



Research Article

Effect of Keke Napep (Tricycle) On Last Mile Transportation of Commuters in Ojo Local Government Area of Lagos, Nigeria

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Abstract: Last mile transportation is the movement of people and goods from a transportation hub to a final destination in the home or final location. In an effort to enhance last mile transportation of both goods and commuters has resulted in several investment in public transportation business, which has however become another source of problem in towns and cities. This research is however aimed at analysing the Effect of Keke Napep (Tricycle) on last mile transportation of commuters in Ojo local Government area of Lagos, in order to determine the tricycle acceptance by commuters in the area, which will also enable the researcher analyse the significance on commuters last mile transportation and the danger it pose to the commuters, which will enable the researcher make recommendations. Three hypotheses were postulated for the research, chi-square statistical tool was adopted for the first and second hypotheses which enable the researcher test the impact of tricycle on commuters last mile transportation in the area and commuters acceptance of tricycle in the study area while regression was used for the third hypothesis in order to test the relationship between commuting distance and cost. The research thus recommended the tricycle operators should avoid overloading, innovation such as the introduction of seat belt and door to prevent passengers fall off in the event of accident, sensitization of the motorcycle operators, provision of parking space and the tricycle operators should maintain a stable charging system and curtail multiple levies.

Keywords: Keke Napep (Tricycle), Transportation, Commuters, Last mile.

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INTRODUCTION

Transportation plays significant role in the socio-economic development of a nation, it is essential in passengers transportation which caters for the movement of people for different human activities. The more the population of a city increases the more complex the transportation system and difficult to satisfy commuters, as the commuter begins to spend unnecessary longer time in their bid to commute to their destinations, while businesses suffer, school children get to school late, workers get late to work and several activities are paralyzed as a result of constant traffic gridlock. Last mile transportation is however the transportation or movement of people and goods from a transportation hub to a final destination, at the long run it affects the general economic condition of the people and the nation gross domestic product. It is against this background both individual and the government have made rigorous effort to address traffic congestion in the towns and cities (Dankani, 2015).

In recent times, the importance of tricycle in urban transportation cannot be over emphasized due to the inefficiencies in the operation of the formal public transport services to meet the travel demand of fast growing population (Ukaegbu, 2012; Mukhtar., Waziri, Abudulsalam and Dankani, 2015), particularly the last mile travellers where their roads are

inaccessible by corporate transportation system due to poor state of the road thereby leaving the motorcycle and tricycle as an only option if it is not a walking distance. The acceptance of tricycle as an alternative mode of transportation in the developing countries particularly in Nigeria arose due to its flexibility and door to door services for urban commuters; it provides employment opportunity for the operators who could otherwise be unemployed, thereby linking neighbourhoods and trunk routes (Obioma, Nwaogbe and Ukaegbu, 2012).

Research in Nigeria reveals the use of tricycle has helped in the alleviation of poverty for many unemployed youths and also provides jobs for road side mechanics and vulcanizers (Mohammed, 2011; Mukhtar et.al, 2015). Tricycle ply both secondary and primary route in countries where they are in operation and called by different names in various countries. For instance, it is called HABAL-HABAL in Philippine (Guillen and Ishida, 2004) AUTO-RICKSHAWS in India (Cooper, 2013), and KEKE NAPEP in Nigeria (Mukhtar, Waziri, Abudulsalam and Dankani, 2015). An evaluation of the composition of transport flow in Sri Lanka reveals that approximately 300,000 tricycles ply intra-city roads in the country. The figure comprises of 15% of the total active motor vehicle fleet and approximately 6% of the country passengers' kilometre trips (Kumarage; Bandara and Munasinghe, 2010).

In spite of the significant importance of tricycle in the transportation of commuters transportation over the world, its operation constitute serious health hazard because majority of the tricycles engines are faulty thereby emitting carbon in our environment (Cooper, 2013). Traffic congestion and frequent accidents involving the tricycle and other road users are major impediment to achieve a sustainable urban mobility (Bandzar; Vats; Gupta, Atallah, and Pitts, 2015).

An assessment of the challenges and opportunities for sustainable urban mobility carried out in 'Nyamakima area of Nairobi, Kenya in 2013, Angira affirms that sustainable urban transportation requires efficient, equitable and environmentally sensitive transportation system which makes it sensitive to political, social and environmental constrains. It implies that in order to achieve a sustainable transportation development in any environment, mode of transportation should operate on dedicated routes, tricycle should operate on feeder routes or secondary roads because the low speed tricycles are prone to road crash on heavy traffic route most especially on primary roads (Guillen, and Ishida, 2004).

Yuri (2000) also contested that a sustainable transport infrastructure must be able to meet the mobility and accessibility needs of the people by providing an environmentally friendly and safe mode of transportation. In some developing countries of the world, especially in Philippine, the introduction of electric tricycle in the early part of 2012 as a means of improving the quality of air by reducing emissions locally with a view to achieving a sustainable transportation for urban mobility has promoted healthy environment (Cooper, 2013).

