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Tricycle as a Mode of Public Transportation in Ibadan Metropolis, Nigeria

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Abstract

The study assessed the operational characteristics of tricycle, a growing mode of public transportation, in Ibadan. Both primary and secondary data were used for the study. Multi-stage sampling was adopted in selecting 147 tricycle registered operators from 10 loading points in the study area. Using a structured questionnaire, information on their socio-economic characteristics, mode of operations, trip characteristics as well as the challenges faced by the operators were collected. In-Depth Interviews were directed to the executives of the 'Three Wheelers' Association of Oyo State focusing on issues relating to registration of tricycles, dues and levies. Data were analyzed using descriptive statistics. Findings indicated that all the operators were male, 73.4% had no more than secondary education and 72.8% earned below N4,000¹ daily. Unemployment was the main reason why 55.5% of them went into the business. Only 35.4% of the operators had valid license. Extortion from traffic agents (38.6%) was the most important challenge faced by the tricycles. In this regard, appropriate sanctions should be recommended for enabling environment for tricycle operations. The study suggested incorporation of their activities into urban transportation planning in Nigeria.

Keywords: Informal Public Transport, Regulation, Sustainable Public Transport Integration

Introduction

The demand for mobility in different parts of the world is growing at a very rapid rate. The growing transport demand is borne out of the necessity for people to meet social and economic needs (Fadare and Salami, 2004). Arising from the increasing urbanization, population and industrial development; the demand for public transport is becoming

inevitably high particularly where many households are constrained from owning private automobiles. However, the conventional public transportation cannot meet the growing demand of the commuters resulting in the emergence of informal public transport globally (Kumar, 2011; McCormick, Mitullah, Chitere, Orero & Ommeh, 2013).

Informal Public Transport (IPT) is a widespread means of moving people particularly in developing countries. In the last three decades, IPT has become an integral part of the land transport system. Scholars have presented several factors that contribute to the emergence of IPT (Shimazaki and Rahman, 1996; AEI, 2014). Firstly, IPT mode has emerged spontaneously to fill gaps in the conventional transport of the urban areas (Hilling, 1996). Secondly, the increase in per capita incomes has greatly influenced the rapid increase of demand for mobility and transport within the urban areas which the conventional public transport cannot cope with. Thirdly, overcrowding, insufficient maintenance, poor management, and inadequate investment in existing conventional public transport have led to the growth of IPTs (Shimazaki & Rahman, 1996).

Globally, one of the most visible modes of IPT is the Three Wheeler or Tricycle. Three Wheelers are low horse-powered 2 or 4 stroke machines, which are approved to carry two adults in addition to the driver. They have a frame covered by canvas with a rear mounted

engine and a motor cycle type of control. Three-Wheeler are seen in several Asian countries and are called by different names e.g., Auto-Rickshaws in India; Tuk-Tuks in Thailand and Trishaws or Three-Wheelers in Sri Lanka. In Nigeria, it is called Keke NAPEP or Keke Marwa because it was designed by the then Lagos State Military Administrator, Buba Marwa, as Poverty Alleviation Programme or Strategy for job creation particularly for unemployed youths in 2001 and this has made the name of the mode acceptable to members of the public.

The modal share of IPT varies across cities in Asia ranging from between 20% and 70% of the total public transport demand. The estimate for Manila (Philippines) was 70%,

Jakarta (Indonesia) 50%, Kuala Lumpur (Malaysia) 40% and Bangkok (Thailand) 21% (Shimazaki & Rahman, 1996). In Buenos Aires, Microbus, a form of informal public transport mode is used for 54% of all trips and 75% of public transport trips (Roth, 1984). Barreth (1985) reported that 50% of the trips made in Calcutta, 41% in Sao Paulo, 23% in Rio de Janeiro in 1980 were made through informal public transport. More specifically, in Sri Lanka, tricycle fleet comprises of an estimated 342,286 vehicles accounting for 15% of the active motor vehicle fleet and represented around 6% of the country's passengers' kilometers (Amal, Mahinda & Darshini, 2010). India produces around 500,000 tricycles in a year and about 80,000 auto-rickshaws operate as public transportation in New Delhi, 250,000 in Mumbai and more than 100,000 in Ahmedabad (AEI, 2014). About one fifth of personal daily trips in India appear to use auto-rickshaws. In terms of transport demand for Tricycle, about 250,000 people use tricycles in their daily trips to work in Japan while around 8 million tricycles and other forms of cycles are used for public transport in Bangladesh (Replogle, 2004; Saleh, 2011). In Nigeria, tricycle still accounts for a small proportion of daily trips. However, this means of transport is becoming a potential mode of transport in urban centres.

