle operation; P_0 = Performance (measured in terms of profitability); X_1= useful of age of tricycle (years); X_2 = cost of maintenance; X_3 = government regulation on transport inputs (Dummy: Yes=1, Otherwise=0); X_4 = weather condition (Dummy: Good=1, Otherwise=0) ; X_5 = state of the roads (Dummy: Good = 1, Otherwise=0) ; X_6 = income trend; X_7 = effect of other paratransit (Dummy: Yes=1, Otherwise=0);X_8 = operator's experience (Dummy: Yes=1, Otherwise=0) ; X_9 = fare charged

Data collected were cleaned, coded and analyzed with both descriptive and inferential statistics using SPSS v.20. Among the descriptive statistical techniques used are percentages, mean and standard deviation. Parametric statistical tool such as correlation analysis, multiple regression analysis and analysis of variance (ANOVA) were used to test the strength of association and also relationship between the dependent and independent variables.

RESULTS AND DISCUSSION

The distribution of years of involvement in the operation of tricycles in the study area reveals that majority of the operators (53.1%) were within the year range of 5-8 years (Table 1). The remaining 5.5%, 12.5%, 16.4%, 3.9% and 8.6% of the operators were found to belong to age ranges of less than 1, 1-2, 3-4, 9-10 and above 10 years respectively.

Table 1: Years of involvement of tricycle operators

Years	No of respondents	%
Less than 1	07	5.5
1-2	16	12.5
3-4	21	16.4
5-6	46	35.9
7-8	22	17.2
9-10	05	3.9
Above 10	11	8.6
Total	128	100

Source: Field survey, 2018.

Table 2 shows that 91.4% of tricycle operators repaired/maintained their vehicles using roadside mechanics, the remaining 8.6% made use of some designated centres by the Ministry of Transport. They abandon some as scraps depending on the extent of damage.

Table 2: Distribution of mode of tricycle maintenance

Mode of maintenance	No of respondents	%
Road side mechanic	117	91.4
Designated auto shop	10	7.8
Irreparable	01	0.8
Total	128	100

Source: Field survey, 2018.

The mode of record keeping and financing of transport enterprises tends to influence the performance of tricycle operation and determine the sources which the transporters approach for investible funds. Table 3 reveals that 92.2% of tricycle operators in the study area have no record as far as income/expenditure and sales /purchase accounts are concerned. This reveals that small-scale transport operators are often reluctant to deal with the formal financial arrangements such as banks. About 7.8% of tricycle operators in the study area keep records in form of asset register, sales/purchase and income/expenditure records respectively.

Table 3: Distribution on mode of record keeping and financing by tricycle operators

Record keeping	No of respondents	%
Have record	10	7.8
Have no record	118	92.2
Total	128	100

Source: Field Survey, 2018.

The sources of capital for tricycle are shown in Table 4. The table shows that just about one-third (35.9%) of the operators got their tricycle through hire-purchase arrangement as the cost of acquisition is quite prohibitive. Bank loan (24%) is another source that operators explore for the acquisition of tricycles, especially microfinance banks, due to their grassroots presence and flexible loan repayment method. Government also serves as source of acquisition of tricycle through its poverty alleviation programs. Some of those schemes are Lagos State Rural Transport Initiative and National Poverty Eradication Programme (NAPEP). This has 16.4% share from the respondents. Cooperative/credit societies and personal savings/relatives have 14.1% and 9.4% respectively.

Table 4: Sources of initial capital for tricycle operators

Sources	No of respondents	%
Bank loan	31	24.2
Personal savings/relatives	12	9.4
Cooperative/credit societies	18	14.1
Government	21	16.4
Hire purchase	46	35.9
Total	128	100

Source: Field Survey, 2018.

Performance evaluation of tricycle operations

The performance of tricycle operations was measured through the computation of asset and profitability. This implies that the performance of tricycles can be measured by the value of

fixed assets, working capital and other assets such as inventory of goods and the amount of savings in the bank. Capital and asset level of a transport firm is an important indicator of performance because if the asset and capital fall short of the liabilities when the two are compared, then the firm is insolvent, and can no longer continue in business. The amount of the difference between the capital and the liabilities reveals the strength and standing of the firm and confirms its economic performance. As indicated in Table 5, majority of the tricycle operators (68%) surveyed started business with a capital base of between less than N300,000 and N500,000. However, as of the time of this study, about 65% of tricycle operators had a capital base above N500,000.