The use of electric tricycle has not been introduced in Nigeria urban transportation because the necessary machinery has not been put in place thereby prompting the use of gasoline by the tricycle operators. An overview of researches on tricycle as a mode of public transportation system in Nigeria focuses on its relevance as a means of provision of travel demand for the urban commuters and alleviation of poverty among the youth through job creation (Obioma; Nwaogbe and Ukaegbu, 2012; Mukhtar, Waziri, Abudulsalam and Dankani, 2015;). It is pertinent to note that none of the researcher identifies the significant role of the tricycle for last mile transportation among the commuters. This research aim to analyse the Effect of Keke napep (Tricycle) on last mile transportation of commuters in Ojo local Government area of Lagos, to achieve the aim the

Following Objective Shall Be Adopted:

1. To determine commuters acceptance and perception on tricycle operations in the area
2. To analyse the significance impact of tricycle on commuters last mile transportation in the area
3. To examine if there is relationship between commuting distance and cost
4. To examine if the transportation system pose danger on the commuters in the area
5. To recommend ways of improving the services of tricycle in the area.

Research Questions

1. What is commuter's acceptance and perception on tricycle operations in the area?
2. Does tricycle have impact on commuter's last mile transportation in the area?
3. Does relationship exist between commuting distance and cost?
4. Does the transportation system pose danger on commuters in the area?
5. What are ways of improving the service of tricycle in the area?

Research Hypotheses

H₀ 1: Does tricycle have impact on commuter's last mile transportation in the area

H₀ 2: There is no commuter's acceptance of tricycle in the area

H₀ 3: No relationship exists between commuting distance and cost

RESEARCH PROBLEMS

Since the introduction of the tricycle into the Nigeria transportation system for commercial passenger service, there have several challenges bedevilling the operation of the Keke in Nigeria, which has raised several opinion both from government and individual which are centered on its operation and safety of the commuters, meanwhile its significant impact on last mile travelling cannot be overemphasized, which thus makes some state government claim it is the best thing that has happened to the transportation system since its introduction in the country, as some commuters prefer it to motorcycle because it is considered more safer to motorcycle, some prefer the tricycle to the conventional taxi because it is less expensive and its ability to access bad roads where convention vehicle could not shuttle, whereas others sees it as a monster on the road as some of the driver has been seen severally competing on the road with conventional vehicle, which sometimes leads to accident, which may sometimes be catastrophic, another school of thought sees it as not befitting to a modern society.

The Study Area

Lagos State is one of the 36 States in the Federal Republic of Nigeria. Lagos State is located in the South-western part of Nigeria. It lies approximately between longitude 2°42'E and 3°42'E and latitude 6°22'N and 6°52'N. The Atlantic coastline of about 180km formed the boundary at the south, to the west it is bounded by Benin republic while it is bounded in the northern and eastern part by Ogun State. However, the location for the study areas is Ojo Local Government. Ojo Local Government Area in Lagos Nigeria is located at 6 28 N 3011 E, the area is bounded to the south by Iyagbe and Ikum-Ibese. To the West is Agbara and Badagry. To the East is satellite and Fastac town and to the north is Igando and Ejigbo. The area bears some of the most recognized areas in Nigeria and beyond like the ancient Lagos Badagry expressway, Lagos State University and the Military Cantonment Barracks (the Largest in Africa). Due to the closeness of the area to the ocean, the area enjoys coastal weather conditions.

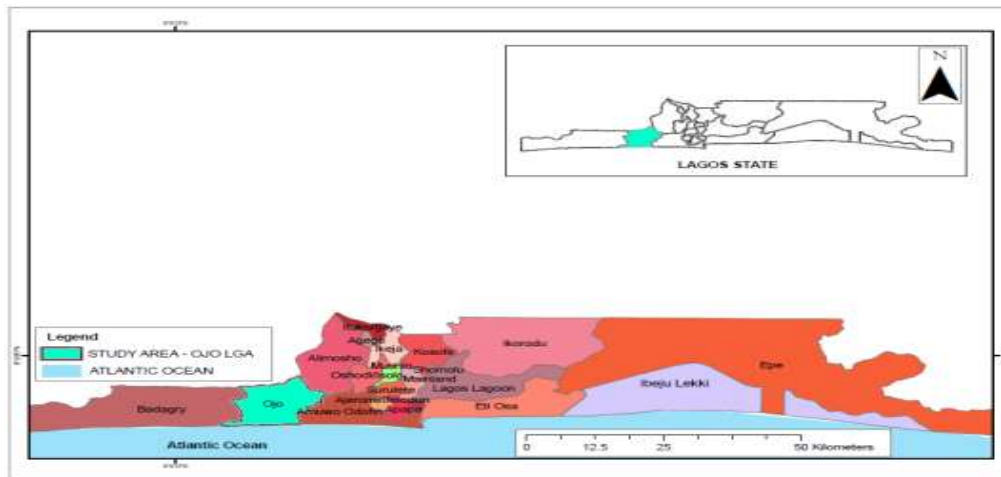


Figure 1: Insert of Ojo in Lagos State Map
Source: GIS Laboratory, Lagos State University, Ojo

