



Comparative Analysis of the E-Hailing Mobility Services in Selected Cities in West and East Africa. **

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ABSTRACT

In this exploratory and comparative study, we set out to obtain basic attributes of the e-hailing mobility model on the origin, types, demographics, operations, econometrics and perceptions of operators and passengers of the e-hailing and the government's regulatory framework. Primary data were from the structured interview with riders, passengers and government officials. The secondary information was obtained from government's policy guidelines and laws regulating the business, online, newspapers and magazines. For our analysis, descriptive statistics were adopted to summarize and classify the quantitative data, utilizing Microsoft office tools for graphical presentations. The major findings are viz: Bolt and Uber are the most dominant brands with Uber starting it first in South Africa in 2013. It spread quickly throughout the continent with others fringe players like In-Driver, Cab Man, Allo-Taxi, Careem, Taxi Pixi, Osa-Go (water based) and Motorcycle operators like Safe Boda, O'Ride, Max.NG and Go-Kada. The service is mostly dominated by male' operators (99%) in both cities in the age range of 26-45 years which represents 77% in Lagos and 70% in Nairobi. More than 75% of operators are graduates, which enhances the easy adoption of the new technology. In Lagos 50%, 32.5%, 16.5% of the operators are engaged in it as full time, part-time, and occasional respectively, while the figures in the same sequence in Nairobi are 84%, 14%, 2%. The most mentioned challenges facing the business are: Covid-19, Traffic gridlocks, Bad Roads, Security, Police Harassment, Tax and Levies. Before the COVID-19 pandemic, the average income per month for the operators was N208,000 /\$520 Lagos, Sh 80,000 /\$727 (Nairobi) The monthly average operating costs which includes parking fees, car wash fees, fuelling, levies, tolls and other overheads, were N60,000/\$150 (Lagos) Sh28,000/\$255(Nairobi); thereby leaving a margin of N148,000/\$370 (Lagos) Sh58,000/\$527 (Nairobi). Given that the minimum monthly wages are N30,000 (\$75) (Nigeria) and Sh13,572/\$123(Kenya), the earnings of N148,000/\$370 and Sh58,000/\$527 is between four to five times the minimum wages in both countries which explains the attraction for graduates who lost their jobs and those that never have employment. The income decreased consequently upon the pandemic oscillating from zero earnings (on total lock down) to about 30% on partial re-opening. The pandemic has receded in both cities, lock-downs are no more, and the business is beginning to boom again. On passengers, female patronage is 53% and 40% in Lagos and Nairobi respectively with 63% within the age range 26- 45years (Lagos 63%, Nairobi 59%) and tertiary education at 79.3% Lagos, 81% Nairobi. Their challenges include accessibility on the application, network non-availability in some areas, robbery and kidnapping. Despite these challenges, the general perception of the e-hailing passengers was highly favourable (around 90%) in their assessment of drivers' attitude, service reliability, ease of use of application software, trip cost, and trip duration. This implies that the prospect of the business model is quite bright. In comparison, the traditional operators are also mostly males, (>90%) in both cities with mean age of 36.5 (Lagos) 40.4 (Nairobi) which is averagely older than the e-hailing entrants at 32 (Lagos) 33.6 (Nairobi). They are however less educated at only 13.9 % (Lagos) 34% (Nairobi) having tertiary education. They earn less than the e-hailing even though they charge more which is reducing their market share at average of N2,500 (\$6.25)- N4000 \$10) in Lagos, Sh400/\$3.6 to Sh500/\$4.5 in Nairobi. The traditional and the e-hailing operators are just tolerating each other with occasional violent clashes. The guiding policy of Lagos state transport sector is the reform law, 2018 and e-hailing taxi operations regulations, 2020. The Nairobi equivalent is the National Transport and Safety Authority (NTSA) which

is the main regulatory body in Kenya. The authority drafted new regulations known as digital vehicle services rules, 2020, specifically to regulate E-hailing mobility services in the country (NTSA, 2019) The main thrust of government policy framework is for revenue generation, regulation and control. Due to the novelty of the business model, there are several areas that the policy makers are still trying to understand fully, hence there has been continuous modifications of the rules and regulations. However, there is an urgent need for enhanced safety and security measures for the business as car jacking of the operators, robbery and raping of the users are very common (about 10 incidences per week) both in Lagos and Nairobi. Government policy should not always be revenue generation concerns about the business.

Key Words: *E-hailing, Rider, Passenger, Lagos, Nairobi, Mobility, Transport and Logistics, Sub-Saharan Africa.*

1 INTRODUCTION

Mobility and Access in sub-Saharan Africa are perennially challenged. Many solutions have been thrown at it, but the problem keeps escalating. Emerging recently and spreading widely, is the shared mobility solution, taking advantage of the boom in ICT; bringing under its umbrella many of the existing informal modes like Car-taxi, Tricycle, Motorcycle, Bicycle variously called “Okada”, “Boda-boda” and “Keke” in many sub-Saharan African countries. In Nigeria, all these are termed “e-hailing” services.

However, there has been a very little-known study of this emerging business model. Is the rapid growth an indication of its acceptability or limited choices for the users? What are the challenges, opportunities and threats facing it? What is the role of government in it? We are therefore motivated to undertake an exploratory research into this emerging business model and compare it across the west and east Africa as represented by Lagos and Nairobi.

This was an investigation into the types, coverage and operations of the e-hailing services. We sought to identify the sources and features of the applications; state the demographic characteristics and the attitude of the operators, passengers, competitors and governments’ officials regulating the e-hailing business. We compared the operational modalities of the e-hailing with the traditional operators.



Plate 1 Informal Motorcycle (Okada) and Tricycle (Keke)

2 Research Questions and Objectives

- a. What are the types, fleet size, and area of operations of e-hailing services in the cities of study?
- b. What are the origin and basic features of the managing applications?
- c. What are the demographic characteristics of the operators of the services?
- d. What public policy frameworks regulate the operations of the e-hailing services in the selected cities?
- e. Are the travel cost and travel time of e-hailing higher or lower than the traditional equivalent?
- f. What is the attitude of other transport owners and workers to the e-hailing service?
- g. What are the regional peculiarities in the business model?
- h. What are the perspectives of the operators and the users of the services?

Objectives are to:

- a. describe the types, the coverage and operational strategy of the e-hailing mobility services in the cities of study;
- b. identify the source, owner/s and features of the managing applications;
- c. assess the demographic characteristics of the operators of the services;
- d. evaluate public policy regulatory frameworks affecting the operations;
- e. compare the travel time and travel costs of the e-hailing with the traditional equivalents;
- f. examine the attitude of other mobile operators not enrolled in the e-hailing;
- g. compare regional differences and similarities in their mode of operations, and

- h. obtain the perspectives of the operators and users of the services.

3 Project Design/ Methodology

The basic design formats are both exploratory and comparative. Data from the two cities are compared within and between the two regions. For primary data collection and analysis several approaches were used. First were participants observers whereby field enumerators took 40 rides on each mode while obtaining information through structured questionnaires. The routes were systematically selected to cover the primary, secondary and feeder arteries of the selected cities. The passengers carried a GPS that was used to chart the rides. GPS Data Extraction using Map-source, Software was used to obtain the layout.

The passengers, our field assistants, administered structured questionnaires that elicited information on the operations, the charges, and the demographic characteristics of the operators and the users. There was also a questionnaire for obtaining the opinion of the other transport service operators who are not enrolled in the e-hailing, used to evaluate their level of cooperation, tolerance or hostility.

A separate questionnaire was administered to the owners and administrators of the applications obtaining information about the company profile, the source and developer of the application, its basic features, and the challenges and opportunities of the business.

The secondary information obtained was on the government's policy guidelines for the business model to appraise whether the policies are supporting, constricting or prohibiting the service. Other relevant archival research materials and literatures were sought online, in the physical libraries, in newspapers and in magazines. To aid our analysis, descriptive statistics were adopted to summarize and classify the quantitative data, utilizing Microsoft office tools for graphical presentations.

4 Profiles of the two cities of study

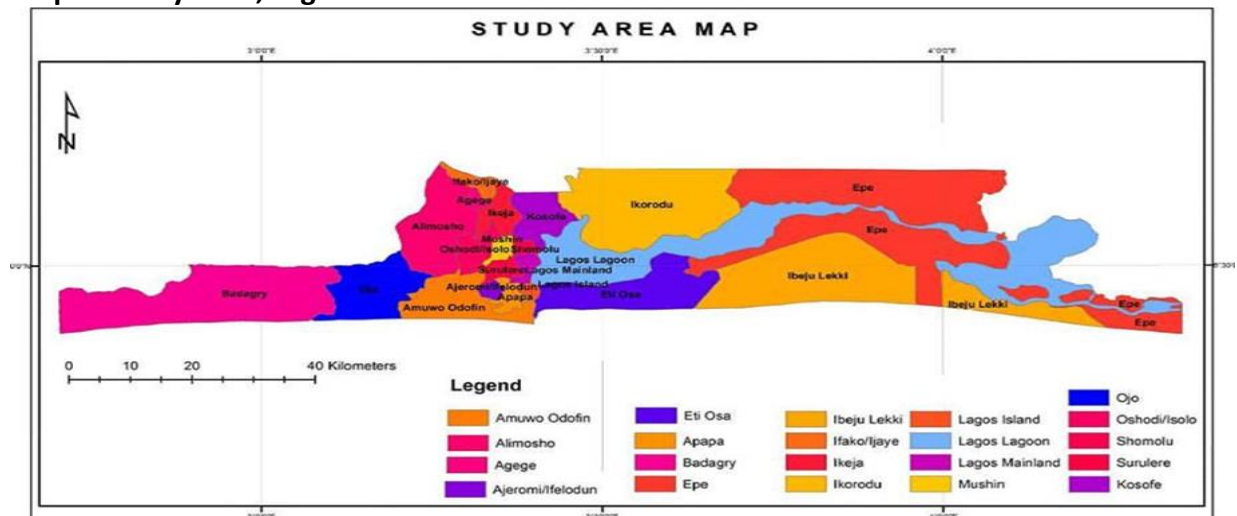
4.1 Lagos:

Lagos was the capital of Nigeria before it was moved to Abuja. It straddles the graticules Longitude. 20 42'E to 32 2'E and Latitude. 60 22'N to 60 2'N. It is Africa's leading NEPAD City and World's sixth megacity. It is a burgeoning global urban agglomeration that attained megacity status in 1995 when its population soared to over 10 million people. (LASG, 2020).

From its global city ranking of 31st in 1985, Lagos's population exploded to 13.4 million in the year 2000 to become the world's sixth megacity and Africa's foremost urban centre and hub of national, regional and global socio-economic and political activities. The following attributes were obtained from the Lagos State Government website (LASG, 2021) Lagos's population is growing 10 times faster than that of New York and Los Angeles, and more than the population of 32 African nations combined. It plays a pivotal role in the Nigerian economy and as a nation's commercial nerve centre, remains the focal point of economic activities. The Lagos Gross Domestic Product [GDP] accounted for 26.7% of Nigeria's total GDP and more than 50% of non-oil GDP. Over 50% of Nigeria's non-oil industrial capacity is in Lagos. It accounts for over 80% of the country's foreign trade flows and generates over 50% of Nigeria's port revenues. The estimated GDP of Lagos was put at N27.125trillion [\$145.141billion] in 2016 by the Lagos Bureau of Statistics with a projected average annual growth rate of 4.2% up to 2018. Lagos's economy, with an estimated population of 24million is larger than any other economy in the ECOWAS sub-region despite the rebasing of Ghana's GDP. Home to 70% of the Country's total industrial investment and 65% of its commercial activities. Highest Vehicular Density – over 222 per km, whereby the national average is 11 per km. Lagos has the presence of all the main modes of transportation: water, air, road and rail. However, water and rail transport are not optimally utilized.

E-hailing platforms entered the Nigerian market in 2014 with Uber's pioneering operation in Lagos (Meagher, 2018) Uber later expanded its services to Abuja and other major cities in Nigeria. In 2016, Bolt (formerly known as Taxify) commenced e-hailing operations in Lagos. Presently, the market comprises a few big international players as well as small local e-hailing operators. Our study indicated that about 21 e-hailing platforms are registered in Nigeria, but only four are operating effectively namely, Uber, Bolt, In-Driver and Osa-Go-a water-based transport hiring system. However, the regulatory environment poses a great challenge to the growth of the e-hailing market. There is a disparity in the regulation between the traditional taxi operators and the operators of the e-hailing services. The Lagos State government proposed a 10% tax on each trip transaction, but negotiation is still ongoing between e-hailing operators and the Lagos State Ministry of Transport.

Map 1: Study Area, Lagos



4.2 Nairobi

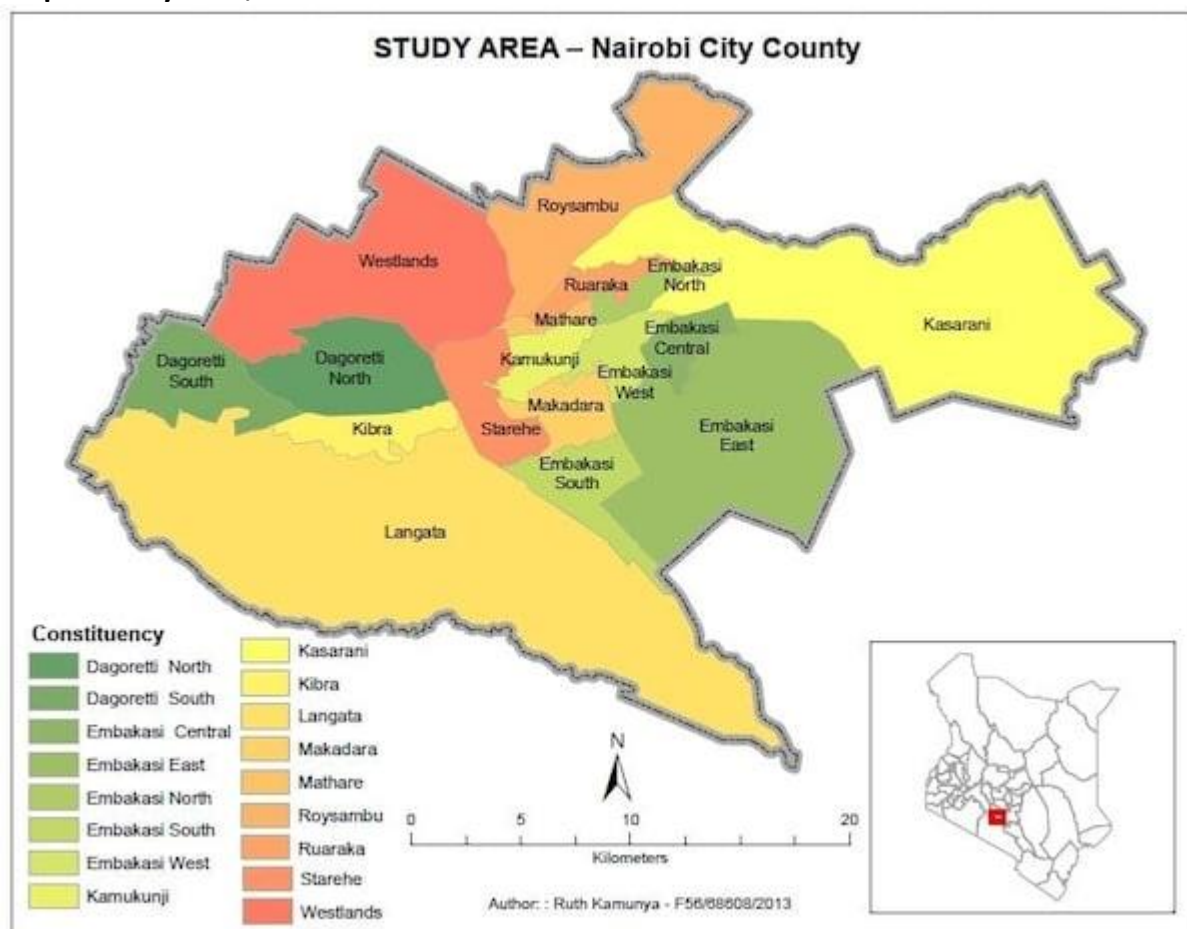
A city with a population of about 4.4 million is the administrative capital and largest urban centre of Kenya it is in the graticules of 1°09'S to 1°27'S and 36°39'E to 37°06'E with a land space of 696 square kilometres. Kenya is considered one of the fastest-growing countries in Sub-Saharan Africa (World Bank, 2020) with a gross domestic product (GDP) growth rate of at 5.59% per year over the last ten years (Central Bank of Kenya, 2020). The rapid growth has called for infrastructural, political and economic reforms as well as the expansion of the transport sector over the years. Heavy investment in the transport sector from both international and local entities has resulted in up to 8% contribution to the country's GDP. This contribution makes the transport sector the second largest contributor to the GDP after agriculture (Kenya National Bureau of Statistics, 2019). Over the ten years of transformation, the transport system has seen the revival of railway transport which has helped ease road congestion. The standard gauge railway has also been constructed to increase container handling capacity both in the inland dry port and port of Mombasa. Additionally, Air travel and cargo services have expanded, leading to a robust contribution to the GDP. There has also been the rehabilitation of existing road networks in the country, which is still ongoing (Ministry of Industrialization, Trade and Enterprise Development, 2019).