The average turnover and profit of the operators are also shown on Table 5. For tricycle operators in the study area, 50% of them were initially in the turnover level of between N100,000 and N300,000 as stated in the questionnaire. However, at the period of data collection, only about 28% of them remained at that level. This implies that 22% of the operators had improvements on their turnover. From Table 5, 55% of operators initially operated below N100,000 profit level per annum but as of the time of this study, only 29% of them remained at this level. This means that about 21% of them had moved from a level below N100,000. Also about 65% of operators in the study area reported a profit levels of above N100,000, a significant profit increase. The levels of performance are due to increase in the level of patronage of the service of tricycle in the study area and the flexibility of service experienced among the passengers.

Table 5: distribution of assets, turnover and profit of tricycle operators

Parameters	Earlier		Present*	
	No of respondents	%	No of respondents	%
(i)Value of assets employed (N)				
Less than 300,000	24	18.75	19	14.84
400,000 – 500,000	63	49.21	24	18.75
500,001 – 600,000	18	14.06	47	36.72
Above 600,000	23	17.97	38	29.69
Total	128	100	128	100
(ii)Annual turnover				
Below 100,000	36	28.13	21	16.41
100,000 – 300,000	27	21.09	16	12.5
300,001 – 500,000	21	16.41	40	31.25
500,001 – 700,000	14	10.94	28	21.88
700,001 – 900,000	13	10.16	13	10.16
Above 900,000	17	13.28	10	7.81
Total	128	100	128	100
(iii)Annual profit (N)				
10,000 – 50,000	44	34.38	20	15.63
50,001 – 100,000	27	21.09	18	14.06
100,001 – 150,000	24	18.75	43	33.59
150,001 – 200,000	19	14.84	32	25.00
Above 200,000	14	10.94	15	11.72
Total	128	100	128	100

**Present means "as at time of data collection." Source: Field Survey, 2018.*

Analysis of trip characteristics of commuters of tricycles

Each trip has two trip ends—origin and destination. While the origin of most trips is usually the home, destinations are diverse, depending on trip purpose (Aworemi & Ajiboye, 2005). Table 6 shows that the study identifies four major trip purposes: work trip, trip to school, shopping trip, and trip for social/recreational activities. Analysis of home-generated trips reveal that 66.98% were work-related, 16.51% school trips, and 7.55% shopping trips, while the remaining 8.96% were trips for social/recreational activities. At the end of such activities, the end of most trips is the home.

Travel time was investigated during off-peak and peak periods. The travel time of the bulk of the respondents (about 61.79%) was under 20 minutes during off-peak periods (Table 6), while the remaining 38.21% travelled for over 20 minutes. During peak periods however, about 72% of the respondents' travel time was above 20 minutes for the same distance (Table 6). For most commuters, peak-period travel time was 52% higher than the off-peak travel time for the same distance. The differences in the travel time for the same distance at off-peak and peak periods were due to the problem of traffic congestion, which has long been a major concern of commuters and the government in Lagos. Such time losses reduce the productivity of workers, because the time that could have been gainfully employed in their places of work was wasted on the roads. Much time was also wasted by the commuters while waiting for vehicles at the bus stations. For instance, 53.3% of the commuters often waited for up to 5 minutes, 34.91% for 5-20 minutes, 7.55% for 21-35 minutes while the remaining 4.25% often waited for over 50 minutes before getting a vehicle to board (Table 6). Such excessive waiting time indicates shortage of transport facilities. This situation is worrisome since it further reduces time available for productive activity.

Table 6: Trip characteristics of commuters in the study area

No	Variable	Parameter	Actual figure	Relative frequency (%)
(i)	Trip purpose	Work trip	142	66.98
		Trip to school	35	16.51
		Shopping trip	16	7.55
		Social/recreation trip	19	8.96
		Total	212	100
(ii)	Distance traveled	Up to 1km	52	24.53
		1-3km	88	41.51
		4-6km	35	16.51
		7-9km	25	11.79
		More than 9km	12	5.66
		Total	212	100