LITERATURE REVIEW

Many state governments established mass transit outfits as a conscious effort to complement the services of the private transporters. Yet much is left to be desired in the provision of transport services. The situation came to a point that people started investing on private automobile as a way to seeking for a solution to the problem of transportation. This last step only succeeded in worsening the situation as traffic congestion became another source of problem in towns and cities. Although many people could not afford the private car, interest went towards the motorcycle while later became very fashionable as soon as people noticed that it enjoyed faster access of the roads. It came to a level that even those who had cars were attracted to own motorcycles because of the freedom of way the motorcycle controlled. This led to an unprecedented surge in the number of motorcycles in the cities and an uncontrollable case of traffic accidents. The traffic system became chaotic and a nightmare.

As a result of the foregoing experiences, some state governments placed a ban on the use of the motorcycle in their state capitals and quickly substituted it with the tricycle. Some state governments even went to the extent of floating the tricycle in fulfilment of government pledge to bridge the gap caused by the ban on motorcycle. As soon as this happened, virtually all those who were into commercial motorcycle transport, and many others who were unemployed went into tricycle transport business. This helped in creating jobs for the teaming unemployed Nigerians. Today, the tricycle has gained ground in our towns and cities, and has become another mode of transport on its own unique class. Its presence is gradually penetrating the rural areas and may turn out to become the private car of tomorrow especially in the third-world countries such as Nigeria

Background of Tricycle (Keke Napep) In Nigeria

The history of Keke as a means of commercial transportation in Nigeria is directly traced to the government of Mohammed Buba Marwa, who was the military Governor of Lagos State from 1996 to 1999. He first launched the use of tricycle as a means of commercial transportation in Lagos. This led to the name Keke Marwa, which commercial tricycle is still referred to in Lagos till date. Equally, the word Keke is directly derived from Yoruba, the dominant indigenous language in Lagos. However, the popularity of Keke across the nation can be attributed to National Poverty Eradication Programme NAPEP, which was inaugurated under the administration of President Olusegun Obasanjo to alleviate poverty and provide economic empowerment to the people. Thus, the name Keke NAPEP gained popularity across Nigeria. NAPEP in 2001 launched and distributed two thousand units of green colour tricycles with the inscription Keke NAPEP as a commercial means of transportation in the Federal Capital

Territory FCT Abuja. This was to serve as a strategy to convert area boys from idlers to a productive workforce. According to NAPEP, the justifications for the distribution of Keke nationwide include

1. To ensure mass gainful employment for the idle workforce;
2. To sustain wealth creation;
3. To provide affordable mass transit services;
4. To provide an opportunity for the growth of other ancillary services such as vending, portal water, mobile food canteens, mobile grocery shops, post-delivery, etc.
5. To facilitate technical entrepreneurs and related small businesses that will, in turn, facilitate the transfer of technology;
6. To facilitate other subsidiary businesses such as the sale of tricycle spare parts, operators, mechanics and building of local contents, among others.

Again, in 2004, five thousand units of tricycles were distributed to the thirty-six states of the federation to further ensure the actualization of the set objectives (Source: NAPEP web site <http://www.napepnigeria.org/programmes/theKEKENAPEPproject>). However, NAPEP is not the only source of Keke in Nigeria. After the distribution of Keke NAPEP to several parts of the country, businessmen and other individuals in Nigeria began to import, buy, sell and operate Keke as a means of intra-city commercial transportation in several cities in Nigeria.

Keke is imported from India, in particular, the yellow colour brand from Bajaj Group. At inception the cost of Keke in Nigeria is between three hundred and fifty thousand to four hundred thousand naira, but currently due to inflation and exchange rate, it is currently between six hundred and fifty to seven fifty thousand. One significant factor that led to the proliferation of Keke in Nigeria is the ban on motorbikes, popularly known as Okada, as a means of commercial transportation in several cities in Nigeria, especially in most of the cities in the South-eastern states such as Aba and Umuahia in Abia State, Owerri in Imo State, Uyo in Akwa Ibom State, Port Harcourt in Rivers State, among others. Several state governments, at different times, banned the use of motorbikes as a means of commercial transportation in major cities in their states as their operators were allegedly collaborating with criminals to perpetrate crimes in the states. For instance, the wave of kidnapping which hit Abia State from 2009 to 2011 was allegedly facilitated by Okada operators, who served to provide a fast means of escape for the criminals, consequently, the ban on commercial motorbikes. With the ban, the workforce that was engaged in this sector of the economy was thrown into the loss of a source of income and consequently to poverty and depression. Some recalcitrant ones who dared to defy the government by

operating their bikes had their means of livelihood confiscated and some had to suffer other punitive measures apart from the confiscation of their motorbikes. The consequences on the ones who could not readily find other sources of income were abject poverty and despondency.