Various studies have been carried out on various aspects of public transport modes such as taxi (Ogunsanya & Galtima, 1993); buses (Adeniji & Adesanya, 1998); commercial motorcycles (Oluwadiya, Kolawole, Adegbehingbe, Olasinde, Agodirin & Uwaezuoke, 2009; Sangowawa, Alagh, Ukanem, Ebong, Fasem, Adekunle & Uchendu, 2010) and bicycle use (Adejumo, 2010). Few available studies on tricycle operations in Nigeria were conducted within the city center (Nwaogbe, Ibe & Ukaegbu, 2012; Raji, 2012). However, information on

the use of tricycles for public transport in the urban fringe (the location between the city and the rural areas) of Nigerian cities is very scanty. This is due to the fact that tricycles are relatively new and thus little is written about the nature, use and operation of tricycles as a mode of public transport particularly in the peri-urban area (Barau, 2003). It is as a result of this that the study seeks to assess the operational characteristics of tricycle in the peri-urban (urban fringe) of Ibadan with a view to adding to the few available literature on the operations of tricycles in the country particularly in the peri-urban area.

Conceptual Framework

There is no transportation theory/model that can adequately explain the operation of tricycle, therefore, the study is anchored on the concept of paratransit which came to fore in the early 1970s. Paratransit, often referred to as 'informal' or even 'illegal' transport, operates on the fringe of the institutional transport system. It includes all public and private transportation in the spectrum between private automobile and conventional (Cervero, 2000). It may be conceived as urban passenger transportation service usually operated on public streets and highways in mixed traffic fore and used by the general public. However, it adopts its routing and scheduling to individual user's desires in varying degrees (Vuchic, 1981). Paratransit services are characterized by the flexible routing and scheduling of the relatively small vehicles (capacity 4-12 persons) to provide shared occupancy, personalized transportation on demand. It is a potentially attractive alternative to conventional transit, especially in remote, rural areas where population density is too sparse to be supported by scheduled based transit system.

CODATU (2014) observed that paratransit is described as being poorly organised and

inefficient sector in terms of operations (route duplication, excessive length of routes, surplus supply of vehicles on certain routes, etc.), and it is considered partly responsible for road accidents, traffic congestion and air pollution. It further noted that paratransit services are the result of private initiatives that develop spontaneously with the operators' aim of maximising profit, sometimes to the detriment of quality of service. The system is characterized by fragmented ownership, reduced vehicle size, oversupply in certain parts of the city, and disruptive competition among operators.

Cervero (2000) like some scholars (e.g Shimazaki and Rahman, 1996; Kumarage *et al* 2010) submitted that paratransit is referred to as informal because it is outside of the officially sanctioned public transport sector. They observed that in many cases, operators lack the necessary permits or registration for market entry and failed to meet certification requirements for commercial vehicles – such as minimum vehicle size, maximum age, or fitness standards. Other violations include lack of liability insurance, absence of a commercial driving permit, and operation of an unclassified or substandard vehicle (Cervero, 2000). However, they have also been seen as modes accommodating variety of demands and uses, filling the gap where public transportation ends and go where public transportation is lacking.

Compared to formal public transport services, paratransit vehicles can be more accessible, faster, at times cheaper and reliable. The strong presence of informal transport in the cities indicates that the transport needs are not being met sufficiently by city governments through formal public transport services. Therefore, the gap between demand and supply is met by the informal transport providers. Beyond that, informal transport is also an essential source of income for many

people and in many cases, a part of larger economic interests (RITES, 1995).

Tricycles are taxi-like modes that rely on comparatively slow, light-weight vehicles that provide lower quality services than exclusive-ride taxis, albeit at considerably cheaper fares. In contrast to large vehicle services, they generally *complement* rather than *compete* with formal bus and rail systems (Cervero, 2000). Other certain attributes such as entrepreneurialism, small or ageing vehicles usage for operation, low performance service and high level of competition typical of paratransit modes are also peculiar to tricycle.

The Study Area

The study area comprises of the six local government areas that are referred to as the peri-urban or 'greater Ibadan' or the outer local governments. As at 2006, the six local government areas had a population of 1,267,350 (NBS, 2006). The sample locations for this study are from the peri-urban or the urban fringe of Ibadan as shown in Figure 1.