No	Variable	Parameter	Actual figure	Relative frequency (%)
(iii)	Travel time at off-peak period of traffic			
		Less than 5mins	31	14.62
		6-10mins	29	13.68
		11-15mins	79	37.26
		16-20mins	23	10.85
		21-25mins	08	3.77
		26-30mins	14	6.60
		31-35mins	09	4.25
		36-40mins	09	4.25
		41-45mins	06	2.83
		More than 46mins	04	1.89
		Total	212	100
(iv)	Travel time at peak period of traffic			
		Less than 10mins	27	12.74
		11-20mins	31	14.62
		21-30mins	55	25.94
		31-40mins	42	19.81
		41-50mins	13	6.13
		51-60mins	32	15.09
		More than 60mins	12	5.66
		Total	212	100
(v)	Waiting time			
		Up to 5mins	113	53.30
		5-20mins	74	34.91
		21-35mins	16	7.55
		36-50mins	09	4.25
		Over 50mins	-	-
		Total	212	100

Source: Field Survey, 2018

Commuters' evaluation of quality of service of tricycle mode

Passengers were asked to indicate the most important factor in their tricycle modal choice decision. The predetermined factors in terms of quality of service attributes were cheap transport fare, availability, safety, comfort and reliability. Reliability implies the certainty that a mode would take its passengers to their destination without breaking down on the way. The ranking in terms of relative frequency of responses for tricycle services is as follows: cheap transport fare (32.55%), availability (22.64%), reliability (20.75%) safety, (15.09%) and comfort (8.96%) as shown in Table 7. The result shows that cheap fares, reliability and availability were the most important qualities of service attributes treasured by majority of commuters. The ability of a mode to combine these important attributes enhances its patronage. On the other hand, comfort and safety appear to be 'luxuries', which are currently insignificant determinants of commuters' modal choice decision. This, however, should not be interpreted to mean that these attributes are not important. Rather, it is the result of the current transport situation in Lagos, which forces commuters to accept any mode that comes their way, given the acute shortage of transport facilities. The importance of low fares in this analysis can be attributed to two principal factors. The first is the rapidly rising transport fare in Nigeria due to the increase in price of

petroleum products. The second is the earlier findings (Aworemi, 2006) that cost of transport constitutes a significant proportion of commuters' monthly income. In light of the competing demands of other essentials of life, commuters cannot but critically monitor their monthly transport budgets.

Table 7: Evaluation of quality of service attributes provided by tricycles

Determinant factor	No of respondents	Relative frequency (%)
Cheap transport fare	69	32.55
Availability	48	22.64
Reliability	44	20.75
Safety	32	15.09
Comfort	19	8.96
Total	212	100

Source: Field Survey, 2018.

The influence of some selected variables on the performance of tricycles in the study area

The statistical analysis and significance of the influence of some variables on the performance of tricycles in the study area are as shown in Appendices I and II.

Results of the correlation analysis

The matrix (Appendix I) shows the relationship between the dependent variable (the profitability, Y) and each independent variable as well as the correlation among the independent variables. The correlation between the dependent variable (Y) and each of the independent variables shows a significant ($P \leq 0.05$) positive correlation between the performance (Y) and the age of the tricycle (X_1), cost of maintenance (X_2), weather condition (X_4), income trends (X_6), and fare charged (X_9).This implies that as these variables X_1, X_2, X_4, X_6, X_9 increase, the performance of the tricycle operations also increases (see appendix I).

From the table, it can be observed that the cost of maintenance (X_2), the weather condition (X_4), the income trend (X_6), and fare charged (X_9) have weak positive relationships with the performance of the tricycle in the study area, while age of the tricycle (X_1) exhibits a fairly strong relationship. However, the state of the roads (X_5) and the effect of other paratransit (X_7) were inversely related to the performance of the companies. This means that the condition of roads and the presence of other paratransit modes reduced performance of tricycles in the study area. The age of the tricycles (X_1) has a very strong, positive and significant relationship ($r=0.812$, $P \leq 0.01$) with the income trend (X_6) of the tricycle. Similarly, the age of the tricycle (X_1) has a fairly strong positive and significant relationship with government regulations on transport inputs (X_3), and cost of maintenance (X_2).

The cost of maintenance (X_2) had strong, positive and significant relationship with the income trend (X_6). Government regulations on transport inputs (X_3) had weak, positive and significant relationship with the fare charged (X_9). Negative and significant relationship exists between the income trend (X_6), state of the road (X_5) and effect of other paratransit modes (X_7).