Technological advancement in Kenya has helped improve the transport sector that has increased convenience and a cool traveling experience. The integration of technology has revolutionized how Taxis are operated in the current era, especially in Nairobi. Customers are

now able to order rides from their place of choice and convenience. Since the years of trekking and the use of animals as means of transport to mobile applications, this revolution has taken place that allows drivers and customers to communicate easily and fast. Information technology has played a major role in the emergence of E-Hailing services in Kenya and the surrounding countries. The E-Hailing services have hit regular taxis with great competition due to their effectiveness and efficiency across the Globe. Being the capital city of Kenya, Nairobi is among the largest cities in Africa that has vast technological and infrastructure advancement that supports E-Hailing mobility.

Key players in the E-Hailing industry in Kenya include Bolt, Uber, Little Cab, and Safeways. These companies offer competitive prices that help customers have alternatives whenever they want to use their services. There has been a constant growth in the E-Hailing mobility services in Nairobi as more customers are getting on board to use these services, which is also matched by an increasing number of drivers enrolling in the platforms.

Map 2: Study Area, Nairobi



4.3 Comparison of the Cities of Studies: Lagos and Nairobi

The two cities of study are Nigeria and Kenya which are among the fastest-growing countries on the continent of Africa. In terms of size Kenya is 580,367km² with a population of 47million (2019 census) and 54,988,698 as estimated at year 2020, Nigeria on the other hand is 923,768km² and 2020 population estimate of 211,400,708 (UN, 2021), In terms of socio-economic status Nigeria and Kenya has GDP 2020 estimates of \$1,237 trillion and \$333,268 billion and per-capital income of \$5,853 and \$2,252 respectively. (IMF, 2020)

Lagos was the former capital of Nigeria before it was moved to Abuja in 1991. Despite the movement it remains the economic and commercial hub and entrepot city. Nairobi still maintains its status as the capital of Kenya. On their basic attributes Lagos and Nairobi cover 3,577km² and 696km² with an estimated population figures of 17,552,9402 (LASG, 2012) and 4,397,073 (Kenya Census Bureau, 2019) respectively. Lagos is already a city-state with urban sprawl to the east and west of the central metropolitan area. Lagos has a GDP of N30,875 trillion (\$6.8trillion) growing at 4.13% (Ogunbiyi, 2021) Nairobi has a GDP of \$14.8billion and growing at slightly more than the national average of 7.5% in 2021 rebounding after COVID-19 pandemic. (Herbling, 2022) Lagos accounts for 20-30% of the national GDP, over 50% of its non-oil industrial capacity and more than 80% of the foreign trade flows and port revenue. Nairobi, is equally the main hub, generating averagely 50% of the GDP of Kenya (Bloomberg, 2021)

Although Lagos has higher figures in the listed attributes without doubt, the two cities are the hubs and the economic nerve Centre of Nigeria and Kenya. Thus, it is expected that any transportation innovation in the two countries will be introduced and operationalized in them. Uber and Bolt are common and dominant players in the two cities but there are local operators peculiar to each of them. The pre-eminence of these two cities presented enough parameter of the e-hailing transportation system for an exploratory study such as this one.

5 Relevant Studies and overview

E- Hailing services have been a major innovation in transport disrupting travel behaviour in urban areas in the past decade. The services leverage recent improvements in Information and Communications Technology (ICT) and fill the gap between supply and demand for sustainable transport in cities (Cohen and Kietzmann, 2014). The e-hailing services were made

popular by Transportation Network Companies which offer flexible and convenient mobility solutions. E-hailing services are spreading globally from their initial diffusion centres in North America and Europe. The Transportation Network Companies such as Uber, Bolt, Lyft, Ola and Grab are penetrating new markets in Latin America, Asia, and Sub-Saharan Africa. E-hailing involves the use of intelligent software, smartphone apps and GPS. It enables passengers to find, book and pay for rides in the available vehicles (Krohe, 2013). E-hailing services provide a real-time, efficient, and convenient supply-demand mechanism for passengers and drivers on the internet platform. Given that e-hailing services are new and evolving, evidence about their wider impacts is still emerging. In developing countries, there is not much ~~of~~ empirical evidence on critical issues such as factors driving adoption, travel behaviour and effects on substitute and complimentary travel modes.

5.1 E-hailing in Africa

Africa's first e-hailing started in South Africa with the launching of Uber in August 2013. In the same year, Pewin Cabs and Cab Man launched in Kenya and Nigeria respectively representing Africa's homegrown e-hailing apps. In 2014, Lebanon-based Allo-Taxi and UAE-based Careem launched their services in Central (Angola) and North (Egypt) Africa, respectively. Also, India-based Taxi Pixi entered a partnership with Tranzit.ng to offer e-hailing services in Lagos. Africa's first motorcycle-hailing service Safe Boda also started operation in Uganda in 2014. The rising trend continued till date. (Akindare, 2018)

Akindare(2018) further reported that some of the largest users of online ride-hailing services in Africa are South Africa (Africa ride), Egypt (Careem), Ghana (Uber, Bolt), Morocco (Careem), Nigeria (Uber, Bolt, Osa-go, Oga taxi), Tanzania (Little cab, Tantaxi), Uganda (Little cab) and Kenya (Bolt, Mondo, Swvl, Wasili). Uber faces stiff competition from local companies. For instance, in South Africa, Africa rides have an advantage over Uber because it has introduced payment plans. This is not the case with Uber. The local service providers tailor their services to suit their customers, whereas Uber uses a general global strategy. Notably, Uber has partnered with local payment platforms over the past years to give its customers a wider range of payment options. It encourages cashless payments. As the internet and smartphone penetration in Africa is rising, more e-hailing operations are coming up.

In Uganda, Diva taxi was founded in the face of a pandemic. The app encourages women to take up space in the taxi business. It is an all-female driver enterprise that has over 70 drivers and around 100 vehicles. They offer taxi services and even event transportation services and the charges are relatively cheaper in a bid to allow their drivers to thrive financially. Its biggest competitor is Little cab. (Kizzi Asala, 2020)

Ghana signed a Standard of Understanding (SOU) between the Ministry of Transport and Uber to advocate for the formation of holistic policy guidelines for E-hailing service providers in June 2016. Bolt, formerly Taxify, is one of Uber's competitors in the country. On 23rd Feb 2018, Morocco banned Uber from promoting local service providers like Roby taxi and Careem, also popular in Egypt. In Egypt, Uber is only found in Cairo and Alexandria but is doing very well with over 80,000 drivers in Cairo alone. Careem is Uber's biggest competitor in the country. The country is among Uber's top ten performing countries globally. (Margot Eliason, 2019)

5.2 E-hailing in Lagos, Nigeria

E-hailing services are increasingly playing important roles in urban transport in Nigeria. The industry comprises traditional taxi services and motorcycle taxis. E-hailing platforms entered the Nigerian market in 2014 with Uber's pioneering operation in Lagos, Uber later expanded its services to Abuja and other major cities in Nigeria. In 2016, Bolt (formerly known as Taxify) commenced e-hailing operations in Lagos. Presently, the market comprises a few big international players as well as small local e-hailing operators. A recent report indicated that about 21 e-hailing platforms are operating in Nigeria.

The Nigerian e-hailing market is dominated by three major digital platforms i.e., Uber, Bolt and GIGM. However, the regulatory environment poses a great challenge to the growth of the e-hailing market. There is a disparity in the regulation between the traditional taxi operators and the operators of the e-hailing services. The Lagos State government proposed a 10% tax on e-hailing trips per transaction, but negotiation is still ongoing between e-hailing operators and the Lagos State Ministry of Transport. There are local operators like Oga taxi which gives its passengers three ride options; Standard, Deluxe, and Executive. It also allows passengers to pay through either cash or card, Osa-Go is a water-based operator along the coastal waters of Lagos State.

However, the government of Lagos has been having a running battle with motorcycle riders, called Okada. Two laws have been passed to restrict the Okada operations to certain routes or certain times of the day, 7pm-6am, minimum capacity, 200cc, or outright ban. The laws are The Lagos State Traffic Law 2012 and Lagos State Transport Sector Reform Law 2018. Section 46 (1) of the 2018 Law it is stated:

“no person shall ride, drive or propel a motorcycle or tricycle on a major highway within the state, and any person in contravention of this provision commits an offence liable on conviction to imprisonment for a term of three (3) years with such motorcycle or tricycle forfeited to the State’.

Sahara-Reporters (2022) recorded a detailed account of the failed attempts to curb the lawlessness of the Okada riders that beside the laws there were as many executive orders as there were governors. In 2006, Governor Bola Tinubu placed a ban on operating between 7 pm and 6 am. In 2012 Governor Babatunde Fashola Administration imposed a complete ban from operating in the Ikeja area-the seat of government. The prohibited routes listed were: Oba Akran Avenue, Bank Anthony Way, Isaac John Street, Opebi Link Bridge, Adekunle Fajuyi Way, Acme Road, Alausa, Oregun, Simbiat Abiola Way and Kodeso Road. In 2017 Governor Akinwunmi Ambode's increased the number of prohibited highways and bridges. In 2020 Governor Babajide Sanwo-Olu followed in the footsteps of his predecessors by announcing the ban in 6-local government areas, 9- local council development areas and 10 major highways which included 40 bridges and flyovers across the state. The bike-hailing services such as Max, Gokada and O’pay which seems to have the endorsement of Governor Ambode and therefore were thriving but were banned on the entry of Governor Sanwo-Olu.

From these litanies of ban and re-ban, it is obvious that the enforcement failed miserably either of the laws or the executive orders. The drama is always that at the new announcements, the law enforcement agencies will roll out arresting and impounding the motorcycles but after a short while political will wanes and the riders return to the highway with renewed vigour. Sometimes the relaxations of enforcements are due to political considerations not to offend the large numbers of operators who can punish the government by voting against it. So, when the election approaches, the government was always at its weakest point and the Okada riders are aware of this and so they take advantage by flouting the laws and the executive orders. In addition, the demographics of the riders indicated that the Hausa, Filani ethnic stock from the insecurity ravaged the northern part of the country

are the dominant group. These are young, able bodied men displaced from their farms and trades and therefore massively migrating to Lagos the secured and peaceful economic hub of the country. Consequently, anytime there is a renewed attempt to enforce the law, the ethnic leaders of the Hausa/Fulani often perceive it as persecution of their kinsmen. They therefore often plead at best with the Lagos State government to slow down on enforcement, at some extreme reaction they threaten retaliation against the Yoruba ethnic group, the indigenous people of Lagos State, in the north. Consequently, it often becomes a political tinder-box.

It appears to us that it was a major mistake to ban the regulated e-hailing that the government would have found easier to control. The gap left by the ban was filled by unregulated and most unruly, untrained, lawless operators that could not even be persuaded to register for their operations. The regulated e-hailing Okada has mostly converted to logistics, and goods delivery riders while many join the illegal operators.



Plate 2 Ban Enforcement in Lagos, impounding the motorcycles

5.3 E-hailing in Nairobi, Kenya.

Uber, the US-owned, penetrated the Kenyan market in 2015 and is currently in its seventh year of operation. It offers services in Nairobi and Mombasa cities. They offer various service packages such as Uber X that allow for comfort and privacy. Uber pool allows passengers to travel together and split the cost of the ride amongst themselves (Chacha, 2021). Uber Comfort uses newer car models that allow for more legroom.

Bolt, an Estonian corporation, expanded into Kenya in 2017. Bolt is currently the cheapest service provider with a rate of Ksh. 2.3 per minute, unlike Uber, which charges Ksh. 3 (Chacha, 2021). Like its competitor, it offers multiple travel options such as Bolt Boda (motorcycle).

Bolt Lite is a smaller and more economical vehicle making it the cheapest option. Bolt ride is also an economical vehicle option and is a few shillings costlier than Bolt lite. Bolt XL is a larger vehicle option that can accommodate up to 7 passengers, and Bolt Green is an eco-friendly option and it also offers online food delivery services. This is achieved through partnerships with local restaurants and hotels. Unlike Uber, it operates in around 16 towns countrywide and continues to scale up its operations.

The Little cab is a locally owned E-hailing platform, a product of Safaricom PLC that was birthed through a partnership with another local software company, Craft Silicon. It planned to offer affordable rides to Kenya and set its price per km at Ksh 5 cheaper than Uber's Ksh 60 in 2016 (Chacha, 2021). Over time, its competitors have overtaken it since Bolt set its price per km at Ksh 50 and Uber at Ksh 22 for the first 11km, and Ksh 30 after the first 11km. Notably, Little cab did not have a base fare but currently has it at Ksh 270. It has expanded into Tanzania and Uganda, dominating the industry alongside local service providers. UAE-founded app Mondo started its operations in Kenya in 2016. With a base fare of Ksh 100 and Ksh 35 per km and Ksh 3 per minute charge, it is proving to be among the cheapest options compared to its competitors.

One of the most globally popular applications is Uber Technologies, commonly known as Uber, and formerly Uber Cab was founded in 2009. It combines ride-hailing services, online food delivery, package delivery services, courier services, freight transportation, and even scooter hiring services. Before E- hailing, traditional taxi services dominated the private transportation industry (Giddy, 2019). Passengers were required to physically source for the vehicle and then negotiate the transport costs, which would, at times, be very high.