With the ban on Okada and the paucity of other means of intra-city transportation, people began to import and use different types of a tricycle as a veritable means of commercial transportation. The disengaged workforce moved into this business. But, before the proliferation, there was some form of an attempt to locally manufacture a tricycle by constructing a third wheel to a motorbike, more like an attempt to convert a motorbike to a tricycle; local engineering of Keke. This innovation could not stand as the technicians lacked the necessary raw material and expertise. The locally constructed tricycles could not serve the purpose. It was evident that former operators of Okada did not have the money to purchase Keke which involved a substantial capital, hence other entrepreneurs and microcredit firms began to invest in the business. Those who had resources bought Keke and gave to some of the former commercial motorbike operators on hire purchase. Legal agreements were drafted and signed. The hitherto idle workforce went back to business again.

The prospects and profit in the business soon attracted several other investors and this led to a boom in Keke business. Statistics from Abia Ministry of Transport (Tricycle Unit) shows that there are over 20,000 registered Keke in Aba metropolis excluding those belonging to recalcitrant citizens; in particular, those in the suburban areas who refuse to comply with the government directive of compulsory registration of tricycles. The boom in the business gave rise to other subsidiary businesses such as the administrative officers, ticket officers, the union officials, the importers, the spare parts dealers, the technicians, and all other subsidiary services associated with the business. From the statistics, one could assert that about 40,000 people, a significant percentage of the national economy is involved in this business in one city or the other.

Transportation and Urbanization

Human activities are surrounded by mobility; the need to transport from one location to another cannot be overemphasized. Urbanization is, therefore, the reflection of unprecedented population growth in the cities which allow an increasing proportion of the people to live in town and cities. Ajayi, 2015 attributed the numerical increase of cities and urban centres in Nigeria to 5 basic factors:

- a) The continuous geopolitical restructuring of the country through the creation of states and local governments in 1967, 1976, 1987, 1991 and 1996;
- b) The industrialization process between 1960 and 1975;
- c) The categorization of settlements into hierarchical order of townships.

According to the International Herald Tribune (2008) the "United Nations reveals that by the end of 2008 half of the world's population will live in the urban area, especially in the developing countries such as Nigeria, where little or no employment opportunity is available in the rural settlement, and where everybody migrate to the city seek other advantages such as employment opportunity to earn higher income, better health care, and security such as potable drinking water, electricity, good roads and housing. Therefore, urbanization can be linked closely to modernization, industrialization and sociological process of rationalization (Ankeri, 1986). The more people leave villages to reside in the cities this enhances urban growth.

It, therefore, explains the need for serious investment in the transportation sector. Consequently, the adoption of a tricycle in replacement of the motorcycle in our cities has helped in addressing the problem of urban mobility created by constant urban population growth; meanwhile it also assists in job creation for the urban growing unemployed youths.

Tricycle in a Contemporary World

The tricycles are a powerful vehicle designed with a diesel engine, with a fuel tank capacity of 10.5 litres, and they have a passenger capacity of three to four people and payload capacity of 320kg. They also have adequate space for passenger luggage at the back and speed up to 80km per hour. The vehicle is basically suitable for intra-city commuting and commercial passenger having a low fuel consumption of 38km per litre. There is now petrol engine tricycle, with lower noise and lesser vibration, they are however smaller in capacity than the diesel counterparts, and it also produces cleaner exhaust fumes than the diesel engine tricycle.

The tricycle or the three-wheeler as some may call it assumes different names in most countries over the world, such as auto rickshaw, tuk-tuk, trishaw, auto rickshaw, autorick, Bajaj, rick, tricycle, motor taxi or baby taxi in popular parlance is a potable kind of motor vehicle which is used on the road as a mode of transportation for either private or commercial use as the case may be, it can be used for passengers or for deliveries. It is a motorized version of the traditional rickshaw or *relotaxi*, a small three-wheeled cart operated by a single individual, and is a three-wheeled cabin cycle.

Tricycles are found in many developing and developed countries of the world. A tricycle is characterized by a sheet body or open frame resting on three wheels, a canvas roof with drop-down sides, a small cabin in the front of the vehicle for the driver, and seating space for three passengers in the rear, but in Nigeria today you will see passenger sitting by the driver side in order for the driver to make more money. It is generally fitted with an air-cooled motorcycle engine; handle-bar control is fitted instead of a steering wheel. Human-powered tricycle is usually controlled with the use of pedals, although some models have hand cranks.