Regression results of the factors affecting tricycle operation in Lagos

The result of the regression analysis is as shown in appendix II. The functional forms that were considered before choosing the lead equation were linear and semi-log functions. The essence of the multiple regression was to determine how the explanatory variables affect the dependent variable (performance). From the two functional forms fitted to the data, the linear function was chosen as the lead equation. This was based on the appropriateness of the signs on the regression coefficient as specified by *a priori* expectation, the value of the coefficient of multiple determination R^2, the number of statistically significant variables—'t' and F-values—and Durbin Watson d* tests.

The linear regression result obtained is as follows:

$$P = -19.274 + 3.631X_1 - 2.142X_2 - 2.615X_3 - 0.912X_4 - 2.172X_5 + 2.341X_6 - 0.767X_7$$

(2.30)* (1.51)** (1.67)* (1.62) (0.82)* (2.12)** (1.45)*

$$+ 1.513X_{8+}\ 0.924X_9 \ldots \ldots \ldots \quad (3)$$

(0.11) (1.76)

*t -ratio values are in parenthesis; ** Significant at 5% level; * Significant at 10% level*

The coefficient of multiple determination (R^2) of 0.798 implies that 79.8% of the total variation in the performance of the tricycle operation explained by the explanatory variables. The remaining 20.2% not explained could be attributed to the stochastic variation.

The t-value of the coefficients X_1, X_2, X_3, X_5, X_6 and X_7 were all statistically significant at both 5% and 10% levels. This implies that the useful age of tricycle (X_1), cost of maintenance (X_2), government regulation on transport inputs (X_3) such as spare parts and petroleum products, state of the roads (X_5), income trend (X_6) and effect of other paratransit (X_7 contributed significantly to the variation in the level of performance of private transport companies (see appendix II).

The positive regression coefficients of X_1 and X_6 indicate that increasing useful life age of a tricycle and income trend will have a corresponding increasing effect on the performance of tricycle operation. The negative regression coefficients of X_2, X_3, X_5 and X_7 indicate that every measure of increase in government regulations on inputs such as prices of petroleum products, importation of auto-spare parts, increasing cost of maintenance, increasing poor state of roads and improved other paratransit mode will have decreasing effects on the performance in the study area. The useful age of the tricycle (X_1) has a coefficient of 3.631 (β_1=1.162). This result shows that if useful age increases by a unit, the performance of the transport companies increases by N3.631. This value, significant at 10% level, implies that the useful age of the tricycle possessed by the operators contributed positively and significantly to the performance of the tricycle businesses. Therefore, the useful age of a tricycle is of vital importance to performance of tricycle business in the study area. This conforms to the earlier findings of Aworemi (2006) where it is ascertained that the useful age of vehicles has significant effects on profit maximization of public and private transport companies in Southwestern Nigeria. The income trend of the tricycle has a coefficient of 2.341 ((β_6 = 2.341) which means that for every increment in income of the tricycle business, there will be increase of N2.341 in performance. The implication is that income generation is a cardinal objective of any business outfit; the more the income,

the higher the performance of the outfit: This corroborates the findings of Demelash (2007) in Addis Ababa where it was discovered that income and revenue of Anbessa public transport is a significant survival strategy of that transport corporation.

The cost of maintenance (X_2) is an important variable determining the performance of any transport outfit and is expected to contribute significantly to the performance of tricycle business. However, this variable has a coefficient of -2.142, which means that for every measure of increase in the cost of maintenance, there is a decrease of N2.142 in performance. This value (β_2= -2.142) is significant at 5% level meaning that the cost of maintenance contributes negatively and significantly to performance. However, government regulations on inputs such as pump price of petrol, importation of vehicles and spare parts had a coefficient of -2.615 (β_3 = -2.615), which means for every government regulation in the study area, causes a decrease of N2.615 in performance of tricycle operators. This value (β_3= -2.615) is significant at 10% level, which implies that various government regulations relating to transportation inputs such as pump price of petroleum products and restriction on the importation of tricycle spare parts contributed negatively and significantly to the profitability of the tricycle business in Lagos state

Furthermore, the state of the roads (X_5) has a coefficient of -2.172 (β_7= -2.172) which is significant at 10%; thus, the operators' performance decreases by N2.172 with one unit of increment in the bad state of the road. The explanation for this result is that the state of roads have adverse effects on the performance of transport operations. Some of the tricycle operators interviewed confirmed the poor state of the roads in the area. Further complaints include increase in the rate of the tricycle breakdown. This corroborates the findings of Ajiboye (1994) that the poor state of the road had significant effects on the accessibility and output of kolanut farmers in Ijebu North LGA of Ogun State, Nigeria. Its effects on the performance of tricycle business in the study area cannot be overemphasized.