Other issues of interest in the literature on the subject matter in the cities of study include: effects on traffic and travel behaviour, Safety and Security, Comfort, efficiency, economics and sustainability.



Plate 3 Formal E-Hailing Operators: Cab and Motorcycle

Source: [Uber Kenya Car \(nextinsurance.co.ke\)](http://UberKenyaCar.nextinsurance.co.ke)

5.4 Effects on Traffic and Travel Behaviour,

Evidences₂ on the effects of the service on traffic and travel behaviour have been mixed. According to Li et al (2017), e-hailing services could shift trips from private cars to public transport through better first and last-mile connection. However, other researchers argued that e-hailing services increase the level of traffic and road congestion through empty-running (Henao and Marshall, 2019; Erhardt et al, 2019). E-hailing can reduce travel cost, improve vehicle utilization, reduce traffic congestion, environmental pollution, and parking pressure. E-hailing saves people from drunk driving and reduce private car use and parking demand (Lavieri and Bhat, 2019).

Regarding travel behaviour, e-hailing induces new trips and changes urban mobility patterns (Asenime, 2019). E-hailing is not limited to cars, motorcycle taxis (Okada) have also embraced the technology in several countries. There were also e-hailing buses, Shuttlers Mobility, bicycles, and scooters and ferries as is the case of Osa-go in Lagos.

Safety and security are also well mentioned by researchers as contributing to the acceptability of the innovation. By presenting the driver's information before a trip and the vehicle plate number, a passenger can note these and share them with a confidant should they feel the need. Passenger can also share their entire ride with other people who can track their movement. This greatly improves security because the driver and passenger can be tracked if there is a need for it. (Salim, Sanik, Nor, Salman, Osman & Abdullah, 2021) E-hailing has also offered more comfort and efficiency because it picks up passengers from their current location and drops them off at their destination (Salim, et.al., 2021). Compared to traditional taxis that require the passengers to look for them, which means walking around physically, this brings about a greater sense of comfort.

On the economics and sustainability factor the inception of E-Hailing mobility services has helped in economic development as drivers earn incomes that ensure the sustainability of the transportation model (Tanui, 2020). It was noted that over the past few years, it has become a global practice giving rise to both global and local services (Giddy, 2019). Over time many companies have developed applications that allow for ease of the process by ensuring that prices are estimated beforehand, driver information is provided, and various payment methods are offered.

These added advantages have affected the traditional taxi service industry. E- hailing has a significant price difference in comparison to traditional drivers and is much cheaper. However, surge pricing is also a disadvantage because it often leads to overcharging, especially in traffic. Also, E-hailing applications have partnered with various mobile money transfer service providers and banks to allow customers to pay through any convenient platform. The apps are directly linked to the passenger's mobile money apps, and the transaction is seamless and swift. For example, in Kenya, Safaricom announced that about 35.6 million Kenyans use Mpesa services regularly. The various E-hailing service providers have partnered with Safaricom Ltd, allowing their passengers to pay, conveniently via Mpesa. (Teo, Mustaffa & Rozi, 2018). It could therefore be reasonably presumed that this transportation model is very sustainable. This exploratory study is therefore designed to document some basic attributes of it such as the types, sources, demographics and perceptions of the operators and the users, the econometrics and the operating environment as defined by the government's regulatory framework.

6 DATA AND DISCUSSION

6.1 The types, fleet size, and operations of e-hailing services in the cities of study

6.1.1 Lagos

Here we tabulate the brands, size and operation modalities of the e-hailing in the two cities of Lagos and Nairobi. Table 1 presents Lagos with 22 e-hailing operators registered but only four in operation. As mentioned earlier there were bans on the motorcycle operators and

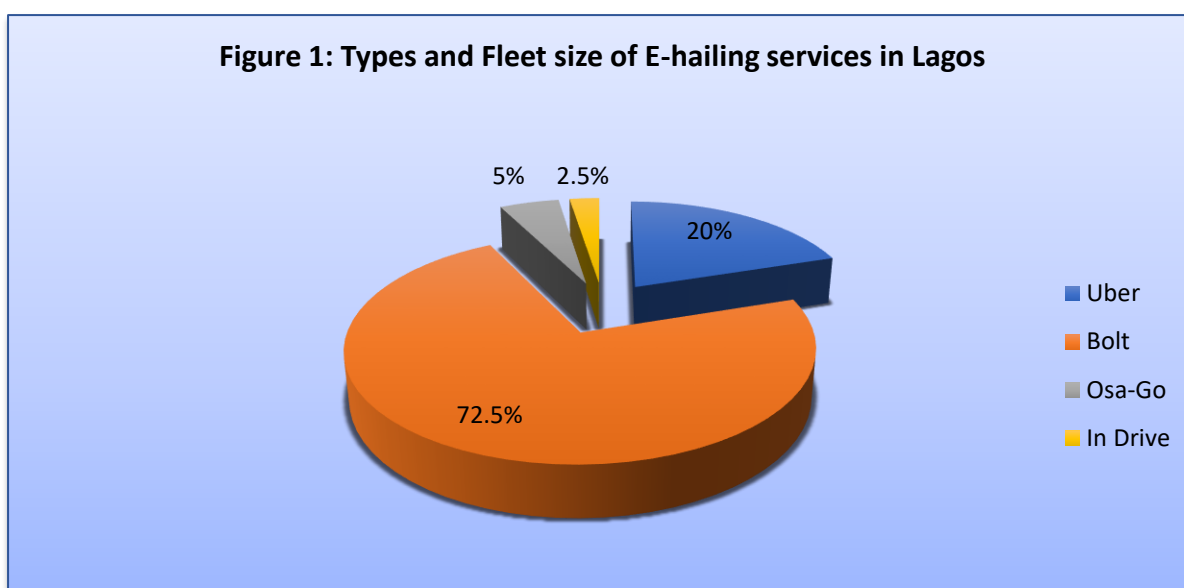
therefore only those deploying cars and one ferry were active at the time of the research. The active was dominated by Bolt from Estonia having about 72.5% of the market share with over 50,000 operators on its fleet. This is followed by Uber of USA origin taking 20% with about 15,000 vehicles in its fleet. In-Driver from Russia has just 2.5% of the patronage and 10,000 vehicles. The only water-based e-hailing is Osa-Go which is a local application developed in Nigeria and UK, it has only 5% of the market share and 100 (34, 45 and 200HP) fibre- boats of the water-based transportation in the coastal waters of Lagos State. All of them except Osa-Go operate round the clock. But this was cut down to ten hours (8am-6pm) during the pandemic period. Osa-Go was operating 7am to 7pm in compliance with the Lagos State Water Transportation Authority (LASWA) regulatory guidelines. However, at the various peaks of the waves of the pandemic there were episodic total lock downs.

Table 1: Types, Fleet size, Operations of E-hailing services in Lagos

SN	NAME	TYPE	MARKET SHARE	FLEET SIZE	OPERATION TIME HOURS	SOURCE
1	BOLT/TAXIFY	Taxi Cab	72.5%	50,000	24 10 during COVID-19	NIGERIA
2	UBER	Taxi-Cab 2000 after Model	20%	15,000	24 10 during COVID-19	USA
3	IN-DRIVER	Taxi -Cab	2.5%	10,000	24 10 during COVID-19	RUSSIA
4	OSA-GO	Boat: 9 Categories (Open & Covered)	5% of the water transportation	100, 35, 45 & 200HP	7am – 7pm	UK & NIGERIA



Plate 4 Osa-Go. Water based E-hailing operator



Those registered but not operating, affected by the Okada Ban or converted to goods delivery operations only are 23 in number: Logistics Carxie, Jekalo, Rideme, Ridon, Ola Cab, Oga Taxi, Pam Drive, Rhezon, Tekra, Parkwest Cab, Holla, Easy Taxi, Naija Taxi, Mr Taxi, Drop, Karry Go, Waka 4 Town, Ofero, Osago – Bout Chartered Services, Innoson Vehicle Motors.

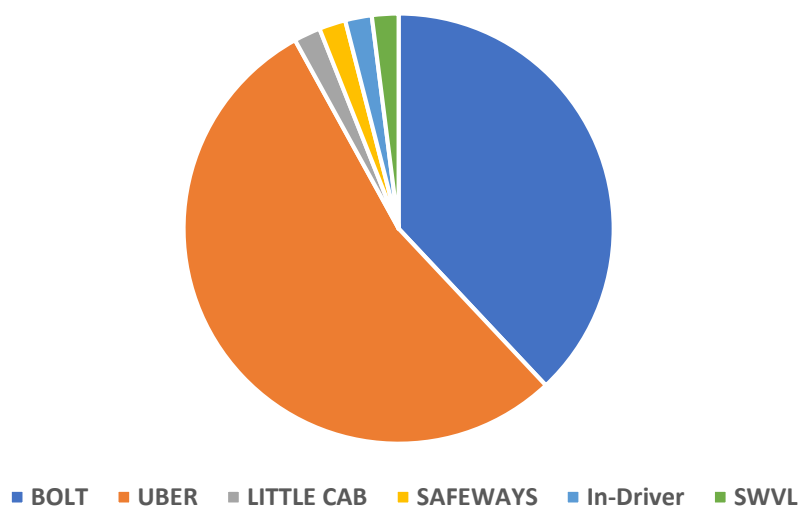
6.1.2 Nairobi

In Nairobi the dominant operators as in the case of Lagos Nigeria are Bolt 54% and Uber 38% of the market share respectively. The Little-Cab, Safeways, In-Driver and SWVL are negligible fringe players at about 2%, the number of vehicles registered with them notwithstanding. The operation time is also very similar to that of Lagos in the sense that they operate 24hrs call up period but episodic lockdowns and time restrictions during the different waves of the COVID-19 pandemic. It should be mentioned that Safeways operate both Taxi-Cab and Motorcycle modes.

Table 2: Types, Fleet size, Operations of E-hailing services in Nairobi

SN	NAME	TYPE	MARKET SHARE %	FLEET SIZE	OPERATION TIME	SOURCE
1	BOLT	Taxi Cab	54	10,000	24hrs	Estonia.
2	UBER	Taxi Cab	38	12,000	24hrs	US
3	LITTLE CAB	Taxi Cab	2	5,000	24hrs	Kenya
4	SAFEWAYS	Taxi Cab/ Motorcycle	2	5000	24hrs	US
5	In-Driver	Taxi Cab	2	2000	24hrs	Russia
6	SWVL	Taxi Cab	2	1000	24hrs	Egypt
	Total					

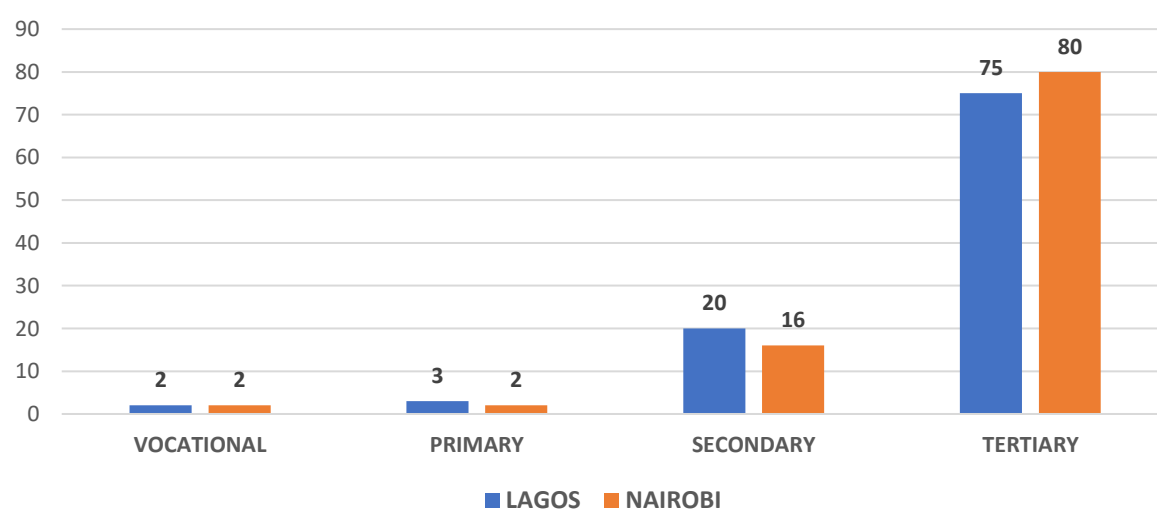
Figure 2: Market Share Percentage, Nairobi



6.2 The Demographic Characteristics of the Operators of the Service:

The service is mostly dominated by male' operators (99%) in both cities in the age range of 26-45 years which represent 77% in Lagos and 70% in Nairobi. More than 75% of operators are graduates in Lagos and 80% in Nairobi. This makes the adoption of new technologies faster in both cities. In Lagos 50%, 33%, and 17% of the operators are engaged in it as full time, part-time, and occasional respectively, while the figures in the same sequence in Nairobi are 84%, 14%, 2%. The slide in the national economies of the two countries created increased unemployment which pushed many educated workers into the business registering their cars for the operations.

Figure 3: Education Status Of The Operators



6.3 Non- e-hailing operators: Demographics, Income and attitude

We examined the attributes of the traditional taxi-cab operators to find out if there are significantly different variables in their demographics. The study indicated that they are also dominated by males, older in age the median age is between 46-55 as against the e-hailing of 26-45, less educated, averagely secondary school educated with only 13% tertiary education compared with more than 75% of the e-hailing operators. They however charge more because of their business model. The aspect of e-hailing charging less is an issue that creates friction with the traditional operators because their market share is shrinking. They also complain that the e-hailing operators do not pay most of their union dues and therefore often demand that they are forced to join their unions.

The e-hailing model can out-compete with the traditional operators because many were workers with two or three private cars in the family and when they lose their jobs they easily enrol their cars for e-hailing as they always say, “to feed their family” So they do not have capital cost overhead to worry about at the initial stage. In addition, they are now operating at the upper layer of the clientele that could easily afford to pay more while the lower segment of the clients that patronize the traditional taxi-cab are less economically endowed. But realizing that the e-hailing operators have come to stay, the traditional operators are also beginning to modify or upgrade their services by introducing a hybrid system whereby clients phone numbers are being compiled and made easily available to anyone that may need them on call up. Also, in Lagos they were working on an e-hailing application that will be for their union members.

As in the e-hailing service the service is dominated by males’ operators, (>90%) in both cities with a mean age of 36.5 (Lagos) 40.4 (Nairobi) which is older than the e-hailing averages at 32 (Lagos) 33.6 (Nairobi). They are however less educated at 13.9 % (Lagos) 34% (Nairobi) tertiary education compared with the e-hailing at 75% (Lagos) 84% (Nairobi)

This group has had an occasional fracas with the e-hailing because the e-hailing is charging less per trip which is affecting their share of the market on the average equivalent of \$6.25-\$10 in Lagos, \$3.6 to \$4.5 in Nairobi. Presently they seem to be accommodating the e-hailing but are demanding that E-hailing operators should be under their associations and wear tags

ostensibly for easy monitoring so that if any of them commits a crime, it will be easy to trace them but in truth to generate funds for their unions.