Different modes of transport are available for urban commuters. These include taxi, city buses, trolleybuses, tram (light rail), passenger train, rapid transit, ferries, motorcycle and tricycle. The last two categories are the means of transport in developing countries designed to fill a gap created as a result of insufficient investment in urban transportation (Guillen and Ishida 2004 and Cervero, 2000).

The main objective of any transport policy at a global level is to achieve sustainable transport development. Sustainable transportation system connotes providing transportation needs that are economically viable, socially acceptable to meet safety and minimize consumption of non-renewable energy (Srinivas, 2015). In a nutshell, these three concepts- economic, environmental and social system must be interconnected to achieve sustainable transport. This implies that transport services must be environmental friendly in such a way that the environment is not polluted with toxic substances emitted from exhaust pipes. Angira (2013) recommended walking and cycling as techniques for achieving sustainable urban transportation because cycling and walking do not make use of fuel. Within the perspective of an ecological, economic and social framework as proposed by Srinivas, in 2015, sustainable transport can be achieved through climate mitigation, energy efficient mode and urban planning through zoning techniques to reduce vehicular traffic.

In an assessment of the environmental effects of tricycle for urban transportation in the Manila area in Philippine, Cooper (2013) reported that tricycles were a source of air pollution and health hazards, according to him, a gasoline-powered tricycle release over 10million tons of Carbon-monoxide (CO₂) and caused more than 4,000 air pollution-related deaths on a yearly basis in the city. The Asian Development Bank as cited in Cooper (2013), estimates that for every 20,000 electric tricycles introduced to the city of Manila, the country saves 100,000 litres of fuel daily. This amounts to a savings of more than US\$ 35 million annually. In addition, the introduction of electric tricycle

for urban transportation may likely reduce the emission of toxic substances into the atmosphere by 54%. Despite the disadvantages of fuel-powered tricycle such as emission of toxic substances, low carry capacity and advantages of an electric tricycle as highlighted above, it is yet to be introduced as a mode of transportation in urban centres in Nigeria.

Environmental Implications of Tricycles

Vehicles are one of the dominant sources of urban pollution in the developing world that threatens both people’s health and economic activity (Asian Development Bank, 2005). Tricycles make up a sizeable number of vehicles in Nigeria and mostly have 2-stroke engines emitting fine particulate matter, which pose danger to public health. Epidemiological studies reveal that fine particles have serious health effects including premature mortality and such non-fatal effects as respiratory symptoms, exacerbation of asthma, and change in lung function (Kojima, 2000). Biona *et al.*, (2008) did a preliminary analysis on the fuel use and emission reduction potential of incorporating hybrid systems to two-stroke powered tricycles in Metro Manila, Philippines; it was discovered that 4-stroke provided the highest global warming potential when compared to carburetted 2-stroke, carburetted-hybrid 2-stroke, and direct-hybrid 2-stroke. This could be traced to the high methane and CO2 from these vehicles. 4-stroke tricycles also have the highest acidification potential (NOx production) when compared to the rest. However, 4-stroke tricycle provides the lowest human health impact compared to their hybridized carburetted 2-stroke counterparts due to its lower nmVOC, PM and CO emissions. Another source of environmental pollution to be discussed is the diesel engine; according to Lloyd (2002), the environmental impact includes acidification potential (sources of NOx production), soil and water pollution. Diesel engines generally release less carbon dioxide—the heat-trapping gas primarily responsible for global warming—from the tailpipe. So that’s a check on the good side of the pollution chart. But when it comes to smog-forming pollutants and toxic particulate matter, also known as soot, today’s diesel is still a lot dirtier than the average gasoline car (Monahan and Friedman, 2005). Soot is in three size category (large soot, coarse soot and Fine soot) particles and they harm the body causing chronic bronchitis, asthma, reduced ability of the respiratory system to fight infections and remove foreign particles, and cancer (Monahan and Friedman, 2005).

ADB (2005) also reports Ozone as a secondary pollutant caused by tricycles; it is not directly emitted but it is produced by a reaction involving volatile organic compounds (VOCs) and NOx, the ozone precursors in the presence of sunlight form ozone. Ozone is a highly reactive gas that affects the respiratory system by severely irritating the mucous membrane of the nose and the throat. Since 90% of the ozone breathed into the air is never exhaled, ozone molecules react with sensitive lung tissue to cause several health consequences. Another often unpopular source of pollution from tricycle is noise (unwanted sound); the World Health Organization suggests that noise can affect the human health and well-being in a number of ways, including annoyance reaction, sleep disturbance, interference with communication, performance effects, effect on social behaviour and hearing loss (ADB, 2005). Noise can cause annoyance and frustration as a result of interference, interruption and distraction. People experiencing high noise level differ from those with less noise exposure in terms of increased number of headaches, greater susceptibility to a minor accident, increased reliance on sedative and sleeping pills, and increased mental hospital admission rate. Exposure to noise is also associated with a range of possible physical effect including cold; change in blood pressure, other cardiovascular changes, problems with digestive systems and general fatigue. Further, there is fairly consistent evidence that prolonged exposure to noise levels at or above 80 decibels (dB) can cause deafness (ADB, 2005).