The effect of other paratransit modes (X_7) such as okada has a coefficient of (-0.767) which implies that for every increase in other paratransit modes, there is a decrease of N0.767 in performance of tricycle business in the study area. This variable is significant at 10% level. The introduction of substitutes such as commercial motorcycles to the business whereby the commuters are taken to their doorstep has greatly affected the patronage of tricycle services in the study area. In addition, the commercial motorcycle (okada) operations were not affected by the traffic congestion; thus many passengers prefer okada to tricycle services. This is supported by Aworemi and Animashaun (2008) who establish that availability, door-to-door services, flexibility and penetration power are the factors responsible for the high patronage of okada services in Ilorin metropolis.

Weather condition has a coefficient of -0.912 (β_4= 0.912). This means for every measure of increase in weather condition, there is a decrease of N0.912 in performance of tricycle operators. This implies that the travel demand tends to decline as a result of weather condition of the study area. The reason for this is not far-fetched; the physical structure of the tricycle does not totally shield the commuters from rain or sun. Consequently, the patronage of tricycle services reduce considerably during the rainy season or when the sun is scorching. This variable is not significant at both 10% and 5% levels. Meanwhile, operator's experience (X_8) had a coefficient

of (β_1= 1.513), which shows that if the experience of the tricycle operator increases, the performance would increase by N1.513. This indicates that the more the operators' experience, the better the performance of the tricycle business. However, this value (β= 1.513) is insignificant at both 5% and 10% confidence interval. The fare pricing (X_9) has a coefficient (β_9_0.924), which shows that if the fare charged by a tricycle operator is increased by a unit, the performance would increase by N0.924. This indicates that the higher the fare the greater the profit margin of tricycle operators. This variable is insignificant at both 5% and 10% levels. The insignificance of this variable is as a result of little or no influence of government on fare pricing of private transport sector.

CONCLUSION

Tricycle operations in the study area is seen as a catalyst for socio-economic development of the area involved, and for this reason, the availability of adequate and affordable tricycle services is required as a basic need for all Nigerians. As previously noted, tricycle business in Lagos is still experiencing insufficient and perhaps declining capacity, increasing operating costs, and worsening quality services. However, there are a number of things that could be done to improve operational efficiency in the study area. The following measures are suggested:

i. There is an urgent need for the adoption of more realistic pricing and fares policies, particularly in the semi-rural parts of Lagos if costs are to be recovered. Although it is recognized that the fares charged by some tricycles operating in the city centre are adequate and can lead to cost recovery, a vast majority of them still need to review their fares especially those operating in the rural and semi-rural Lagos, so as to improve their viability. However, a low fare policy may lead to the collapse of even the most efficient transport undertakings. It has been established in this study that the tricycle services contribute significantly to mobility in Lagos, especially those areas with bad roads.

ii. The prices of tricycles are no longer affordable; the right thing is to look inwards. Thus, the local vehicle assembly plants still need to do more to substantially increase local content of tricycle components and accessories. This can help in reducing costs of locally assembled tricycles. More of such plants should be established for various types of tricycles.

iii. Adequate and sustainable financing mechanism for tricycle operations need to be put in place. There is need for the operators to have access to credit facilities from banks and finance houses. This is because the traditional sources of financing public transport operations are no longer dependable and adequate. This is largely because of high costs of procuring and running transport business, as well as low net returns and profits. In fact, drivers who depend solely on fare revenue have to wait for about five years or more in order to raise enough money for a new tricycle (at the current price and level of inflation).

iv. The problem of inadequate spare parts has long been recognized as a hindrance to effective tricycle operation; this problem still persists. Steps need to be taken to ensure steady flow of back-up spare parts for tricycles and workshop equipment.

v. Local fabrication of tricycle spare parts should be encouraged, as well as the building of adapted tricycle which can carry more passengers.

vi. Tricycle services are becoming a very important means of movement in a growing number of Nigerian

cities. This situation calls for the integration of the mode into the public transport network, bearing in mind their level of safety and carrying capacity.

vii. Rather than the piecemeal and "fire-fighting" approaches which characterize government response to the crisis facing the transport sector in general, it is now time for the government to start thinking about more concrete, short and medium range plans (strategic) and consistent policies that will have far reaching effects on public transport operations and management.

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