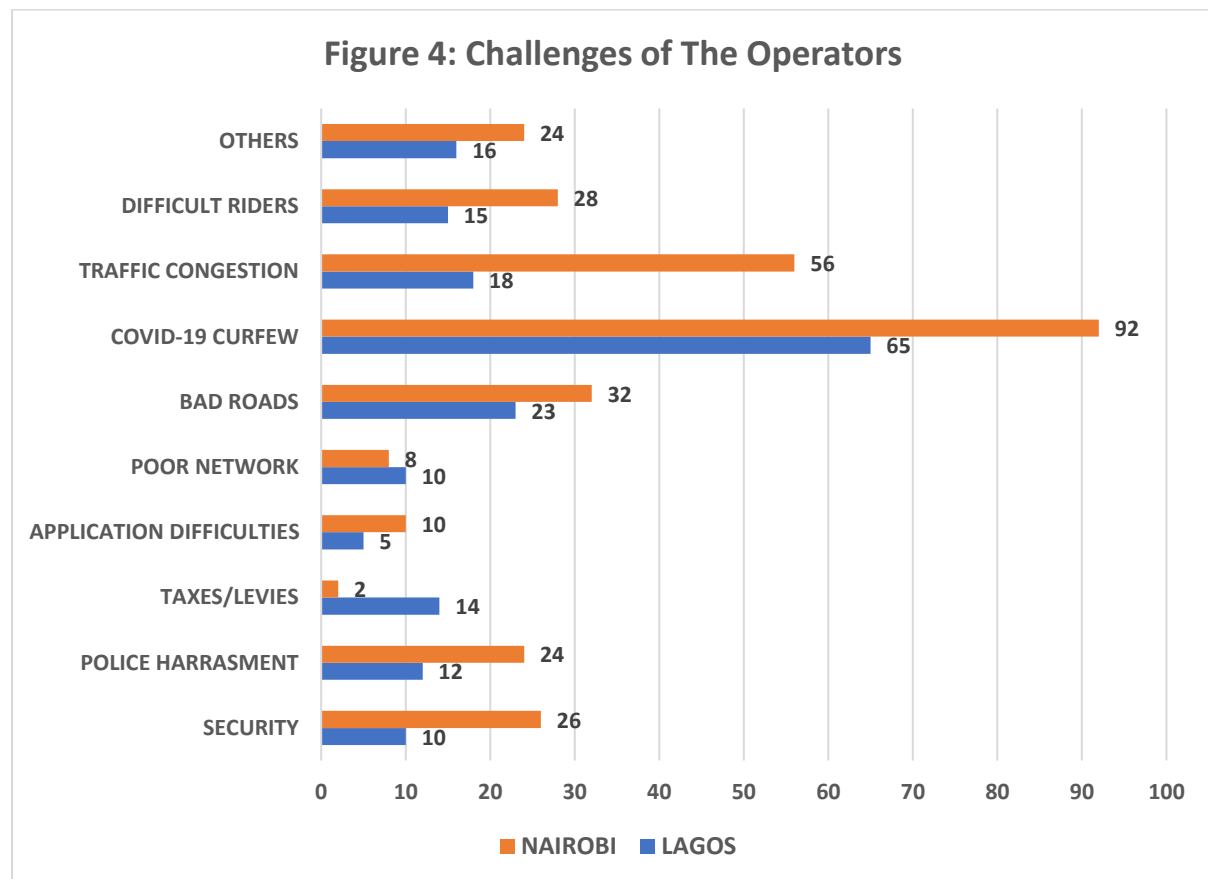
Table 3: Taxi Parks of Non-E-Hailing

No	Park	Location
1	Ikorodu Taxi Park	Ikorodu
2	Volkswagen	Ojo
3	Akowonjo Taxi Park	Alimosho
4	Ikeja Taxi Park	Ikeja
5	Egbeda Taxi Park	Egbeda, Alimosho LGA
6	Orelope Taxi Park	Idimu, Alimosho LGA
7	Igando Taxi Park	Igando, Alimosho LGA
8	Isheri-Olofin Taxi Park	Isheri
9	Lagos-Island Taxi Park	Lagos, Lagos Island LGA
10	Mangoro Taxi Park	Agege, Agege LGA
11	Mile 2 Taxi Park	Amuwa, Amuwo Odofin LGA
12	Oshodi Taxi Park	Oshodi
13	Surulere Taxi Park	Surulere
14	Volkswagen Taxi Park	Ojo

6.4 Challenges of Operators:

In terms of frequency of mention, the challenges of the business by the operators from the two cities are similar in some respects but very disparate in others as illustrated in figure 4. For instance, the perceptions of the negative effects of COVID-19 is far higher in Nairobi with 92% of mention while for the Lagos operators it was just 65%: This reflected the severity of the pandemic in the two cities. For reasons not scientifically examined in any study available to our team, the impacts of COVID-19 were far less in Lagos and Nigeria in general than in east and southern Africa. On Bad Roads Lagos operators score it 23% while Nairobi is 68%. The same trend is observed in Security, Lagos 10%, Nairobi 26%., The only two exceptions where the Lagos operators rated a challenge higher than Nairobi are Tax and Levies (Lagos 14% Nairobi 2%) and poor communication network. (Lagos 10%, Nairobi 8%) The figures reported for the Traffic gridlock, Lagos 18%, Nairobi 56%, is a little strange because there is the general perception that Nairobi is better organized than Lagos in terms of traffic management. Those of us who have stayed in the two cities can testify to this. It could further be noted that these figures deserve further interrogation. The Nairobi operators appeared to be more sensitive in the way they perceived the problem. But the explanation may be given

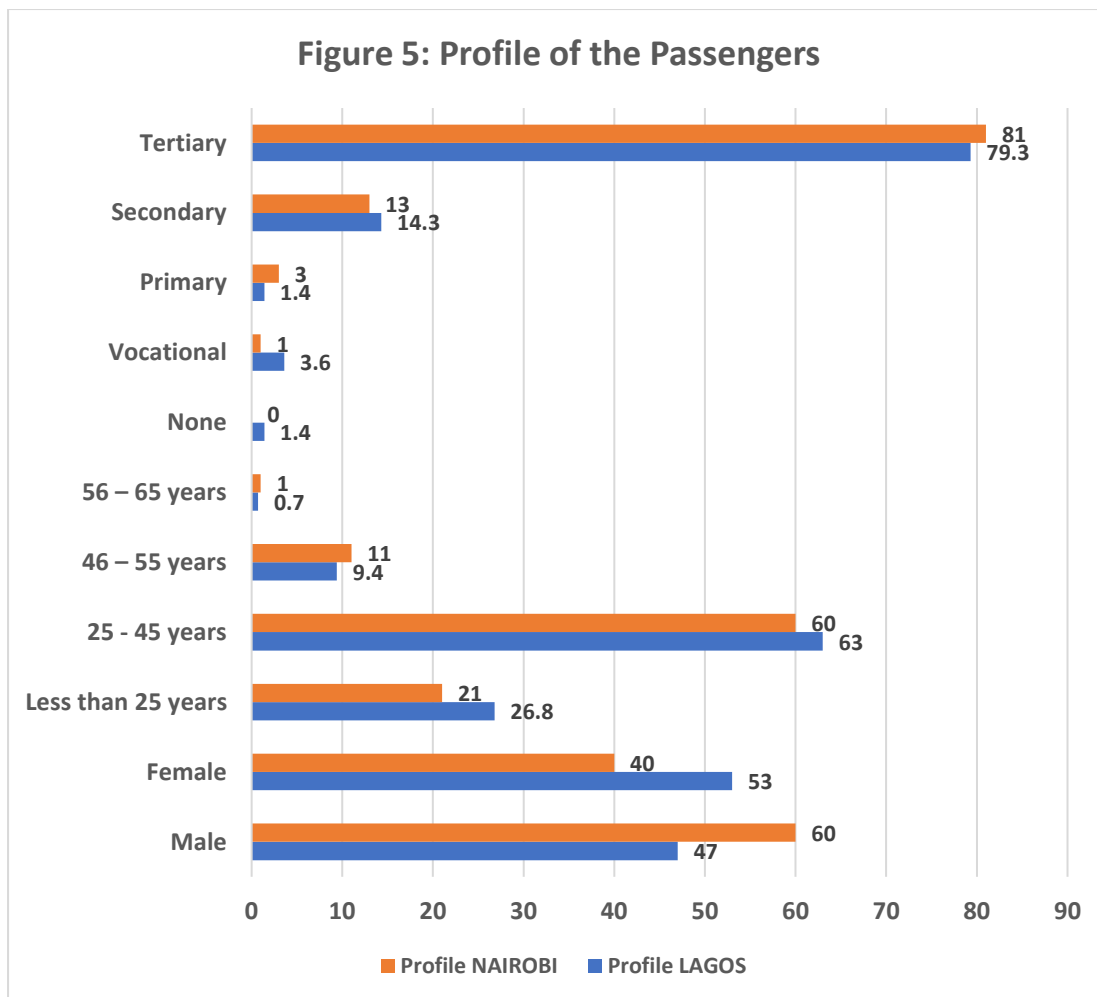
that these figures are as perceived by the operators and this may not be subject to accurate comparison because it is a subjective judgement. May be in subsequent studies this should be measured using another empirical objective method. This is an indicator that the impact of COVID-19 is felt more in Nairobi than Lagos.



6.5 Profile and perception of passengers:

To gain insight into the demographics of the users of the e-hailing services and their perceptions we sought for some basic information about the gender ratio, age distribution, education status, challenges in utilizing the service and degree of satisfaction with the e-hailing service.

Female patronage is 53% and 40% in Lagos and Nairobi respectively. The age distribution revealed that most of the respondents fall between 25- 45years (Lagos 63%, Nairobi 60%) The levels of educational attainment in both cities are very high. This is not unexpected given that the usage of the service requires some basic knowledge in ICT. Among the users, those who have attained tertiary education are 79.3% in Lagos and 81% in Nairobi.



6.6 Challenges and Perceptions of the Users

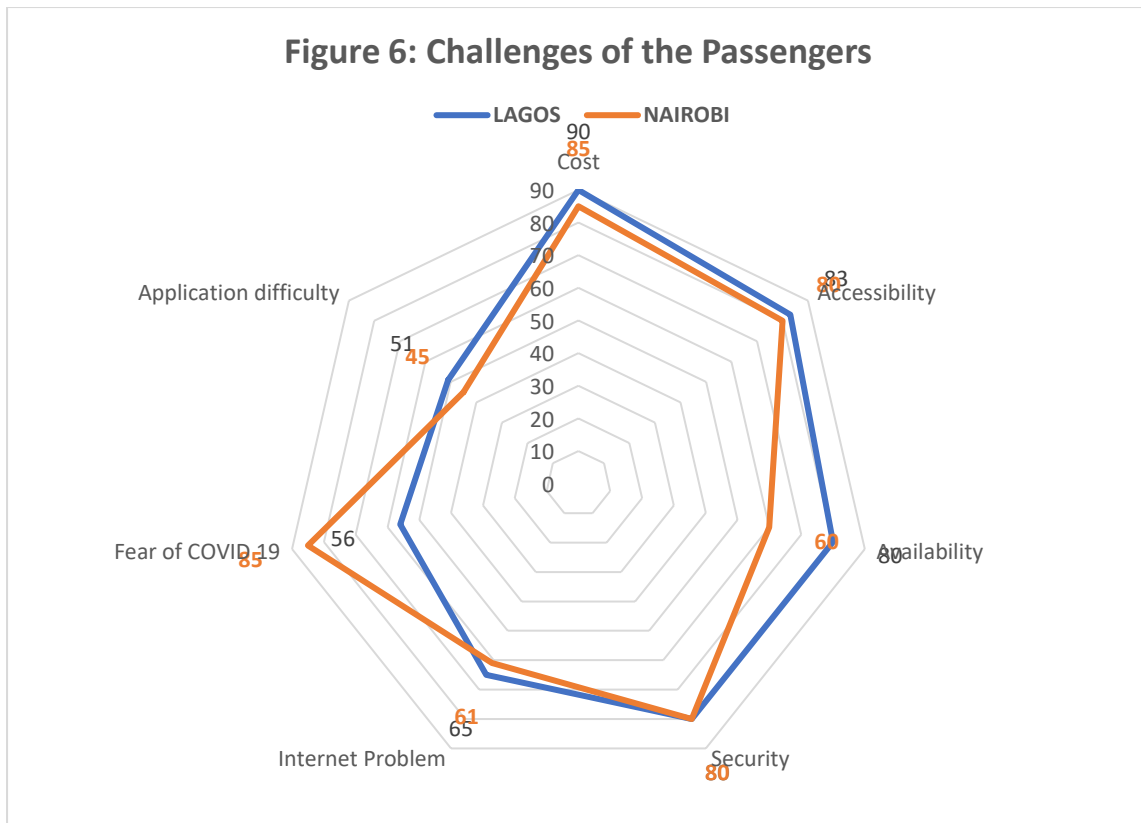
The challenges, by frequency of mention as identified by the passengers could be classified under two categories. The first is where there seems to be general agreement in the perception of the challenges such as Security, Lagos 80, Nairobi 80; Accessibility Lagos 83, Nairobi 80; Internet problems Lagos 65, Nairobi 61 and Cost of Service Lagos 90, Nairobi 85. The issue of cost seems to be a paradox and mystifying because the non-e-hailing operators are having a running battle with the e-hailing because of their findings that the e-hailing operators are undercutting them and taking away their market share by charging less. They complained that most of the e-hailing operators are using their private cars and therefore could afford to charge less because they are not expecting a full return on investment or paying back on hire purchase.

And from the empirical data appraisal the e-hailing on the average charges less than the traditional operators. We can only assume that this is a social issue where the populace

always wants the price of services to be cheaper no matter how cheap it is at present. The second category was where there is wide divergence in their perception of the challenges. These are mainly in the issues of non-availability, Lagos 80, Nairobi 60 and fear of COVID-19 Lagos 56, Nairobi 85. This implies that the services are perceived to be more available in Nairobi than in Lagos. On the other hand, the fear of COVID-19 is far more palpable among the user of the service in Nairobi than their counterpart in Lagos. This is a consequent of the fact that the outbreak was more intense generally in Kenya than in Nigeria. This was corroborated by the data putting cases of Nigeria and Kenya respectively at 15,168 and 98,555 cases and 3,1435, 5,649 (Worldometers.info, 2022).

Despite the challenges the general perception and experience of the e-hailing passengers were very positive in both cities based on their service experience, drivers' attitude, service reliability, ease of use of application software and trip duration. The combined results of our survey indicated that most of the respondents rated their commuting experience as good 68.6%. Driving behaviour was rated 59.3%, reliable 64.7%, and easy (58.8%). As noted in the discussion on challenges above, about the fare charged by the taxi operators, more than half of the respondents (53.4%) still rated the fare as high even when it is established that based on cost per trip, the e-hailing is averagely cheaper than the traditional taxi ride.

This outcome corroborates an earlier survey in 2019 whereby 58% of the respondents from Nairobi city positively accepted E-hailing mobility services (GIZ, 2020). This indicates that the industry is continuously gaining more customers as time goes by, considering that the venture was only six years old at the time of that study. E-hailing services in the two cities have taken a new direction and have diversified to food and package deliveries. These services have been deemed important to many citizens, especially during the peak of the waves of the different variants of COVID-19, when movements were restricted.



While many still applaud the efficient provision of e-hailing mobility services about 44% of the respondents also feel that the government should also in addition provide efficient transport services in the two cities. When it comes to imposing taxing and levies, more than 80% of the officials agree that government should impose taxes and levies on the App owners and the operators as a form of contribution towards providing a conducive environment for business and for maintenance of road infrastructure in the state.