The fringes are locations between the urban core and the rural areas. They are identified by shortage of infrastructural facilities, inadequate health services and poor conformity to planning laws and regulations (particularly housing provision). Narain and Nischal (2007) observed that the peri-urban interface is heterogeneous and in constant transition. For instance, small farmers, informal settlers, industrial entrepreneurs and the urban middle class may all co-exist in the same territory, although with different and competing interests, practices and perceptions.

The Peri-urban areas are also locations of extensive agricultural and industrial activities.

Though the land use for these activities is rapidly losing its hold to residential land use because of the increasing rate at which people leave the city centre to spontaneously and haphazardly build houses at the peri-urban areas. In the urban fringe, pipe borne water is almost non-existent. The people in the peri-urban source their water from well, bore hole and streams. Electricity is epileptic because transformers are overloaded due to illegal connections.

In terms of road transportation, aside the main road that runs through this area, most of the roads are not tarred. These roads are earthen and can hardly accommodate more than one vehicle at a time. Streets are hardly provided with drainages and are regularly over flooded during the rainy season. Residents of this area commute several kilometers on a daily basis in order to access their livelihoods. In the morning, there is 'travel convergence', that is, movement towards the city centre from all peri-urban locations because of employment (jobs) as well as other opportunities that are only available at the centre of the city. This results in early morning extensive traffic congestion right from the outer ring to the inner part of the city. In the evening, there is 'travel divergence' in which case people travel back home from their daily engagements leading in most cases to traffic congestion at the outer ring of the city.

In the peri-urban area of Ibadan, the most common modes of public transportation in Ibadan are bus, taxi, motorcycle and tricycle. Most of the mini buses popularly called 'danfos' are extremely old. It is highly uncomfortable boarding minibuses in the study area. The passengers are sometimes squeezed together because of overloading.

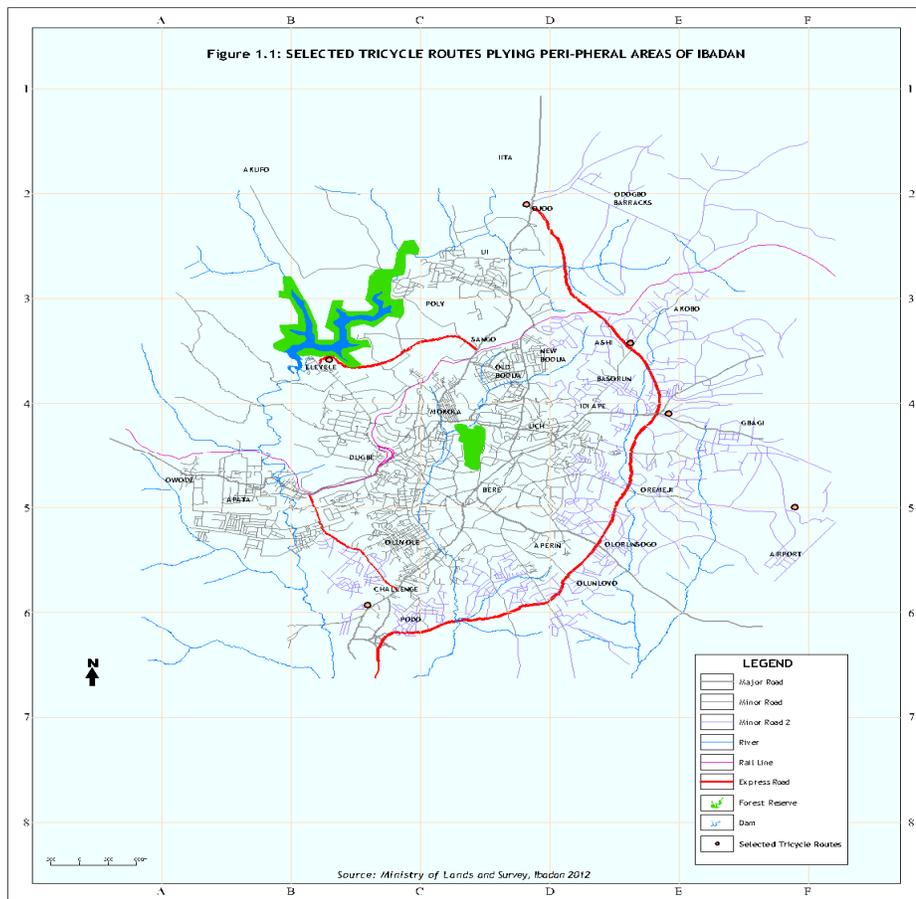


Fig 1: Selected Tricycle Major Loading Points in the Study Area.