RESEARCH METHODOLOGY

Primary and secondary data was utilized in this work. Primary data was collected using various methods, including personal observation series of photographs were taken, structured survey questionnaires, while Secondary data were obtained from government publications, journals, maps, unpublished research works and useful websites on a tricycle. The sample size of the research comprised of two hundred (200) respondents from Ojo local Government area in Lagos. The questionnaire was randomly distributed among the tricycle commuters, which was distributed to them at the park, they were properly guided to aid the filling and collected at the spot, the properly filled questionnaire was retrieved, converged, analysed and used for the analysis.

The questionnaire was constructed by the researcher aimed at providing answers to some of the research questions, the participants were asked to furnish information with regards to their gender, educational level, age, marital status, monthly income, size of household which are categorized as demographic characteristics of the respondents and the second section was aimed at providing answers to earlier formulated research questions, in order to test the formulated hypotheses.

The data collected was sorted out in order to identify the ones that were not correctly filled, which may cause incompetence on the part of the researcher. The data were analyzed based on the questionnaire computed for the research work, the research questions were analyzed using statistical software, called Statistical Package for Social Sciences (SPSS). Afterwards, these hypotheses were tested using appropriate tools.

Research Findings

For the purpose of this research, two hundred (200) questionnaires were distributed to the respondents at various tricycle parks to those commuters embarking and disembarking from the tricycle, the respondents were properly guided on the filling of the questionnaire and collected immediately. The instrument was scrutinized, coded and inputted for the purpose of the research, the table that elucidates each research variable are converged in the table below.

Table 4.1: Demographic Characteristics

| Variable | Frequency | Percentage |
|------------------------|-----------|------------|
| Age | | |
| Below 18 years | 10 | 5.0 |
| 18-25 years | 150 | 75.0 |
| 26-35 years | 20 | 10.0 |
| 36-45 years | 20 | 10.0 |
| Total | 200 | 100.0 |
| Sex | | |
| Male | 60 | 30.0 |
| Female | 140 | 70.0 |
| Total | 200 | 100.0 |
| Marital Status | | |
| Single | 151 | 75.5 |
| Married | 27 | 13.5 |
| Divorced | 11 | 5.5 |
| 5.00 | 11 | 5.5 |
| Total | 200 | 100.0 |
| Education level | | |
| WAEC | 10 | 5.0 |
| OND HND/ BSC | 120 | 60.0 |
| Post Graduate/M.Sc. | 70 | 35.0 |
| Total | 200 | 100.0 |
| Occupation | | |
| Business | 70 | 35.0 |
| Trading | 10 | 5.0 |
| Civil servant | 30 | 15.0 |
| Student | 90 | 45.0 |
| Total | 200 | 100.0 |

Source: Field work, 2019

The research reveals the following, the age of the respondents are as follows, 5% are below 18 years, 75% are between 18-25 years, 10% are between 26-35 years, 10% are between 36-45 years respectively, it reveals larger percentage of respondents between 18-25 years, 30% of the respondents are male while 70% are female, the research reveals larger percentage of female respondents, 70.5% of the respondents are single, 12.5% are married, 8% are divorced while 9% are widow/widower, the sample area is dominated by single respondents, 5% possesses WAEC certificate, 60% possesses OND/HND/B.Sc and 35% possesses Post Graduate/M.Sc respectively, the result reveals more of OND/ HND/ BSC respondents, 35% of the respondents are into business, 5% are into trading, 15% is a civil servant, 45% are students, the study area is dominated by the student as represented with table 4.1 above.

The research reveals if the respondents have a personal means of transportation, 39% have while 61% do not have, the research reveals the purpose of respondents trip, 45% of the respondents are embarking on a business trip, 15% are going to the office, 25% are going for visitation, 10% are on a personal trip, while 5% are students going to school, it also reveals how frequent they use tricycle for their trip, 15% once a week, 20% twice a week, 30% more than twice a week, while 35% every day, the research reveals the majority embark on their trip every day, it also reveals if the respondents have to wait for long before they get tricycle, 45% said yes while 55% said no, as tricycle are usually available, the research reveals the commuters commute for less than 50km, 40% commute between 50-100km, 10% commute for over 100km, the research reveals the majority of the respondents commute for just short distances of less than 50km, where 75% of the respondents said their trips take less than 30 minutes, 20% said it takes between 30minutes to 1 hour, while 5% said it takes over 1 hour.