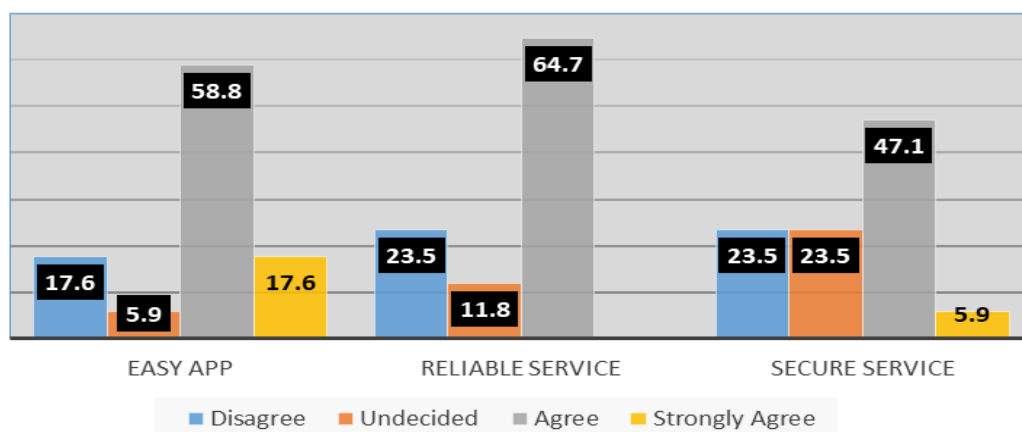


Figure 7: Passengers Levels of Satisfaction

6.7 Perception of the Government officials in charge of regulating the business

We considered it crucial to evaluate the perspectives of government officials because they are the policy makers. Their attitude often determines the direction of government policy. There had been several policy summersaults that not only threatens the sustainability of any business model but spell instant doom through sudden prohibition. This has happened to the e-hailing companies using Motorcycle as the Vehicle for transportation in Lagos. This has led to the proliferation of non-e-hailing motorcycle operators that are operating illegally in the most brazen manner and the government is pitifully unable to enforce the ban. Many attempts to enforce the ban by impounding the motorcycles had resulted in major riots and fatal attacks on the law enforcement agencies. Currently the Lagos State government is seriously considering lifting the ban on the e-hailing motorbikes to regulate them, enforce standards, improve safety and increase their revenue generation. The business was booming until there was a prohibition that wrecked so many medium scale entrepreneurs. Now it is expected that the government will go back, swallow its pride and unban it. Nairobi has never banned the e-hailing motorcycle operators.

The results of our survey were very similar in all respects, therefore the presentations here are combined. In Lagos the officials were drawn from Ministry of Transport (MOT), Vehicle Inspection Services (VIS), Lagos Metropolitan Transport Authority (LAMATA), Lagos State Traffic Management Authority (LASTMA) and Lagos State Waterway Authority (LASWA). In Nairobi the officials interviewed were from The National Transport and Safety Authority (NTSA), Commissioner General of Kenya Revenue Authority and Police officer at the Head of Nairobi Traffic. To justify the responses from these officials on the e-hailing mobility services, the index question of how many of them have patronized e-hailing mobility services gave us an impressive affirmation of 78%, while the others were yet to patronize them.

Out of this 78% who have patronized the services, about 65% agree that e-hailing operators provide efficient services and 23% strongly agree. So, the combined effect was that 88% of those who have taken rides on the service approved it. This is a strong positive factor for the long-term sustainability of the business model.

6.8 Economics of the Business Model

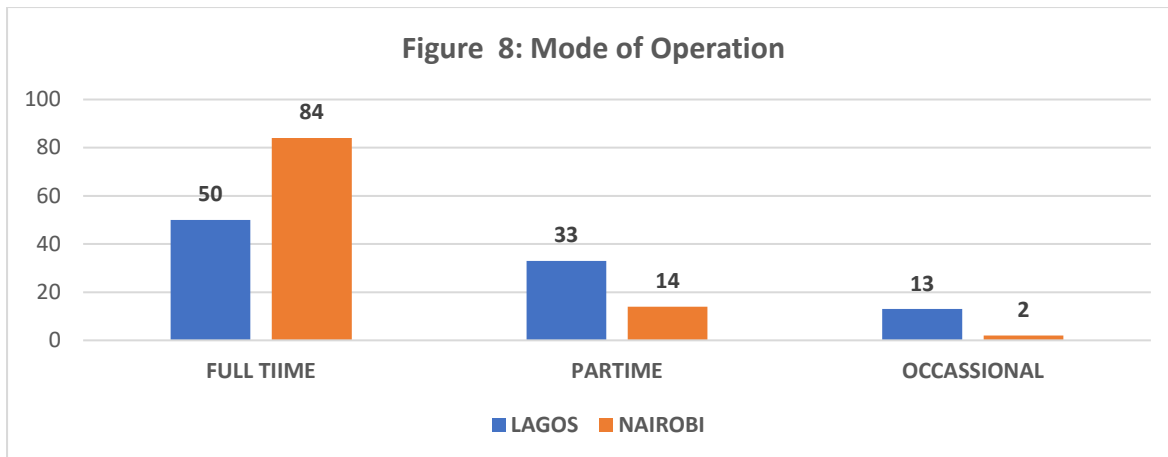
6.8.1 Vehicle Ownership Status and Daily Trips

In terms of vehicle ownership there is a disparity between the situation in Lagos with only 45% and Nairobi with 76%, the remaining are on hire purchase. Due to the economic recession which triggered inflation, the cost of imported goods went up in the two countries. A situation whereby they pay a deposit and pay off the value of the car in a monthly instalment. This means they do not own the vehicle until the last payment is made.

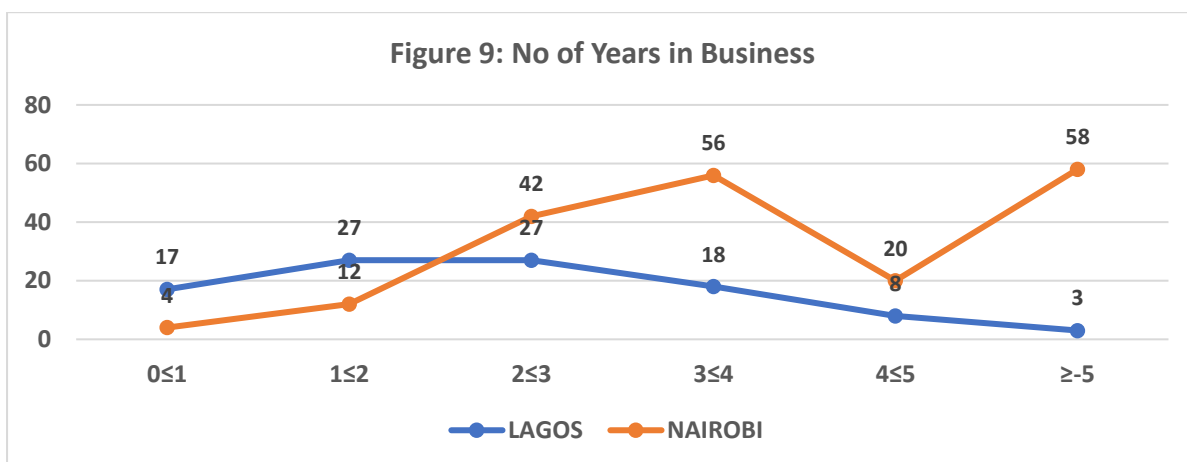
The study showed that daily trips for the operators are in the class range of 1-5, 6-10, 11-15, and Lagos recorded 65%, 30% 5% and Nairobi posted 48%, 42%, 10% respectively. More of the trip frequency (60%) are in the lowest class of 1-5 trips/day which reflected the level of congestion. Although Nairobi equally posted the highest percentage for the class (1-5 trips/day) but it has a significantly higher percentage of 42%, Lagos 30% in the 6-10 daily trips band.

6.8.2 Mode of Operation

In Nairobi 84% are in the business on a full-time, while it is only 50% for Lagos. We cannot affirm the basis for this disparity. However, many of those sacked due to economic downturn take to e-hailing driving to make ends meet especially since it is easy to register a personal family car for the business. Many of the employed graduates take to this while waiting for a job opportunity that usually does not come on time. Due to its lucrative nature many are beginning to accept it as a full-time engagement as reflected in the responses of the Nairobi operators. Those who take it as part-time listed other sources of income as Car-Wash, Car repairs, Cars spare part selling, Cyber Café, Restaurants, Running an online store, Farming (Nairobi only) and Fishing (Lagos only).



In terms of years in the business the operators in Nairobi have spent much more time than their Lagos counterpart. In the frequency of mention 58 of those interviewed claimed they have been in the business for more than five years while only 3 made such a claim. The modal years of being in operation for the Lagos drivers are between 1-3 years, whereas that of Nairobi was between two and four years. We could not explain the sudden drop in the period of 4-5 years for Nairobi

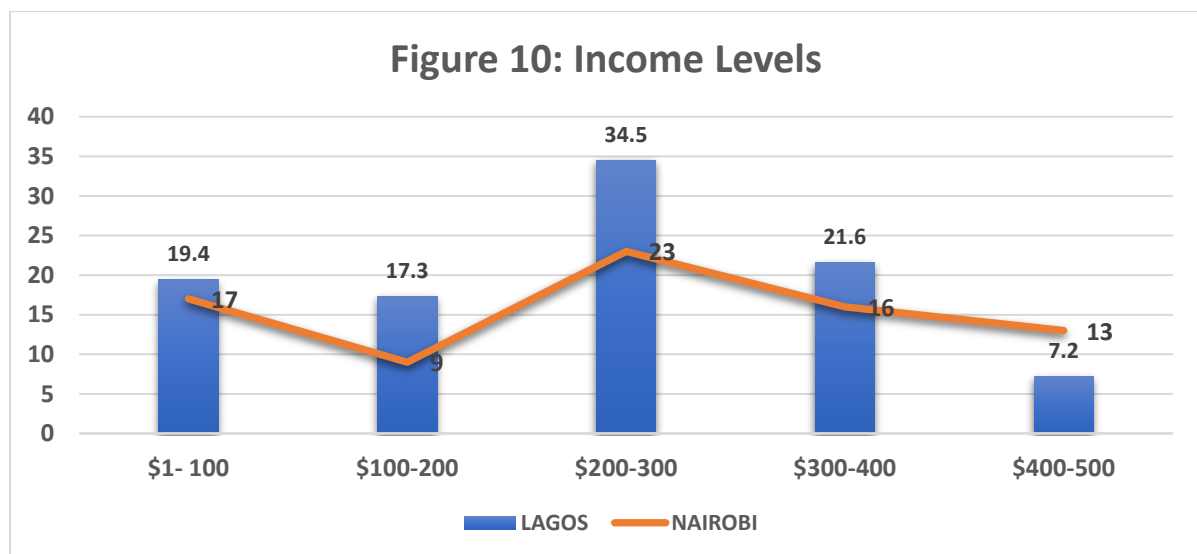


6.8.3 Type of Insurance Used

For Lagos, the insurance cover is 32.5 Comprehensive, 62.5 Third Party and 5% having none. In Nairobi the figures are about 96% comprehensive insurance vehicle cover while 4% had the third-party cover in case of an accident. The respondents stated that comprehensive insurance, though quite expensive, helps them get back to business quickly since the insurance company will take care of the damages. There were more observance and acceptance of principles of insurance in Nairobi than in Lagos. This may be a factor of more enlightenment and enforcement in the city.

6.8.4 Income Level

On the income level of the passengers, the modal income level group is those earning between \$200-\$300 per month in both cities. Given that the minimum monthly wage is \$60 and \$135 equivalents in Lagos and Nairobi respectively, the average rider at \$200-\$300 is at a significantly higher income level bracket than the minimum wage earner of their respective countries. This is a further reflection of the fact that the riders are better educated and therefore expected to earn more than the lowest paid group.



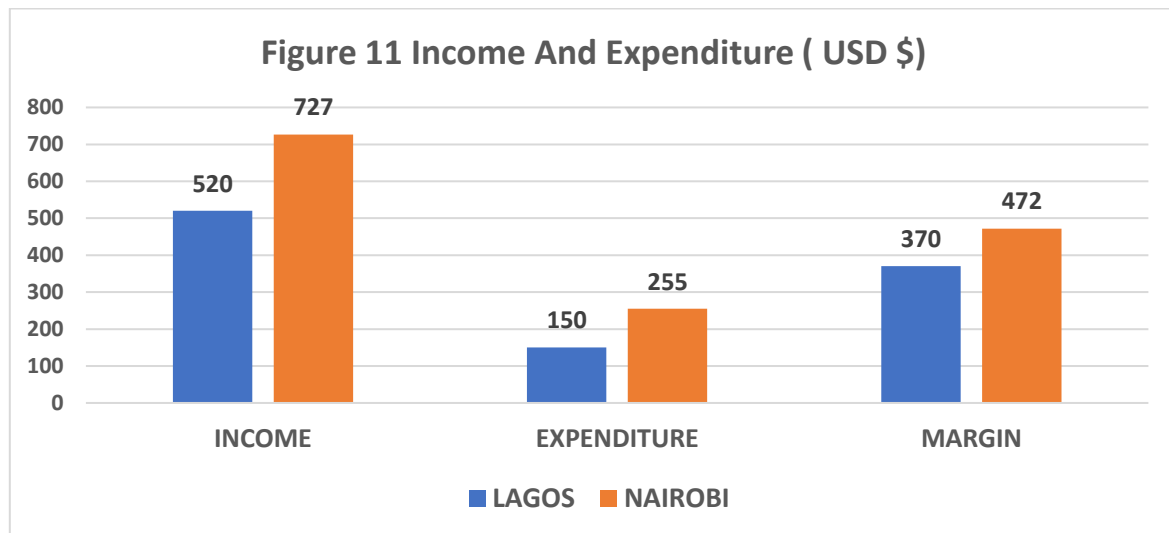
NB: The assumed exchange rate is \$1=N50; Sh100

6.8.5 Average Cost Per Trip

For any business model to survive, the econometrics must be favourable if not it will not be sustainable in the long run. The fact that this model has spread globally and has thrived is the indicator that it is a profitable business and offers services in very high demand. Thus, in this section we evaluated the income and expenditure profiles in the two cities and concluded that it is profitable for the operators, largely fulfilling the mobility needs of the clients, yielding dividends for the application owners and significant tax revenue for the government.

Before the COVID-19 pandemic the average income per month for the operators is N208,000 /\$520 Lagos, Sh 80,000 /\$727 (Nairobi) The monthly operating costs includes parking fees, car wash fees, fuelling, levies, tolls and other overheads, is N60,000/\$150 (Lagos) Sh28,000/\$255(Nairobi) Thereby leaving a margin of N148,000/\$370 (Lagos) Sh58,000/\$527 (Nairobi). Given that the minimum monthly wage is N30,000 (\$75) (Nigeria) and Sh13,572/\$123(Kenya), the earnings of N148,000/\$370 and Sh58,000/\$527 is about between

four to five times the minimum wages in both countries. This explains the attraction for graduates who lost their jobs and those that never employed. The income understandably decreased during the pandemic fluctuating from zero earnings (on total lock down) to about 30% on partial re-opening. The virus has been consigned to the backwaters and the business has significantly recovered.