Passengers may need to lap themselves before getting to their destinations. Some interior facilities such as horn may not be functioning. In fact, it is possible to see the carriageway through the floor of some minibuses because it has become rusted which has led to perforation. Furthermore, some of the minibuses have leaking roofs making them very uncomfortable for the passengers especially during the rainy season. Similarly, exterior facilities such as wipers, head lamp and trafficking light may not be functioning in some of the minibuses. Taxis popularly known as ‘micra’ (and kabukabu) are not different from mini bus in terms of operations and quality. The drivers drive carelessly with little or no regards for traffic rule. Some of them do not understand road signs and markings. They take unnecessary risk which in

some cases result in road crashes. Tricycle which made its debut in urban passenger transportation in the city recently is gradually gaining prominence. Current figure on the actual number of tricycle in the study area is difficult to come by but field observation indicated that the mode is growing fast. Motorcycle is by far the fastest and also the most flexible, but also the most dangerous means of getting around the city. Motorcycle is preferred to other modes because of its ability to weave in and out of traffic during grid locks. However, it is gradually losing its patronage to tricycle because of poor safety record of motorcycle.

Since the advent of three- wheelers, this means of transport has gained a lot of popularity, acceptability and patronage from

the commuters. It does not take too much time to load like bus because of few passengers it carries. Also, it is safer and more secured compared to commercial motorcycles.

Methodology

The study relied on qualitative and quantitative data that were sourced from both primary and secondary sources. The instruments used for primary data collection were questionnaire and In-Depth Interview. The questionnaire was administered to the operators of the tricycle. In the administration of the questionnaire, multi-stage sampling was adopted in which case; forty registered tricycle loading points (terminal) with the Three Wheelers' Association of Oyo State were first identified in the study area. Twenty five percent (10) of the loading points were selected based on the peculiarity of their location; nearness to major market, higher institution and prominent residential neighbourhoods. Twenty Five Percent (25%) of the registered tricycles operators were randomly selected from each loading point amounting to 147 operators. The operators are distributed in the six local governments as follows; Egbeda (19), Akinyele (26), Lagelu (20), Ido (27), Ona-Ara (24) and Oluyole (31) Information sourced from the operators included their socio-economic characteristics, mode of operations, trip characteristics as well as the challenges they faced among others. The In-Depth Interview was directed to the executives of the Three Wheelers' Association of Oyo State focusing on issues relating to registration of tricycles, dues and levies. Data were analyzed using descriptive statistics.

Results

The result of the study is presented under three headings namely the socio-economic

characteristics of the operators, the operation of the mode and their level of safety.

Socio-Economic Characteristics of the Operators

The socio-economic characteristics of the operators are presented in Table 1. All the operators across the selected areas were male. This implies that the operation of tricycle is not only male dominated but gender bias. The age distribution of the respondents indicated that 35.4% of them were between 18-25 years, 34.7% were between 26-35 years while 17.0% of the operators were between 36-45 years old. Only 1.4% and 2.7% of them were more than 60 years old and less than 18 years respectively.

In terms of the level of education, 2.7% had no formal education, 5.4% possessed primary school certificate while 65.3% were graduates of secondary school education. About 15% of the operators attended higher institution of learning. Majority of the respondents were married constituting about 65.9%, while a smaller proportion of 34.1% said they were not married. The daily income of the respondents indicated that more than half of the operators generated daily income of between N3001- 4000¹ while over one quarter of them had a daily income of more than N4000. The number of dependants, which is a reflection of their level of family responsibility, showed that about 23% of the operators had between 1-3 dependants, 45% had between 4-6 dependants and those tricycle operators with more than 6 dependants accounted for 32.1%.

Operational Characteristics of the Operators

The study investigated the reasons for driving tricycles as shown in Table 2. Over half of the operators were in the tricycle business because

of unemployment. 11.8% attributed the reason for driving tricycle to low income from primary job, 18.1% to business failure, 12.5% to family sustenance and 4.5% to the need to make quick savings.

Table 3 presents the different types of tricycle used for public transport service in the study area. It indicates that TVS is the most used tricycle for public transport accounting for 44.2%. Bajaj constituted 38.1%, Piaggio and Lincoln are 12.9% and 4.1% respectively. All the Bajaj have four stroke engines; 87.7% of the TVs used for operation also have four stroke engines while the remaining 12.3% of the TVs used by the operators have two stroke engines. Four strokes are more fuel efficient than two stroke engines. In fact, studies have shown that four stroke engines produce less smoke unlike two stroke engines that are known for high rate of environmental pollution (Manufacturers of Emission Controls Association, 2008).