The research reveals why the respondents prefer the tricycle to other means of transportation, 45% said because it is readily available and accessible, 40% said because it is cheaper and affordable, 5% said because it is comfortable, 5% said because of door to door service, while 5% also said because it is faster, the research reveals the respondents prefer the tricycle because it is readily available and accessible, the research also reveals if the commuter will feel safer if seat belts, doors are introduced to the tricycle, it, however, reveals the problems

associated with tricycle, 25% complained of frequent stop-over, 25% slower speed, 10% complained of attitude of drivers, 25% complained of smaller seat and overloading, while 15% complained of long waiting time, therefore problems of tricycle operation in the area can be attributed to frequent stop-over and slower speed.

The research was able to reveal if tricycle has significantly impacted the last mile trip of commuters, 75% said yes, while 25% said no, the research thus reveal a significant contribution of tricycle to last mile trip in the study area, it also reveals tricycle has number of negative environmental and social impacts, larger percentage agreed it has a number of negative environmental and social impacts. The research is also aimed at revealing if there is variation in the amount charged by the tricycle operators in the morning and evening time, according to the respondents, 25% are charged less than 50 naira, 50% 60-100 naira, 15% charged between 100-200 naira while 10% are charged above 200 naira, the research reveals majority of the respondents are charged between 60-100 naira, while 20% are charged less than 50 nairas in the evening, 50% 60-100 naira, 15% 100-200 naira, while 15% also above 200 nairas, 20% feel overcharged while 80% do not feel overcharged.

The research, however, reveals in reduction in fare will enhance the commuters patronage of the tricycle, 85% agreed reduction in the cost of fare will increase their patronage while 15% do not agree, 25% agree the tricycle usage pose danger to the commuters while 75% disagreed, 25% has experienced accident involving tricycle in the area while 75% has not experienced, among those that have experienced, 30% attributed it to the bad, 5% attributed it to impatience on the part of the drivers, 20% attributed it to faulty tricycle, while 45% are those that have not experienced accident, problems associated with tricycle operation in the area are identified as follows, 20% attributed to multiple levies, 15% attributed to enforcement agents, 25% attributed to non-parking space, 5% to traffic congestion, while 35% is attributed to poor quality of the road, more of the challenges are attributed to poor road quality. The research identified the economic importance of tricycle service in the area, 55% said it has created employment for riders, 5% said revenue for government, 20% said employment for spare part dealers, 15% said alternative means of mobility, 5% said employment for mechanics, the research reveals tricycle has created job for riders.

TEST OF HYPOTHESES

Hypothesis One

H₀ 1: Tricycle does not have impact on commuter’s last mile transportation in the area

Chi-Square Tests

| | Value | df | Asymptotic Significance (2-sided) |
|------------------------------|---------------------|----|-----------------------------------|
| Pearson Chi-Square | 13.333 ^a | 4 | .010 |
| Likelihood Ratio | 20.388 | 4 | .000 |
| Linear-by-Linear Association | 11.914 | 1 | .001 |
| N of Valid Cases | 200 | | |

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is 2.50.

The result presented above reveal Pearson Chi-Square value of 13.333, which reveal a positive significance impact, while the significance value is 0.000, the result reveals a p-value of less than 0.010, therefore the null hypothesis should be rejected and

the alternative hypothesis accepted because the null hypothesis lacks statistical support, it can however be concluded that tricycle have impact on commuter’s last mile transportation in the area.

Hypothesis Two

H₀ 2: There is no commuter’s acceptance of tricycle in the area

Chi-Square Tests

| | Value | df | Asymptotic Significance (2-sided) |
|------------------------------|----------------------|----|-----------------------------------|
| Pearson Chi-Square | 102.778 ^a | 4 | .000 |
| Likelihood Ratio | 104.814 | 4 | .000 |
| Linear-by-Linear Association | 35.741 | 1 | .000 |
| N of Valid Cases | 200 | | |

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is 2.00.

The result presented above reveal Pearson Chi-Square value of 102.778, which reveal a positive significance impact, while the significance value is 0.000, the result reveals a p-value of less than 0.000, therefore the null hypothesis should be

rejected and the alternative hypothesis accepted because the null hypothesis lacks statistical support, it can however be concluded that there is commuter's acceptance of tricycle in the area.