7 On the public policy regulatory frameworks affecting the operations:

The policy framework guiding the e-hailing operations in Lagos state is the transport sector reform law of 2018 and the e-hailing taxi operations regulations of 2020 which empowers the Commissioner for Transportation to prescribe the regulations for the business. (Frederic, 2020) It establishes the framework for Application for e-Hailing Business Operator License, Operational Standard, Service Entity Permit, Provisional License Application/Renewal fees, Operators Requirements, Penalties For non- Compliance, Implementation Strategies, Enlightenment, and Enforcement.

E-Hailing Business Operation: Service Entity Permit Provisional License Application/Renewal which shall be valid for the First Two (2) years subject to annual renewal.

The Service Entity Permit must apply for Operator's Provisional Licence before operation with payable fee of ₦8,000,000.00/\$16,000 (Eight Million Naira only) for 1000 (One Thousand) units of vehicles and N20, million for above 1000. Payment of N20 road development levy is compulsory. All Service Entities must provide the Ministry with data on trips and accident on a weekly and monthly basis for planning, revenue and security purposes. All Service Entities must have a "Ride Hailing Insurance package" that covers personal liabilities of drivers and

passengers including loss of personal devices, injury protection, disabilities and medical expenses. All Drivers on the e-Hailing Platform must visit the Ministry's One-Stop Centres across the State for issues bothering on Vehicle Registration and Documentations. All Service Entity must abide to rules and regulation guiding Lagos State Public Transportation System (Salaam, 2019)

For any individual who wants to use his vehicles for e-hailing service the documents he must provide include: A completed, signed and dated COE request form on a form prescribed by the Ministry; Title of vehicle or manufacturer's certificate of origin; A Bill of Vehicle Sale or Vehicle Lease; Taxicab license (hard card) card; Plate number; Allocation of plate number form; Proof of ownership; Pre-registration Inspection Certificate; Roadworthiness Certificate; Insurance policy; Vehicle license; Hackney Permit; and All Route Document (Body Tag). Others are Driver's Documentation, Driver's Literacy confirmation; Valid/Genuine Drivers' license; Original Annual certificate of competence from Lagos State Drivers' Institute (LASDRI) to determine their competence and fullness LASDRI Card; Lagos State Residents Registration Agency (LASRRA) Card; and Drivers' Badge. The minimum fine for violation is N100, 000/\$200 or impoundment of the vehicle (Lagos State Ministry of Transportation (LMOT) (2020)

On Implementation Strategies: There is provision for capacity building. Taxi Operators or the Service Entity License holder in partnership with the State enforcement agencies such as VIS, LASDRI and LASTMA will periodically train riders to effectively carry out their responsibilities. There will be continuous enlightenment which shall be organized by the State Ministry of Transportation on print and electronic media, workshop, seminar and conference to create the necessary awareness. The laws are to be enforced by The Vehicle Inspection Service (VIS), Nigeria Police, Lagos State Traffic Management Authority (LASTMA) and Federal Road Safety Corps (FRSC) shall ensure that the above-mentioned conditions/specifications are met and enforced in line with Section 68, Schedule 1, Section 326 (48 & 49) and VIS and LASTMA Offences and Penalties which is always necessary because of the recalcitrant nature of large number of Lagos motorists (Paul, 2020).

In Kenya there was a national regulation which is operational in Nairobi, it is The National Transport and Safety Authority Act No. 33 of 2012 (NTSA, 2012). To accommodate the innovation of e-hailing mobility, the authority drafted a new policy known as The National

Transport and Safety Authority (Operation of Digital Hailing Operators) Regulations, 2019 (NTSA 2019). In the NTSA (2012) the functions of the Authority are to advise and make recommendations to the Cabinet Secretary on matters relating to road transport and safety; implement policies relating to road transport and safety; plan, manage and regulate the road transport system by the provisions of the act; ensure the provision of safe, reliable and efficient road transport services.

In the performance of its functions, the Authority is expected to register and license motor vehicles; conduct motor vehicle inspections and certification; regulate public service vehicles; advise the Government on national policy about road transport system; develop and implement road safety strategies; facilitate the education of the members of the public on road safety; conduct research and audits on road safety; compile inspection reports relating to traffic accidents; establish systems and procedures for, and oversee the training, testing and licensing of drivers; formulate and review the curriculum of driving schools; co-ordinate the activities' of persons and organisations dealing in matters relating to road safety; and perform such other functions as may be conferred on it by the Cabinet Secretary or by any other written law.

NTSA, (2019) was enacted on the realization that the old policy could not adequately regulate the new e-hailing services which is an ICT driven mobility transport system. The rule seeks to licence digital service operators, just like how they do with the legacy operators like *Matatus* and buses. Any person will not operate a digital hailing service without a valid licence from the authority.

The regulation outlined the requirements to be licenced as an operator which include a certificate of compliance, valid and binding agreements between operator and registered owners of vehicles and compliance with labour laws, a list of all vehicles, list of directors, copies of lease or ownership of head office, copy of KRA PINs, list of staff for the operator, contracts of the drivers of vehicles, valid certificate of road-worthiness from NTSA, valid insurance cover for each vehicle, a full scale colour illustration to identify the hailing service, data security policy for protecting driver and passenger information and letter of recommendation from the country government transport committee, the licence is expected

to be valid for one year from the date of issue or renewal. In case of a renewal, NTSA will conduct an audit to confirm the level of compliance

Unique requirements for a digital hailing service taxi is that it must have a digital hailing service identifier at the front or at the back of the car. And whenever it ceases to be used for e-hailing services, the identifier must be returned within 5 business days. Also, cars that are older than 11 years from the date of manufacture will not be licenced as a digital hailing service vehicle. The e-hailing driver must apply for a driver's licence which is accompanied by the prescribed fee. They are also to carry several documents while applying for this licence which include a valid driving licence, certificate of good conduct, medical test, copy of PIN certificate and Tax compliance certificate. Drivers are also prohibited from picking up passengers at cab stands, responding to street hails or soliciting rides.

Other regulations for operation relate to vehicle make and model, vehicle registration number, driver's names, driver's photo, fare estimates, and print or electronic receipts, ensuring security and protection of both driver and passenger. Operators are also required to have a system where passengers can retrieve lost items, and an office that is staffed between 8am and 5pm on all business days. On the platform the driver shall log out after 8 hours of providing services in a 24-hour period for not less than 4 consecutive hours. The limit of chargeable commission was set at not more than 15% per trip which was the rate for Little Cab and Bolt, but Uber was charging 25%. This is expected to be exclusive of other levies or fees. The stipulated penalties for violators of these regulations are a fine not exceeding KES 20,000 or to imprisonment for a term not exceeding 6 months or both.

What is obvious in both cities was that the governments are playing catch up with the innovation that came outside the box. Lagos state as a subnational is nimbler at adjusting its regulation from time to time and it is at a fourth review or re-examination of the policy to ensure it covers all the various dimensions of the operation and embedded technology. This is not strictly peculiar to the two cities because at the take-off, even in Europe, the debate rages as to whether these technology companies are transportation or ICT operators. For their convenience and defence, they often want to be accepted as the latter.

Generally, these regulations seem to be constricting the run-away growth of the model. But this is because the governments are still trying to understand all the variables of the business. With time and with the advantages of learning from the experiences of the early adopters, the regulations are expected to become a win-win for all the major stakeholders in the industry.

However, we suggest that the governments should not focus mainly on the aspects of revenue generation, regulation and control. But equal attention should be paid to education, enlightenment, enforcement, safety and security. This will go a long way to ensure the sustainability of the business model. There should also be a mechanism for feedback reportage from the operators to the government regularly. This will ensure appropriate adjustments to the laws and practices as the industry grows.

A critical matter arising is the increasing incidents of carjacking of the operators, robbery and raping of the users. These deserve greater attention on the part of governments and the technology company. As the criminals are taking advantages of the weak links in the system, these loopholes must be blocked in the long-term interests of all the stakeholders



Plate 5 LAGRIDE, Government Supported Ride-Hailing

8 Focused Group Discussions

8.1 Lagos State

The focused group for the research was assembled to first evaluate taxi operations in Lagos and how various government policies and actions have affected their business over the years. Secondly, the discussion was meant to know their perception of the e-hailing business model, their views of other e-hailing operators and how they have been able to buy into the technology driven business model. The interview reports the perception of the public about the association members and analysed why the public opinion of them is low, their pricing, vehicular maintenance, safety, comfort and the behaviours of the drivers. The discussion touched on the associations operating environment, challenges and their new software application. It gave information on when the application was introduced, pricing, regularity of usage, its popularity among the commuting public and its effectiveness.

Finally, the interview highlighted some expectations of the association, plans for growth and future development of the associations.

8.2 Methodology

The Executive members of the Lagos State taxi Union consist of: Mr Taiwo Omolekan, the President of Lagos state Taxi Driver's Association Oseni Oladimeji, Assistant General Secretary of the Lagos State Taxi drivers Association and Mr Micheal Oladipo, General Secretary of Lagos State Taxi Driver's Association. They were interviewed in the conference room of the School of Transport and Logistics. This Interview was facilitated by Dr. Saalam Taiwo who was a former permanent Secretary, Ministry of Transport, Lagos State.

The language of the interview was English. A structured questionnaire was used, and the responses of the union members were recorded. Afterwards, the recorded conversation was transcribed into word format. The interview lasted for 2 hours of two sessions, afterwards a group photograph was taken with the Union members.

8.3 Summary of findings of the Focused Group Discussion (FGD)

8.3.1. Government Interventions in Taxi service operation in Lagos State

- a) The government wanted to change the face of Taxi operation in Lagos and did this by assisting the union by buying brand new vehicles for their operations. Although the unions were afraid that it will attract armed robbers/carjacking, they however agreed to the scheme. The government guaranteed the loans for the union more than N1bn from Union bank, First bank and another consortium of banks.
 - i. First Bank- N353m
 - ii. Union Bank- N251m.
 - iii. Others-N196m
 - iv. 250 nos. Nissan Sonny vehicles were bought from First Bank facility and 222 nos. from Union Bank facility to be paid within 3-year. The loan facility was fully paid back within the stipulated time. Government plans to replace the vehicles after 4 years were not fulfilled.
- b) The government afterwards licensed nine new companies to run taxi services under a Public, Private Partnership (PPP) arrangement and were issued a Franchise to the 9 companies with different distinctive colours. Every franchisee paid 5 million naira to government for the take off. Many of the new entrants had bogus overhead costs and could not cope and ran into debts with many litigations in court.
- c) The government introduced data base for all the taxi drivers in Lagos state and were all mandated to register with Vehicle Inspection Offices (VIO) to capture biometrics and registration numbers.
- d) The government also issued Taxi operational license for persons who want to operate taxis
- e) The traffic law 2012 was reviewed in 2014. The law regulates taxi operations and stipulates that every taxi must have a colour. This is assisting the VIO to apprehend illegal taxi operators. Currently the enforcement of that law is almost zero it is a free market for all now.

8.3.2. Accessibility challenges

Most of the residential, industrial and educational estates in Lagos do not allow yellow taxis into their premises to enter the estates in Lagos state. They do not allow them to enter because of past security issues involving the yellow taxis. This made union members ~~to~~ paint their taxis with other non-taxi colours to gain access to the estates; this mainly accounts for the declining number of yellow taxis from a membership of 12 000 a decade ago to about 2000 now. To check this, the government wrote to 50 estates in the state, that the traditional taxis should be allowed to enter their premises the executive order was dumped by a new administration and the estate reverted back to their former practice of barring the entry of officially painted yellow taxis.

8.3.3 The Entrance of E-hailing Operators, Security Issues and Development of Yellow Taxi Software application (APP)

a) Yellow taxi APP

Before the launching of Yellow taxi APP, the association's telephone numbers were usually displayed on the body of the cabs. If a customer calls and identifies his location, an operator will locate the taxi nearest to the caller and call the driver, thereafter, the passenger and the driver will negotiate the fare, that is the history of calling a cab in Lagos State. The Union then makes its own commission. They also have their APPs now called **UNIVERSA and EKOCAB**, for yellow taxis. They were able to compete with the other E-hailing operators because they know the terrain more than the new operators and they believe that the e-hailing will then be given a run for their money because they would have been empowered to compete more effectively with their own application.

According to the stakeholders "When you call the UNIVERSA and EKOCAB APP immediately they will link you with a Taxi who comes to your location. The passenger does not pay for the first 5 minutes of the taxi dwell time". They further stated that since most of their members have smart phones, when a customer contacts the UNIVERSA APP, the management of the application at the back-end will assist in contacting those in that area. If the passenger makes a call online and the UNIVERSA management saw that there is no response, they will look for

a taxi around through their GPS and contact them at the taxi park that can immediately pick up the passenger and go to the designated destination of the passenger. Each taxi cab has an installed tracker device in case the operator cannot use an android phone.

b). Migrating all members to the UNIVERSA and EKOCAB APP

The association organizes monthly meetings with members that comprises all the unit's chairmen of all the parks in Lagos state. Through those meetings they were able to disseminate information to our members. And provides the opportunity to educate members on the use of our APP. Presently they have more than 500 registered members on the APP who have started using it.

c) Issues with E-hailing Operators

They stated that they are not against the E-hailing operators. All they wanted is that the E-hailing companies should come under our association for easy monitoring so that if anyone commits a crime, it will be easy to trace them. According to them the e-hailing was accepted initially, but later opted out. They drew government attention to the law, that any taxi operator must paint their taxis, they refused to paint their vehicles and the government did not impose any sanctions.

The government introduced body tags which cost N3500 annually and impounds any operator without a body tag and he is fined N20,000. Their grouse therefore is that e-hailing operators don't even paint their taxis, not to mention body tags. They felt that e-hailing taxis should not be operating secretly.

The body tag indicates that you are using your vehicle for commercial purpose and it is identified by the government. It is a sticker pasted on the body of the vehicle. They advocate that this will assist the estate owners to allow taxis to drop passengers within the estate.

They suggest that If the e-hailing operators have tags, it will be recorded in the ministry so in case of theft or any form of criminality they can be traced, but the government said they should be left alone. The Union members suspect that the reason government is quiet on the

issue of tags is that some top government official have an interest in the e-hailing companies and are trying to defend their interest.

8.3.4. Welfare of Union members

The welfare package of the union is to assist members to own vehicles, operate and own. If Union members who are members of the cooperative run into any problem with their vehicles, they can approach the cooperative to get a loan to repair it.

a). On the public perception of Yellow Taxis: The public has ascribed a lot of negativities to the yellow taxi, either for crime or lack of integrity. The Union executives however vouched for their registered members because they have means of identification such as: identity cards, and stickers placed on the front and back wind screens. They submitted that immediately someone flags down a taxi and enter they will see the stickers.

b) The unions also do public enlightenment on traffic radio.

c). The disclosed that a Union member has even returned US1600 dollars forgotten in his taxi by a passenger who was travelling outside the country and rushing to catch up with his flight. The passenger returned to the country after 6 months and came straight to the park where he took the taxi and he got his money back intact after due identification.

8.3.5. Membership Entry Requirements

Entry requirements used to be stringent, however, since the new executive come in, it was reduced to N5000 from N25,000, to encourage potential members to join, especially the young ones that wants to go into taxi operations. This is to avoid leaving the business for older men who are used to doing business the traditional way without thinking of change and to avoid killing the business and the parks.