The amount of fuel consumed by the operators is shown in Table 4. 21.8% of the operators consumed between 1 and 5 litres of fuel per day, 77.6% of the tricycles consumed between 6 to 10 litres and only 0.7% of the operators used between 11 and 15 litres of fuel daily. The amount of fuel used is a function of distance covered and the efficiency of the engine.

The number of trips made by the operators is a function of distance covered and the peculiarity of each route. Table 5 showed that 5.5% of the respondents made more than 5 trips per day, those running between 6 and 10 trips constituted 20.7% while operators making between 11 and 15 trips were 7.6%. About 2/3 of the operators made over 15 trips per day. Furthermore, more than 66% of the respondents covered between 1-5km per

day compared to 12.4% who covered between 11-16km every day (see table 5).

Overloading is a common phenomenon of this mode of transport. The design carrying capacity of this mode is two adults and a driver. Although, in most parts of the country tricycles carry 4 passengers and a driver, however, operators in the study area opined that they do not carry overload as shown in Table 6, because the tricycle Association's (Union) penalty for overloading is suspension. But field observation revealed that some operators carried more than stipulated passengers particularly during the rush hour and along educational institutions oriented corridors where pupils/students 'lap' themselves in order to save part of their transport fare and which on the part of the operators marginally increase their revenue.

Furthermore, just above half of the operators had fully registered their vehicles². Possession of driver's license is important to commercial transportation and very crucial to safety on the road. Only 35.4% of the respondents had a valid drivers' license. Driving experience indicated that only one-third of the respondents had previous driving experience before becoming tricycle operators and almost 70% of them started driving in the last 3 years. Also, more than 50% of the vehicles were owned by the operators through hire purchase business model.

The challenges facing the operators of tricycles in Ibadan peri-urban areas are presented in Table 7. About 39% of the respondents identified extortion from law enforcement agents as most important constraint confronting their activities. Lack of designated parking space and poor roads accounted for 29.7% and 17.9% respectively while unfavourable government policy was responsible for 10.3% and multiple levies constituted 3.5%.

Table 1: Socio-economic Characteristics of Respondents

Sex	Frequency	Percentage
Male	147	100
Female	Nil	00
Total	147	100
Age Distribution	Frequency	Percentage
Less than 18 years	4	2.7
18-25 years	52	35.4
26-35 years	51	34.7
36-45 years	25	17.0
46-60 years	13	8.8
Above 60 years	2	1.4
Total	147	100
Level of Education	Frequency	Percentage
No formal education	4	2.7
Primary education	8	5.4
Secondary education	96	65.3
NCE certificate	11	7.5
Polytechnic Diploma	21	14.3
University degree	7	4.8
Total	147	100
Marital Status	Frequency	Percentage
Married	97	65.9
Single	50	34.1
Total	147	100
Daily Income of the Operators	Frequency	Percentage
N1000-2000	14	9.5
N2001-3000	14	9.5
N3001-4000	79	53.8
Above N4000	40	27.2
Total	147	100
Number of Dependants	Frequency	Percentage
1-3	32	22.9
4-6	63	45
Above 6	45	32.1
Total	140	100

Source: Authors' Field Survey, 2012.

Table 2: Reason for Driving Tricycle

Reasons for Driving Tricycle	Frequency	Percentage
Unemployment	77	55.5
Low income from primary job	17	11.8
Business failure	26	18.1
Family sustenance	18	12.5
Quick savings	6	4.2
Total	144	100

Source: Field Survey, 2012.

Table 3: Tricycle Type and Engine Capacity

Tricycle Type	Frequency	Percentage	Engine Capacity	No of Tricycles	Percentage
Bajaj	56	38.1	Four Stroke	86	58.5
TVs	65	44.2	Two Stroke	61	41.5
Piaggio	19	12.9	Total	147	100
Lincoln	6	4.1			
Napep	1	0.7			
Total		100			

Source: Author's Field Survey, 2012

Table 4: Fuel Tank Capacity

Daily Fuel Consumption	Frequency	Percentage
1-5	32	21.8
6-10	114	77.6
11-15	1	0.7
Total	147	100

Source: Author's Field Survey, 2012.

Table 5: Trip Characteristics of the Operators

Number of Trips	Frequency	Percentage	Trip Length Covered (km)	Frequency	Percentage
1-5	8	5.5	1-5	96	66.2
6-10	30	20.7	6-10	31	21.4
11-15	11	7.6	11-15	18	12.4
Above15	96	66.2	Total	145	100
Total	145	100			

Source: Field Survey, 2012.