Hypothesis Three

H₀ 3: No relationship exists between commuting distance and cost

| Model Summary | | | | |
|--|-------------------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .113 ^a | .013 | .008 | .66239 |
| a. Predictors: (Constant), Do you feel overcharged for the distance covered? | | | | |

| ANOVA ^a | | | | | | |
|--|------------|----------------|-----|-------------|-------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 1.125 | 1 | 1.125 | 2.564 | .111 ^b |
| | Residual | 86.875 | 198 | .439 | | |
| | Total | 88.000 | 199 | | | |
| a. Dependent Variable: What is the distance of your trip | | | | | | |
| b. Predictors: (Constant), Do you feel overcharged for the distance covered? | | | | | | |

The estimated result reveals R²-value of (0.013) which indicate a significant commuting distance can only account for 13% significant increase in transportation cost in the study area, while the remaining 87% significance impact on fare increase are attributed to other variables such as bad road, multiple levies by park management, among other things aside distance which is not captured in the model, the research also reveals a significance of 0.111, which is more than 0.05, therefore the null hypothesis should be accepted while the alternative is forgone, we therefore conclude that no relationship exists between commuting distance and cost.

SUMMARY OF FINDINGS

The study has assessed the operation of commercial tricycle operation in Ojo local Government area of Lagos, with the aim of analysing the effect of Keke Napep (Tricycle) on last mile transportation of commuters, the research however reveals tricycle has significantly impacted last mile trip in the area as the commuters appreciate its availability and accessibility in their area, with a considerable fare, however some of the commuters complained of inconsiderate hike at price of fare during the peak period (rush hour), particularly in the evening, which the commuters complained it often get them stranded because of the impact on their budget, which the tricycle drivers attributed to multiple levies charged by the tricycle park management, some attributed it to the poor road quality in the neighbourhood.

However, tricycle operation in the area possesses some associated problem according to the commuters, such as frequent stop-over, smaller seat and overloading etc., which sometimes makes them prefer motorcycle, meanwhile they admitted commuting with tricycle and motorcycle on the road has number of negative environmental and social impacts and pose danger to the commuters, such as carbon monoxide ejection from faulty tricycle, accident which the commuters attributed to impatience on the part of the drivers, lack of efficient training as some drivers dabble into the business due to economic hardship, and bad state of the roads, they, therefore, said innovation like seat belts, doors etc. will make them feel safer with the tricycle operation securing them in the time of any eventualities.

The significant impact of tricycle introduction into the transportation system in the country cannot be overemphasized as it has significantly impacted last mile transportation for the commuters as they do not have to wait longer hour before getting a ride and it has some socio-economic importance in the area because it has created employment for the unemployed population, revenue generation for Government, employment for spare part dealers, and employment for mechanic respectively.

RECOMMENDATIONS

The Research Thus Made The Following Recommendation:

1. **Avoid overloading:**

Some of the tricycles engages in overloading in terms of passengers and luggage's in order to make extra gains, such as carrying an extra passenger at the driver side after carrying the specified 3 passengers at the back seat, thereby affecting the effective handling of the tricycle, some are even fond of placing luggage's on the roof of the tricycle respectively, all these activities affect the proper operation of the tricycle as there is specified maximum carrying capacity of the tricycle, so in the event of any unforeseen circumstances it makes it difficult for the driver to manoeuvre the tricycle resulting in disaster, so the tricycle drivers should desist from overloading to avoid accident.



Figure 4.1: Overloaded tricycle

2. **INNOVATION:**

Majority of the accident experienced with tricycle often result to the passengers falling off from the tricycle to the ground, which is as a result of unavailability of doors and seat belt, so innovation such as the introduction of seat belt

and doors will help safe guide the tricycle occupant in time of accident thereby minimizing casualty.



FIGURE 4.2: TRICYCLE WITH DOOR

3. Stable CHARGING System:

The tricycle operators do not maintain a stable charging system which sometimes gets the commuters stranded as the operators hike their fare due to a little noticeable surge which is prevalent during the peak period such as the evening time when the commuters are returning from work, which does not allow the commuters to have confidence in the operation of the tricycle in their area, so the tricycle operators should maintain a stable charging system thereby enhancing commuters confidence in them.

4. SENSITIZATION OF THE OPERATORS:

Some of the drivers portrays poor driving skills such as over speeding, reckless overtaking etc. in order to embark on as many trips as possible to make more profit, thereby endangering their life's and that of passengers, so there should be periodic sensitization of the drivers in order to know dangers attached to their activities, and also organize training for poor drivers among them as some dabble into the business due to economic challenges with minimal training.

5. PROVISION OF PARKING SPACE:

Many commuters sometimes get stranded at the park due to unavailability of a tricycle, thereby resulting in longer waiting time which the drivers attributed to insufficient parking space as the trickling down effect of traffic from the park sometimes result to traffic gridlock on the major or access road.

6. CURTAIL MULTIPLE LEVIES:

The driver is usually overwhelmed by multiple levies from the park operator, thereby causing an indiscriminate hike in transportation fare or drivers avoiding the park thereby leaving commuters stranded at the park, the park operators should, therefore, curtail multiple levies at the park to encourage the use of the park by the tricycle drivers.

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