8.3.6. Taxi Park Operations, Insurance and Daily income

a) **Taxi Parks:** The Association has 253 taxi parks spread all over Lagos state and each park has a name and belong to a local government. Each Taxi has a sticker that reflects the local government of origin and the Taxi serial number and If a passenger forgets an item in the

cab and cannot remember the number, immediately he mentions the make of the taxi and the location where he took the taxi they will identify all such taxis with that configuration and recover the item.

b) **Insurance:** Before the decline in membership and number of registered taxis, the association used to have passenger insurance, the insurance covers both the driver and passenger, but due to the current situation, most of our members now only have a third-party insurance package with very few having a comprehensive package. The association uses Lagos State Assurance Company (LASACO) owned by Lagos State Government.

c) **Daily Income:** The Average income per day is N5000 to N7000, some of the operators make more. However not many people are patronizing taxis, people prefer to take buses despite the comfort the taxi provides. Part of the challenge in making daily income is the 4-month lockdown due to the Covid-19 pandemic. Every driver pays N200 daily before they leave the park as union dues.

8.3.7. Appeal for Government assistance

a) Government can assist the association by implementing the Lagos State Traffic Law of 2012. The Taxi business is a very lucrative business but all these unregulated new entrants who don't follow any rule has negatively impacted the income of traditional operators. The introduction of the UNIVERSA and EKOCAB APP and the trainings operators undergo are making the future of taxi operations bright again.

b) They appealed to the Lagos State Government to emulate states such as Kwara state, Kano State and Kebbi, which provided bail out funds and give vehicles to them at a subsidized rate. Just to empower them and create employment

c) They complained that although the state government wants to roll out 1000 cars at N6m each to be paid over 4 years, not many operators would be able to get it; but if the government stand surety for the association members through our cooperative, they asserted that they will be able to pay. The government has done it before and the association did not default, we will still not default, they claimed.

8.3.8. Comparison of the taxi Association with other associations

- a) Tricycle operators pay a N2000 per day Union fee
- b) Yellow buses (Danfo) pays N3000 per day Union fee
- c) Okada, Two-Wheeled Motor Cycles Pays N2000 per day union fee
- d) Yellow Taxi Association pays N200 per day union fee for operation all over Lagos State.
- e) Others pay along the road when they enter other zones

8.3.9. Park management

The dirtiness and unstructured nature of their parks were attributed to the downturn in the business. Most parks lack the following basic amenities: Good toilets, Car wash, Good waiting areas, Paved environment, No perimeter fencing, No security posts, No park and Ride provision, No eatery and adequate parking space.

8.3.10. Conclusion of the Focused Group Discussion.

It could be perceived that though taxi operations in Lagos State is lucrative, it is however experiencing some down turns. Part of the problems faced by taxi operations include: poor transport infrastructure, accessibility to formal settlements, old business model, replacing old cabs, stiff competition by new entrants to the business using technology, government low enforcement of the traffic law of 2012, poor public image, poorly constructed parks and a dwindling economy. Government intervention has not been adequate or almost none existent and inconsistency in policy and poor institutional relationships. All of these make taxi operations in the State to fall below globally accepted standards

The interaction with the association executives has revealed that the impression that all members are illiterates and cannot adapt to new changes in business models is erroneous. It has also been revealed that with some intervention from the government in terms of the provision of new vehicles or loan with a flexible paying pattern, the traditional taxi business in the state can pick up again and create more jobs and reduce the level of informality in the business.

8.3.11. Recommendations

- a) Government should facilitate the acquisition of land for them to build modern parks that will be adequate to accommodate a park and ride scheme
- b) Government should mandate formal settlements in the States to allow them entry to pick or drop off their passengers.
- c) Government should strictly enforce the state traffic law of 2012 as amended in 2014.
- d) The association should rebrand its image by improving on its human resources and relationship with the public.
- e) The Association should work out strategies to attract more of its members to make use of their APPs
- f) The association should engage more in public enlightenment programmes



Plate 6: Lagos State Taxi Association Members seated to the left and Staff of the School of Transport and Logistics



Plate 7 Nairobi field Enumerators

9 Nairobi Focused Group Discussions

Introduction

To carry out this research, we spoke to some members of the Kenya Taxi Cab Association and members of one of the E-Hailing services. This way, we were able to get both points of view and gather enough information.

9.1 On the attitude of other mobile operators not enrolled in the E-Hailing

From the discussion, E-Hailing services began in Kenya in 2015, with Uber being at the forefront of this new venture. When Uber began its operation in Kenya, many taxi drivers were not impressed. We saw riots and protests all over Nairobi where taxi drivers wanted the cessation of the Uber operation in Kenya. Uber drivers reported a series of physical attacks from taxi drivers not enrolled in the E-Hailing service (BBC, 2019). The Uber cars were damaged, their windows were broken, and the drivers received multiple threats.

The drivers not enrolled in the services complained that Uber undercuts them by almost half and that the drivers in the service do not pay the registration fee. This made them angrier and opposed the Uber service even more. As time goes by the E-Hailing services, gained acceptance and popularity among drivers and customers. Most of the drivers enrolled in more than one service, allowing them to earn more. Uber has also experienced protests from its drivers. Back in 2016, the drivers went on a strike protesting the 35% fare cut. They also complained about poor working conditions and low wages.

9.2 Focused Group Discussion with Members of the Nairobi Taxi Union on Their Views and Adoption of E-Hailing Business Model in Nairobi

From the discussion our team was made to realize that the members of the Kenya Taxi Cab Association were unhappy with the use of E-hailing services. They feel that some policies need to be revised especially in terms of revenues and bonuses. This is to help them survive in the business especially during the global pandemic that restricted them from operating for not more than 10 hours per day. Members of the association acknowledged that some of the drivers in the E-Hailing business receive attacks when picking up or dropping off customers,

but it is not of their making and feel that the ride hailing management should ensure that they are safe.

It was revealed that members of the Kenya Taxi Cab Association are not willing to join the E-Hailing business. This is due to the uncertainty that comes with it and the working conditions.

9.3 Summary of Findings of the Focused Group Discussion

From the interviews we carried out, we found out that the Kenya Taxi Cab Association members do not like the working conditions that come with working with E-Hailing services. They prefer to be able to freely determine their charges to various destinations and pocket their money rather than give some percentages to the E-Hailing service. The risks that face the ones in the E-Hailing business also make them not want to join. But they recognized that the e-hailing applications have a greater market share because of its mass and easy enrolment of the populace on the platform. Also, that it is getting more acceptable and it is eating into their client's volume

9.4 Conclusion and Recommendations

In their conclusion, E-hailing services pose a great risk and advantage to the drivers and a lot of competition to those who do not operate in it. The commuters are increasingly adopting the e-hailing mobility mode, thus reducing the market share of the ones not using them. We would recommend a better working environment for those in the E-Hailing business. This way, more drivers will join the sector, giving quality services to clients, increasing loyalty, and the E-hailing companies will gain more revenue as a result.

10 Summary, Conclusions and Recommendations

On this exploratory study, we set out to obtain basic attributes about the mobility model on the origin, types, demographics and perceptions of operators and passengers, the government's regulatory framework, their operations and econometrics. In this section we outline our findings.

On inception and spread: As a business model in 2013 Africa's first e-hailing started in South Africa with Uber, Cabs and Cab Man launched in Kenya and Nigeria representing Africa's homegrown e-hailing apps. In 2014, Lebanon-based Allo-Taxi and UAE-based Careem

launched their services in Angola, Egypt, Central and North Africa respectively. India-based Taxi Pixi entered a partnership with Tranzit.ng to offer e-hailing services in Lagos. In 2014 Africa's first motorcycle-hailing service Safe Boda started operation in Uganda. The rising trend continued to date. As the internet and smartphone penetration in Africa is rising, more e-hailing operations are coming up and increasingly playing important roles in urban transport in Nigeria. And Kenya

On the types, the coverage and operational strategy of the e-hailing mobility services in the cities of study: In Lagos there are 22 e-hailing operators but dominated by Bolt from Estonia (72.5%) Uber of USA origin (20%), Osa-Go from Nigeria-(5%) a water-based transportation mode, In-Driver from Russia (2.5%). In Nairobi the dominant operators are Bolt, ranked the highest with 56% patronage, followed by Uber which had 44% market share, the other marginal players are Little-Cab, Safeways and SWVL.

On the demographic characteristics of the operators of the services: The service is mostly dominated by male operators (99%) in both cities in the age range of 26-45 years which represents 77% in Lagos and 70% in Nairobi. More than 75% of operators are graduates in Lagos and 80% in Nairobi. This makes the adoption of new technologies faster in both cities. In Lagos 50%, 32.5%, 16.5% of the operators are engaged in it as full time, part-time, and occasional respectively, while the figures in the same sequence in Nairobi are 84%, 14%, 2%. The slide in the national economies of the two countries created increased unemployment which pushed many educated workers into the business, registering their personal cars for the operations.

Challenges and perceptions: Frequency of mention of the challenges of the business are: Covid-19 Lock-downs (Lagos 65%, Nairobi 90%) Traffic gridlock (Lagos 18%, Nairobi 56%), Bad Roads (Lagos 23%, Nairobi 68%) Security (Lagos 10%, Nairobi 26%), Tax and Levies (Lagos 14% Nairobi 2%). This is an indicator that the impact of COVID-19 is felt more in Nairobi than in Lagos.

On income and Expenditure: Before the COVID-19 pandemic, the average income per month for the operators was N208, 000 /\$520 Lagos, Sh 80,000 /\$727 (Nairobi) The monthly operating costs which includes parking fees, car wash fees, fuelling, levies, tolls and other overheads, was N60,000/\$150 (Lagos) Sh28,000/\$255(Nairobi) Thereby leaving a margin of

N148,000/\$370 (Lagos) Sh58,000/\$527 (Nairobi). Given that the minimum monthly wages are N30,000 (\$75) (Nigeria) and Sh13,572/\$123(Kenya), the earnings of N148,000/\$370 and Sh58,000/\$527 is between four to five times the minimum wages in both countries. This explains the attraction for graduates who lost their jobs and those that never have employment. The income decreased consequently upon the pandemic oscillating from zero earnings (on total lock down) to about 30% on partial re-opening. The pandemic has receded in both cities, lock-downs are no more, and the business is beginning to boom again.

Profile and perception of passengers: Female patronage is 53% and 40% in Lagos and Nairobi respectively. The age distribution revealed that majority of the respondents fall between 26-45years (Lagos 63%, Nairobi 59%) with tertiary education at 79.3% Lagos, 81% Nairobi. Some of the challenges identified by the respondents include accessibility on the application, network non-availability in some areas, robbery and kidnapping of the passengers. However, the general perception of the e-hailing passengers was highly favourable (around 90%) in their assessment of drivers' attitude, service reliability, ease of use of application software, trip cost, and trip duration. This implies that the prospect of the business model is quite bright.

On the non- e-hailing operators: Demographics, Income and attitude: As in the e-hailing service the service is dominated by males' operators, (>90%) in both cities with mean age of 36.5 (Lagos) 40.4 (Nairobi) which is older than the e-hailing averages at 32 (Lagos) 33.6 (Nairobi). They are however less educated at 13.9 % (Lagos) 34% (Nairobi) tertiary education compared with the e-hailing at 75% (Lagos) 84% (Nairobi)

These group has had occasional melee with the e-hailing because they are charging less per trip which is affecting their share of the market on the average N2,500 (\$6.25)- N4000 \$10) in Lagos, Sh400/\$3.6 to Sh500/\$4.5 in Nairobi. Presently they seem to be accommodating the e-hailing but are demanding that E- (hailing operators should be under their associations and wear tags ostensibly for easy monitoring so that if any of them commits a crime, it will be easy to trace them but in truth to also generate funds for their unions.

On the public policy regulatory frameworks affecting the operations: The guiding policy of Lagos state transport sector is the reform law, 2018 and e-hailing taxi operations regulations, 2020 which prescribes for Application for e-Hailing Business Operator License, Operational Standard, Service Entity Permit, Provisional License Application/Renewal fees, Operators

Requirements, Penalties For non- Compliance, Implementation Strategies, Enlightenment, and Enforcement. The Nairobi equivalent is the National Transport and Safety Authority (NTSA) which is the main regulatory body in Kenya. The authority drafted new regulations known as digital vehicle services rules,2020, specifically to regulate E-hailing mobility services in the country (NTSA, 2019)

The main thrust of government policy framework is for revenue generation, regulation and control. Presently due to the novelty of the business model, there are areas that the policy makers are still trying to understand fully, hence there has been continuous modifications of the rules and regulations. However, there is an urgent need for enhanced safety and security measures for the business as car jacking of the operators, robbery and raping of the users are very common (about 10 incidences per week) both in Lagos and Nairobi. Government policy should not always be revenue generation concerns about the business.

11 Post Research Issues

11. 1 Identified research gaps, and suggestions for further work.

- a) Developing Safety and Security Framework for the operators and users of the e-hailing services.
- b) Measurement of return on investment (Cost -Recovery) for the operators.
- c) Evolving policy framework for greater accessibility for school children, urban and rural poor

11.2 Dissemination

- a) **Presentation at Conference** (2022) Hamad Bin Khalifa University, College of Islamic Studies' on Entrepreneurship, Sustainable Development and Halal Economy: Concepts, Framework and Practice. *"Emerging Business Models of Sustainable Entrepreneurship: An investigation into E-hailing Mobility Service in Nigeria"* – March 28, 2022
- b) **Presentation Conference** (2021) International Network on Transport in Low Income Countries (INTALInC) On Digital Futures and the Role of Technology *"Comparative Analysis of the E-Hailing Mobility Services in Selected Cities in West and East Africa"*. *11th November 2021.*

- c) **Accepted for Presentation Conference (2022)** Accepted for 4th African Conference on Operations and Supply Chain Management 2022 **Theme 4:** Transport, Logistics and Supply Chains, **Sub Theme: (i)** Sustainable logistics and supply chain management practices “Comparative Analysis of the E-Hailing Transport Logistics and Supply Chain Management Practices in Lagos And Nairobi”. July 27th and 28th, 2022.
- d) **Presentation at Research Forum** VREF Mobility and Access in African Cities: MAC Research Forum 2. Theme: Can New Technologies, business models and practices help to transform today’s mobility services? Comparative Analysis of the E-Hailing Mobility Services in Selected Cities in West and East Africa, June 16th, 2021.
- e) **Presentation at Research Forum** African Road Safety Academic Network “Safety and Security Issues in E-Hailing Mobility Services in Lagos” organized by the network of Research Centre for Transport and Logistics (CTL) (Italy), TØI (Norway), SWOV (The Netherlands), NTUA (Greece), ENSTP (Cameroon), BNTU (Belarus), UniAndes (Colombia) – **ARSANet** Nov 19, 2021
- f) **Presentation at Seminar:** School Seminar July 28th, 2021, School of Transport and Logistics, “Travails of Motorcycle Ride-Hailing in Lagos State: The unending cycle of Okada Bans” June 10, 2022

11.3 In what areas were the project able to achieve its goals, and in what areas were there revisions or deviations about the original project plan for the work?