Table 6: Passengers carried, vehicle registration and drivers' license

Passengers carried	Frequency	%	Vehicle Registration	Frequency	%	Driver's License Possession	Frequency	%
3 Passengers	0	0	Yes	79	53.7	Yes	52	35.4
4 Passengers	140	97.9	No	68	46.3	No	95	64.6
5 Passengers	3	2.1	Total	147	100	Total	147	100
Total	143	100						

Source: Field Survey, 2012.

Table 7: Challenges Facing Tricycle Operators

Challenges Facing Operators	Frequency	%
Extortion from Law Enforcement Agents	56	38.6
Lack of designated Parking Space	43	29.7
Poor Roads	26	17.9
Unfavourable Government Policy on Procurement	15	10.3
Multiple Levies	5	3.5
Total	147	100

Source: Field Survey, 2012

Discussion

Tricycle operation in the study area is still at the rudimentary stage because this mode of public transportation was recently introduced into the urban transportation system in the sub-urban of the metropolis. The dominance of male in the operation of three wheelers is expected because of the nature of the mode of operation. Driving tricycle is energy sapping, arduous and labour intensive which many women do not have flare for. Similarly, it does not command respect from members of the public because those who engaged in it are erroneously considered as school drop outs. Similar study in Lagos found that the

industry was dominated by male (Adisa, 2012).

The age distribution of the respondents indicated that more than 70% of them were less than 35 years of age. Similar findings were reported in Sri Lanka and Abia (Kumarage, Bandara & Munasinghe, 2010; Nwaogbe, Ibe & Ukaegbul, 2012). The level of education has enormous implications on driving performance and road safety. With over 90% of the respondents had at least secondary education, it therefore implies, that most of them will be able to read and understand road signs and markings which are very critical to safety on the roads. Though, it does translate

to road safety. This result is more satisfying than studies in other climes where either half or less than 20% of the respondents had no more than primary education (Kumarage, Bandara & Munasinghe, 2010; Raji, 2012; Nwaogbe, Ibe & Ukaegbul, 2012).

The amount of income earned is very important because it partly indicates the level of comfort enjoyed. More than half of the respondents earned between N3001-4000 per day. This is in line with other studies in some parts of the country where the daily income level of three wheeler operators ranges from 3000 to N3,600. (Raji, 2012; and Kumarage, Bandara & Munasinghe, 2010). Further interaction with the respondents showed that part of the income is expended on the maintenance of the vehicle and fuel. They noted also that the income received is spent on family responsibilities such as schooling, rent and transportation among others. They were of the opinion that their income was not sustainable because according to them all the income is spent leaving little or nothing to be saved. Therefore, in the event of adversity (accident, sickness, sudden death of relations etc) they were always worse off. The daily income of tricycle drivers was higher than what commercial motorcyclists earned but lower than that of bus drivers.

The percentage of respondents forced by unemployment into the three wheeler industry is a reflection of the high level of unemployment in the country. This is compounded by their level of education as majority of the three wheelers possessed secondary education certificates which cannot be used to secure any meaningful and sustainable job in the country. Similar experiences have been reported among both commercial motorcyclists and commercial bus operators in the country (Ogunsanya and Galtima 1993; Okoko, 1998). The high level of unemployment portends a grave danger for country and can serve as a precursor for social menace or crisis in Nigerian cities. Furthermore, business failure and low income from primary job pushed some of the

operators into tricycle business. This is not surprising because further interview with the operators revealed that some of them primarily engaged in activities that require electricity (barbing salon, welding, electrical/electronics, furniture) but the resource is either epileptic or not available. This forced many of the operators into this business.

In terms of trip characteristics, the large number of trips made by the operators may not be unconnected with the short distances covered by most of them. The trip length covered by the operators indicated that 66.2% of them covered between 1 and 2km. The fare charged is a function of the trip length and is sometimes based on the power of negotiation of the passengers and level of acquaintances (familiarity). For instance, while the amount charged for each trip is between N60 and N80 naira, however, in places like Akobo-Olorunda, Ojoo-Arulogun and Eleyele - Ologuneru where the journey length is up to 6km or more the operators charge more. Also, passengers going to the same destination may sometimes pay different fare depending on the power of negotiation of each passenger. Furthermore, acquaintances such as friends and relations sometimes do not pay fares or pay less than other passengers.

Overloading³ was a major problem in this study. This is not peculiar to this mode of transport alone in Nigeria. Other modes have been found to carry more than stipulated passengers/weight in developing countries particularly in Nigeria (Pinard, 2010). The implications of overloading are grievous; it affects the maneuvering of the vehicle and at the same time increases wear and tear of the vehicle. This has repercussion on the safety of the vehicle and its occupants.

Just over half of the vehicles in this study were registered. Some of the operators who had not registered their vehicles complained of escalating price of registration and lack of time because several hours would have to be

devoted to it due to high level of bureaucracy involved. It follows, therefore, that some of the vehicles may not be road worthy. The implication is that such vehicles are liable to frequent breakdown (with its attendant economic loss to both operators and passengers) and are vulnerable to road crashes. Possession of driving license and year of driving experience are important components of road safety. With only few operators having driver's license and a high percentage of them had only driven in the last 3 years, it is obvious that it will have significant influence on their driving behaviour and safety on the road. Some of the operators may not have gone through the required process of obtaining a license. Similarly, the fact that most of them do not possess a valid drivers' license implies that they may have learnt the art of driving through a friend or acquaintances. Studies have shown a positive relationship between possession of valid driver's license and traffic safety (McKnight and Peck, 2003).

Extortion from law enforcement agents was the most important challenges confronting the three-wheeler tricycle operators. This is not limited to this mode as similar findings have been widely documented in other modes in developing countries (SSATP, 2014). There is no parking provision for tricycles because their activities are not yet incorporated into urban transportation planning in the country. Therefore, they park haphazardly on the road shoulders, at junctions (blocking entrance) and on the carriageway. This is dangerous for the operators of tricycles and other road users. Poor Parking (particularly on-street parking) is a major problem created by public transport in developing countries especially in Nigeria (Aderamo, 2012). Road deterioration is a hallmark of the Nigerian road transport system. Generally, roads are poor in the country and this has implications on the socio-economic development of the country (Ipingbemi, 2014). Therefore, it is not surprising that the operations of the three wheelers were hampered by poor roads.

Recommendations and Conclusion

Given the extensive use of tricycle as a public transport mode in the study area, it is imperative for the industry to be properly regulated in order to continue to offer smooth, safe and reliable transport to the residents. First, tricycle operations should be incorporated into urban transportation planning in Nigeria given the potentialities of this mode of transport. To this end, government must provide designated parking for them so as to make them more functional and efficient. The proposed Ibadan Master Plan should make provision for designated parking of tricycles.

In addition, both the government and tricycle union should mete out appropriate sanctions against overloading. Any operator caught should either be levied or be suspended for a minimum of one month to serve as a deterrent to others. Also, all levels of government and the union should harmonize their taxes so as to relieve the operators of multiple taxes.

Furthermore, there should be adequate penalty for any law enforcement agent caught extorting money from tricycle operators. Such law enforcement agent should be arrested, prosecuted and if found guilty jailed. They could also be demoted in their place of work and dismissed outrightly. If all these suggestions are taken seriously, it will improve tricycle operations in Nigeria cities in general and Ibadan in particular thereby helping to advance the contribution of the mode to urban public transportation in the city.

End Note

- 1 1US\$= N160
- 2 Fully registered – road worthiness, proof of ownership, Hackney Permit, Insurance and vehicle license.
- 3 According to the Kenya National Highway Authority, not only are overloaded trucks one of the main reasons behind the deteriorating road

network but they are also responsible for increases in the number of accidents involving both passengers and pedestrians. This is emphasized by the National Road Safety

Authority, which says that overloaded trucks are more difficult to steer, less stable and take longer to stop.