Three study locations were initially selected but the Covid-19 and some unexpected social unrest inhibited the study in Johannesburg. So, we have West and East Africa, but we could not achieve our aim of South Africa case study. The pandemic also caused some delays in the execution of the project such that we had to request for no-cost extension twice first for additional six-months and second for additional three months

11.4 What were difficulties or challenges in carrying out the project (if any), and how were these dealt with? What are the lessons learned in relation to carrying out comparative work in SSA?

The biggest challenge is the pandemic, travels were shut down. Virtual meetings became the saving grace, but it has its peculiar technical issues especially concerning internet connectivity and the quality of service. International payment procedure is getting more difficult. Several times we could not receive the payment made to us from the foundation, it reverts to the

foundation for technical issues from our end. Also getting to pay our team members and Consultants were very problematic. Up till now the honorarium of Prof. Karen Lucas which she donated to the winners of a Mobility Graphics Competition won by three (1) (2) (3) has not been delivered to our winners in India. Only the winner from Britain received his award money. We are still trying to use another procedure to pay the money while working on getting the earlier payment reverted.

11.5 What are some of the “success factors” of the project, i.e. factors that were key to being able to carry out the project?

The Working familiarity between the Nairobi and Lagos teams. The support of the VREF Secretariat especially the prompt responses of the project Consultant Fabienne Niklasson in attending to several matters arising. She has to write to introduce our team members several times to organisations for official confirmation of the status of the project. Her responses are always prompt and solutions very effective.

11.6 In what ways has the project contributed to ongoing knowledge in the field and/or to the testing of new research approaches?

Several researches are on-going at the School of Transport and Logistics, Lagos State University, Nigeria particularly at both undergraduate and post-graduate levels consequent upon their participation in various stages of the project. And identification of research gaps in this project

On policy, the project leader is now involved in developing Transportation policy at the Federal and Lagos State level. Some of the findings are being embedded in the policy framework

11.7 What are the possible contributions of the project to education or supervisory work, and to the development of new research networks?

The study of this business model is on-going at graduate, post-graduate and faculty levels. I am supervising three of such that are inspired by this project. This project has brought Consultant from INTALInC, Kuehne Foundation, African Resource Networks, Ben-Gurion University of The Negev at the International level, University Strathmore, University of Nairobi, Kenya at the continental level and three universities (Lagos State University, Kaduna State University and University of Lagos at the national level. We are working on getting

University of Johannesburg, University of Pretoria, and a University in North Africa for Pan-African Network

11.8 What activities have you carried out by way of communicating the project findings with representatives of policy and practice, and how do you envisage they will be able to make use of the findings?

As the Policy framework Coordinator of Cross-Cutting Issues and Institutional Issues at the federal and State level, the Chairman of the Road Transportation of the Chartered Institute of Transport Administration and Fellow of the Chartered Institute of Transport and Logistics, there are sufficient platforms to effectively communicate the findings of the project for maximum utilization of the suggestions.

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APPENDIXES

QUESTIONNAIRE 1: OPERATORS DEMOGRAPHY AND PERCEPTIONS

Introduction: Sir/Madam,

The questions below are for academic research work for Volvo Educational and Research Foundation. It is an attempt to analyse E-hailing mobility services in Nigeria/Kenya/South Africa.

Contact: Odewumi. S.G School of Transport and Logistics, Lagos State University, Ojo, Lagos
samuel.odewumi@lasu.edu.ng +2348033134405

Please provide adequate and concise answers to the questions below and be rest assured that any information provided will be guarded with uttermost confidentiality.

Please tick X

1. Gender: (a) Male [] (b) Female []
2. Age in years:
(a) less than 25 [] (b) 26 – 45 [] (c) 46 – 55 [] (d) 56 – 65 [] (e) above 66 []
3. Educational status (a) None [] (b) Primary [] (c) Secondary [] (d) Tertiary []
4. Are you operating e-hailing business on (a) Full-Time [] (b) Part-time [] (c) Occasional []
5. How many years have you been operating via the e-hailing apps?
(a) 1 -2 [] (b) 2 – 3 [] (c) 3 –4 [] (d) 4-5 (e) > 5
6. What is your payment Schedule (a) Daily [] (b) Weekly [] (c) Monthly []
7. Do you have other sources of income besides transport business? : (a) Yes [] (b) No []
8. Which of the e-hailing platforms do you use frequently?
(a) Uber [] (b) Bolt [] (c) Osa-Go [] (d) Others [] (please specify)
9. Were you in the transport business before adopting e-hailing (a) Yes [] (b) No []
10. What is your insurance status (a) Comprehensive [] (b) Third Party [] (c) None []
11. What is your zone of operation.....
12. Main challenges (a) Security [] (b) Police Harassment [] (c) Taxation/Levies [] (d) Traffic Gridlocks [] (e) Difficult Riders [] (f) Difficult Operating Application [] (g) Operating loss [] (h) Bad Roads [] (i) Topography [] (j) Weather [] (k) COVID 19, Curfew [] (l) Others [] Please Specify.....
13. Estimated Weekly Income: before COVID-19 (N)
14. Estimated Weekly Income: Since COVID-(N)
15. How much is your weekly expenditure (including operating costs, sundry fees, among others in N.
16. Vehicle ownership status (a) Personally owned [] (b) On- Hire []

- 17 **Average daily trips?** (a) 1- 5 [] (b) 6– 10 [] (c) 11-15 [] (d) 16-20 [] (e) >20 []
- 18 How much do you make on the average per trip N

QUESTIONNAIRE 2: PASSENGER DEMOGRAPHY AND PERCEPTION

Introduction: Sir/Madam, the questions below are for academic research work for Volvo Educational and Research Foundation. It is an attempt to analyze E-hailing mobility services in Nigeria/Kenya/South Africa. Contact: Odewumi. S.G School of Transport and Logistics, Lagos State University, Ojo, Lagos. samuel.odewumi@lasu.edu.ng +2348033134405
Please provide adequate and concise answers to the questions below and be rest assured that any information provided will be guarded with uttermost confidentiality.

- 1 Gender: (a) Male [] (b) Female []
- 2 Age (years) (a) less than 25 [] (b) 26 – 45 [] (c) 46 – 55 [] (d) 56 – 65 [] (e) above 66 []
- 3 Educational status (a) None [] (b) Vocational [] (c) Primary [] (d) Secondary [] (e) Tertiary
- 4 How often do you take a ride (a) Daily [] (b) Minimum once a week [] (c) Occasional []
- 5 How many years have you been riding on e-hailing transport mode in Nigeria?
(a) <1 [] (b) 1 -2 [] (c) 2 – 3 [] (d) 3 –4 [] (e) 4-5 (e) > 5
- 6 Which of the e-hailing platforms do you use frequently?
(a) Uber [] (b) Bolt [] (c) Osa-Go [] (d) inDriver [] (e) Others (please specify.....)
- 7 Which other means of mobility were you substituting e-hailing
(a) Taxi [] (b) Bus [] (c) Rail [] (d) Water (e) Motor cycle (f) Tricycle [] (g) Bicycle []
(h) Walking [] (i) Private Car [] (j) Others [] Please Specify.....
- 8 Main challenges (a) Cost [] (b) Availability [] (c) Accessibility [] (d) Security []
(e) Difficult Operator [] (f) Difficult Operating Application [] (g) Internet Problems []
(h) Weather Condition [] (i) Fear of COVID 19, [] (j) Others, Please Specify.....
- 9 Estimated monthly Income: N
- 10 How much do you spend on the average per particular trips ?
(a) From.....to..... Cost N.....
(b) From.....to..... Cost N.....
(c) From.....to..... Cost N.....
(d) From.....to..... Cost N

11 Answer the following questions by marking (X) appropriately.

KEY; Very Good (V G), Good (G), Indifference (ID), Bad (B), Very Bad (VB)

S/N	Questions	VG	G	ID	B	VB
12	How is your experience using e-hailing service?					
13	How do you rate the services of the drivers					
14	How do you rate the customer services of e-hailing companies ?					
15	How do you rate the software application used when ordering rides					

16	How reliable is the e-hailing service					
19	How do you rate fare compared with traditional (bad means higher)					
20	How do you rate time duration with traditional (bad means longer)					

12 Any other relevant Comment

.....

QUESTIONNAIRE 3: NON-E-HAILING OPERATORS' DEMOGRAPHY AND PERCEPTIONS

Introduction: Sir/Madam,

The questions below are for academic research work for Volvo Educational and Research Foundation. It is an attempt to analyse E-hailing mobility services in Nigeria/Kenya/South Africa.

Contact: Odewumi. S.G School of Transport and Logistics, Lagos State University, Ojo, Lagos
 samuel.odewumi@lasu.edu.ng +2348033134405

Please provide adequate and concise answers to the questions below and be rest assured that any information provided will be guarded with uttermost confidentiality.

Please tick X

4. Gender: (a) Male [] (b) Female []
5. Age in years:
 (a) less than 25 [] (b) 26 – 45 [] (c) 46 – 55 [] (d) 56 – 65 [] (e) above 65 []
6. Educational status (a) None [] (b) Vocational [] (c) Primary [] (d) Secondary [] (e) Tertiary []
7. How do you operate your Transport business (a) Full-Time [] (b) Part-time [] (c) Occasional []
5. How many years have you been in transportation business?
 (a) Below 1 [] (b) 1-2 [] (c) 2- 3 [] (d) 3- 4 (e) 4-5 (f) above 5 []
- 6 Do you have other sources of income besides Transportation business? (a) Yes [] (b) No []
- 7 If yes please specify
- 8 Which of the e-hailing platforms is your biggest competitor?
 (a) Uber [] (b) Bolt [] (c) Osa-Go [] (d) In-Driver [] (e) Others [] (please specify)
- 9 Were you in the transport operation before e-hailing (a) Yes [] (b) No []
- 10 Why did you not convert to e-hailing services (a) Not easy to understand [] (b) More Profitable than e-hailing [] (c) Flexibility of Operation [] (d) Full Control of my business [] (e) Less levies and taxes [] (f) My vehicle is not acceptable [] (g) My passengers do not use e-hailing [] (i) Others [] Please specify
- 11 Will you want e-hailing banned? (a) Yes [] (b) No [] (c) Indifference []
- 12 If -11is Yes Why? (a) They charge too low prices [] (b) They are earning other incomes elsewhere [] (c) They parade better vehicles [] (d) They are proud and arrogant [] (e) Others Specify.....
- 13 What is your insurance status (a) Comprehensive [] (b) Third Party [] (c) None [].

14. Where do you operate from
15. What are your main challenges (a) Security [] (b) Police Harassment [] (c) Taxation/Levies [] (d) Traffic Gridlocks [] (e) Difficult passengers [] (f) Operating loss [] (g) Bad Roads [] (h) Topography []
(i) Weather Condition [] (j) COVID-19 [] (k) Others, Please Specify.....
16. Estimated monthly Income: N
17. How much is your daily expenditure (including operating costs, sundry fees) among others in N
18. Vehicle ownership status (a) Personally owned [] (b) On- Hire []
19. Estimated daily trips? (a) 1- 5 [] (b) 6– 10 [] (c) 11-15 [] (d) 16-20 [] (e) >20 []
20. How much do you make on the average per trip: N

QUESTIONNAIRE 4: POLICY MAKERS (RELEVANT GOVERNMENT OFFICIALS)

Introduction: Sir/Madam,

The questions below are for academic research work. It is an attempt to analyse E-hailing mobility services in Nigeria/Kenya/South Africa. Please provide adequate and concise answers to the questions below and be rest assured that any information provided will be guarded with uttermost confidentiality.

- 1 **Status**.....
- 2 Does the organization have policy document/s on e-hailing?
- 3 Personal views on the e-hailing business
.....
.....
.....
- 4 Government challenges in dealing with the operators
.....
.....
- 5 General Remarks on e-hailing business
.....
.....
- 6 Do you use the e-hailing service?
- 7 If (6) is yes please answer the following questions in the table below by marking (X) appropriately.

KEY: SA-Strongly Agree, A-Agree, U-Undecided, D-Disagree, SD-Strongly Disagree

S/N	Question	SA	A	U	D	SD
1	E-hailing operators provide efficient transport service					
2	Government should provide some form of subsidy for the business					
3	Government should impose taxes/levies on the app-owners					
4	Government should impose taxes/levies on the operators					
5	Government should impose taxes/levies on the passengers					

6	Government should neither provide subsidy nor impose tax					
7	E-hailing operators are creating problems for transportation business					
8	All E-hailing services should be banned					
9	E-hailing motorcycle should be banned					
10	E-hailing taxi-cabs should be banned					
11	E-hailing Boat should be banned					
12	The operators are well behaved					
13	E-hailing operators are better than the traditional operators					
14	The cost of the service is too high					
15	The application owners are reaping off the operators					
16	The service is very secured					
17	The application is very easy to use					
18	The service is very reliable					

19 Any other Comment

.....

QUESTIONNAIRE 3: NON-E-HAILING PASSENGER DEMOGRAPHY AND PERCEPTION

Introduction: Sir/Madam, the questions below are for academic research work for Volvo Educational and Research Foundation. It is an attempt to analyse E-hailing mobility services in Nigeria/Kenya/South Africa. Contact: Odewumi. S.G School of Transport and Logistics, Lagos State University, Ojo, Lagos. samuel.odewumi@lasu.edu.ng +2348033134405
 Please provide adequate and concise answers to the questions below and be rest assured that any information provided will be guarded with uttermost confidentiality.

1 Gender: (a) Male [] (b) Female []

2 Age (years) (a) less than 25 [] (b) 26 – 45 [] (c) 46 – 55 [] (d) 56 – 65 [] (e) above 66 []

3 Educational status (a) None [] (b) Vocational [] (c) Primary [] (d) Secondary [] (e) Tertiary

4 Which are your means of mobility: (a) Taxi [] (b) Bus [] (c) Rail [] (d) Water (e) Motor cycle (f) Tricycle [] (g) Bicycle [] (h) Walking [] (i) Private Car [] (j) Others Please Specify.....

5 How often do you take a ride (a) Daily [] (b) Minimum once a week [] (c) Occasional []

6 Are you aware of the existence of e-hailing? (a) Yes [] (b) No []

7 If 6 is yes, have you taken a ride on it ? (a) Yes [] (b) No []

8 If 6 is yes let him have the questionnaire 2

9 If 6 is No, why have you not taken a ride on e-hailing? (a) Cost [] (b) Non-Availability [] (c) Too Technical [] (d) Security [] (e) Difficult Operators [] (f) Difficult Operating Application [] (g) Internet Problems [] (h) Slow [] Others, Please Specify.....

10 Estimated monthly Income: N

11 How much do you spend on the average per particular trips

- (a) From.....to.....) Cost N
 (b) From.....to.....) Cost N
 (c) From.....to.....) Cost N
 (d) From.....to.....) Cost N

12 Answer the following questions by marking (X) appropriately.

KEY; Very Good (V G), Good (G), Indifference (ID), Bad (B), Very Bad (VB)

S/N	Questions	VG	G	ID	B	VB
12	How do you rate your commuting experience					
13	How do you rate the services of the drivers					
14	How reliable are the services you are using					
	How available are the services you are using					
15	How do you rate the fare (bad means higher)					
16	How fast is your rides (fast means good)					

12 Any other relevant Comment

.....

**** Please note: We were permitted to drop Johannesburg from the towns of study due to the issues of team members, social unrest and COVID-19 intensity at the time of data collection.**