References

- Aderamo, A.J., 2012. 'Urban Transportation problems and challenges in Nigeria: A Planner's View' *Prime Research on Education* Vol 2 (3) 198-203.
- Kumarage, A. S., Bandara M., & Munasinghe, D. 2010. Analysis of the economic and social parameters of the Three Wheeler Taxi service in Sri Lanka". *Research in Transportation Economics* 29: 395-400
- Barau, L 2003. Suitability of tricycles as a passengers transport in Kano metropolis. An unpublished Post Graduate Diploma in Transport Planning, Transport School, NITT, Zaria.
- Barret, R. 1985. Nigeria urban transport crisis. *A paper presented at an International Workshop on development of long term perspective plan for urban mass transit system in Nigeria.* Organized by the Centre for Management Development Lagos in collaboration with FUMTA Lagos held at the Sheraton Hotel Abuja 7-9.
- Cervero, R. 2000. Informal Transport in the Developing World. Nairobi: United Nations Centre for Human Settlements (UNHabitat).
- Dike, D.N. 2012. An empirical study of the use of tricycle as a public transport mode in Nigerian cities. *Journal of Social Sciences and Public Affairs.* 2 (2), 66-76.
- Fadare O, and Salami B. (2004). Telephone uses and the travel behavior of residents in Osogbo, Nigeria: an empirical analysis, *J. Transp.Geogr.* 12:159-164.
- Hilling, D. 1996. *Intermediate public transport in transport and developing countries.* New York: Routledge.
- Ipingbemi, O. 2014. Implications of Road Deterioration in Nigeria. Paper presented at the SARF/IRF 5th Regional Conference for Africa. 2-4th September, Tshwane, South Africa (e-proceedings).
- Kumar, A. 2011. Understanding the emerging role of Motorcycles in African Cities: A Political economy perspective. SSATP Discussion paper No 13. IBRD/The World Bank.
- McCormick, D., Mitullah, W., Chitere, P., Orero, R., & Ommeh, M. 2013. Paratransit Business Strategies: A bird's eye view of Matatus in Nairobi. *Journal of Public Transportation*, 16(2) 135-152.
- McKnight, A.J. and Peck, R. 2003. 'Graduated Licensing and Safer Driving' *Journal of Safety Research* 34, 85-89
- Narain V. & Nischal, S. 2007 'The Peri-Urban Interface in Sharhpur Khurd and Karnera, India' *environment and Urbanization* Vol 19 (1) pg 261-273.
- National Bureau of Statistics (NBS) 2006. 2006 Nigeria population census. Retrieved online from www.nigerianstat.gov.ng on 17 October, 2007.
- Nwaogbe, O.R., Ibe, C.C. & Ukaegbu, S.I. 2012. Quality of the paratransit service (tricycle) and its operation in Aba, Nigeria: An analysis of customers' opinions. *Journal of*

- Transport and Supply Chain Management, 2(2), 262-276.
- Ogunsanya, A.A & M. Galtima 1993. "Motorcycle in Public Passenger Transport Services in Nigeria: Case Study of Yola Town" S.G. Ikya (ed). *Urban Passenger Transportation in Nigeria* Ibadan: Heinemann Educational Books: pp 190-207.
- Okoko, E. 1998. The demand for Para-transit Transport Services in Nigerian Town: The case of Motorcycle Transport in Akure. *Journal of Transport Studies*. 2(1) 4-14.
- Oluwadiya, K.S., Kolawole, I.K., Adegbehingbe, O.O., Olasinde, A.A., Agodirin, O., & Uwaezuoke, S.C. 2009. 'Motorcycle characteristics in Nigeria: Implications for control *accident analysis and prevention*, 41: 294-298.
- Pinard, M.I. 2010. Guideline on vehicle overload control in Eastern and Southern Africa' SSATP Working Paper No 90. IBRD/ The World Bank.
- Raji, B.A. 2012. Appraisal of auto-rickshaw as poverty alleviation strategy in Nigeria: An example of Lagos Metropolis. *European Journal of Humanities and Social Science*. 15(1), 737-755.
- RITES. 1995. Traffic and Transportation Policies and Strategies in Urban Areas in India- Traffic and Travel Surveys and Analysis (Final Report), New Delhi
- Saleh, M. 2011. An assessment of effectiveness of tricycle as a mode of urban transportation in Kano Metropolis, Nigeria. Unpublished MSc. Project. Dept. of Urban & Regional Planning, Ahmadu Bello University, Zaria.
- Sangowawa, A.O., Alagh, B.I., Ukanem, S.E.U., Ebong, I.P., Fasem, B., Adekunle, B.T. & O.Uchendu 2010. An observational study of seatbelt use among vehicle occupants in Nigeria? *Injury Prevention*, 16: 85-89.
- Shimazaki, T. & Rahman, M. 2005. Physical characteristics of paratransit in developing countries of Asia. *Journal of Advance Transportation*, 30 (2) 1-17
- SSATP 2014. Overload trucks are bad for business and are a road safety hazard-Transport industry advocates for self regulation? *SSATP Newsletter* April pg 8.
- Tunji, A 2010. Bikability In metropolitan Lagos: A conceptualization of eco friendly transportation Alternative REAL CORP 2010 Proceedings/Tagungsband Vienna, 18-20 May 2010.
- Vuchic, R.V. 1981. *Urban Public Transportation*. McGraw- Hill: New Jersey.