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Effect of Ride-Hailing Services on the Efficiency of Public Transport Patronage in Aba Metropolis, Abia State, Nigeria

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Abstract: *The ride-hailing market in Nigeria has witnessed significant growth and development in recent years. Customer preferences, trends in the market, local special circumstances, and underlying macroeconomic factors have all contributed to the expansion of this industry. Customer preferences in Nigeria have played a crucial role in the development of ride-hailing market. With the increasing urbanization and congestion in major cities, customers are seeking convenient and efficient transformations. Ride-hailing services provide a solution to these challenges by offering a reliable and affordable alternative to traditional taxis. The study examined the effect of ride-hailing services on the efficiency of public transport patronage in Aba metropolis, Abia state, Nigeria. The study specifically determined the effect of efficient ride-hailing cost, time, safety and comfort on public transport patronage. The study adopted survey design research. The population of the study covered 1099,300 drawn from the three local government areas in Aba metropolis. The sample size is 193 which was drawn from the population using the Taro Yamane statistical formula. The data was sourced through administration of structured questionnaire to the target respondents. The data was analysed with descriptive statistics and simple multiple linear regression analysis model. The findings of the study showed that cost negatively related to the dependent variable but statistically significant at 5 percent probability level. The coefficient of time was also statistically significant at 1 percent probability level and positively related. Comfort was also statistically significant at 1 percent probability level with a positive sign. The R^2 was 0.709, meaning that 70.9 percent of the variability in the equation has been explained, this also goes to show that the model is a good fit as attested by the high R^2, while the F – ratio was 24.630 which was significant at 1 percent level. It was recommended that effective management of cost must be made a priority since the respondents in the studied area showed to be cost sensitive. Safety, time and comfort also need to be prioritized since it contributes to patronage.*

Key words: ride-hailing services, efficiency, public transport, patronage

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INTRODUCTION

The ride-hailing market in Nigeria has witnessed significant growth and development in recent years. Customer preferences, trends in the market, local special circumstances, and underlying macroeconomic factors have all contributed to the expansion of this industry. Customer preferences in Nigeria have played a crucial role in the development of ride-hailing market. With the increasing urbanization and congestion in major cities, customers are seeking convenient and efficient transformations. Ride-hailing services provide a solution to these challenges by offering a reliable and affordable alternative to traditional taxis. Ride-hailing services provide a solution to these challenges by offering a reliable and affordable alternative to traditional taxis. Additionally, the rise of smartphone penetration in Nigeria has made it easier for customers to access and use ride-haling apps, further driving the demand for these services. Trends in the market have also contributed to the growth of the ride ride-hailing industry in NigeriaThe ride-hailing market in Nigeria has witnessed significant growth and development in recent years. Customer preferences, trends in the market, local special circumstances, and underlying macroeconomic factors have all contributed to the expansion of this industry. Customer preferences in Nigeria have played a crucial role in the development of ride-hailing market. With the increasing urbanization and congestion in major cities, customers are seeking convenient and efficient transformations. One notable trend is the increasing popularity of motorcycles ride-hailing service, also known as "Okada".These services have gained traction due to their ability to navigate through traffic congestion and provide quick transportation options for customers. The convenience and affordability of motorcycle ride-hailing services seem to have made them a preferred choice for many Nigerians, especially in densely populated areas. Local special circumstances have also tended to shape the ride-hailing market in Nigeria. The country's inadequate public transportation system and the unreliability of traditional taxis have created a gap in the market that ride-hailing services have come up to fill. Additionally, the high unemployment rate in Nigeria has led to many individuals seeking employment opportunity as ride-hailing drivers further fueling the growth of the industry. Underlying macroeconomics factors have also played a role in the development of the ride hailing market in Nigeria. As the country continues to urbanize and face transportation challenges, ride-hailing services are expected to play an increasingly important role in providing convenient and efficient transportation options for Nigerians.

The economic role of marketing in any economy is the contribution it makes to the economic development. The economic activities goes to satisfy economic needs and wants (Nwokoye, 2003). The importance of road haulage to the economy is reflected by the priority given to it in the allocation of funds in national development plans over the years. More recently, the decline in naira value and high cost of foreign exchange under the present subsidy removal regime has hit the road haulage subsection particularly hard as the cost of acquiring new vehicles has reached astronomical levels and the cost of spares to maintain existing vehicles has escalated as the citizenry battle under the hyperinflation quagmire (Obisike & Anyaogu 2024). The common man on the streets is crying for help to ease out transportation stress. The assistance can come from any

quarter whether government or other sources. In the past few years, Ride-hailing has become prominent and popular transport mode in urban centre and most state capitals in Nigeria. This rising phenomena seems to be less understood in Aba the commercial Centre of Abia state. Few years back ride-hailing was floated but fizzled away before the Aba market got to know about it. The sudden disappearance informs our interest to know why.

The most recent development in the information and communication technologies (ICTs) has actually affected the daily life of people and their travel behavior. App-based on – demand Transportation platforms such as Uber, Bolt and Lyft are one of such examples which came with the advanced developments on the extensive use of smartphones and related applications (Wenzel et al..2019). Different names are given to these platforms such as ride-hailing, ride-sourcing, transport network companies (TNCs), Commercial transport apps (CTAs), app-based rides and on-demand rides, among others (Henao, 2017). In England, ride-hailing is commonly referred to as a private hire vehicle (PHV) that provides hire a motor vehicle with the services of a driver to carry a maximum of nine passengers (DFT, 2011). In this study, "ride-hailing" is preferred to becalled mobility services. Ride-hailing is briefly defined as a system that is profit-oriented on-demand rides servicesusing smartphone applications. Ride-hailing services allow the connection between travellers who may request a ride in real-time and potential nearby drivers who are willing to provide transportation. When adriver accepts the request, the app would give real time information about the vehicle's location and estimated waiting time for the passenger through the geographical information system (GIS). It is possible that riders could also learn estimated fare before trips. Nevertheless, when there are more riders than drivers available, the actual fare becomes higher than expected, balancing the surge factor occasioned by demand and supply mechanism. Ride-hailing drivers offer rides for profit rather than share the expenses they engaged in. The growing popularity of ride-hailing services around the world is mainly a result of the technological innovations that give travellers many advantages. Ride hailing services provides more reliable transport service with shorter waiting times to more locations and lower cost than traditional taxi services (Tirachini and Gomez Lobo, 2019; Rodier, 2018; Rayle 2016).

Buttressing the essence of this work, ride-hailing companies are investing and working together with car manufacturing companies for automobiles and connected vehicles technology. The announcement has gone out that the AV technology will be available to the transport market and will start hailing passengers with self-driving vehicles on the street (Alvarez, 2019, Hawkins 2019; Uber ATG, 2019, Scrutton, 2016). It is reported that Waymo has already started to carry passengers in the Phoenix area with fully autonomous vehicles, though on a small scale for the moment (Welch and Behrmann, 2018). It is presumed that the emergence of AVs on the mobility industry will further augment in the usage of ride-hailing services. Most importantly, if ride-hailing services reduce the ride cost due to the fact that driver fees has been eliminated. Then the anticipation would be that patronage of ride-hailing services would exponentially grow due to increases of the accessibility of low-income groups (Brown, 2018). One of the wide spread concerns about ride-hailing is that the use of the services leads to additional vehicle mileage on

city streets because of empty trips. Ride-hailing services generates two types of trips: passengers rides that are transporting travellers between origins and destination; and empty trips also known as deadheading trips that drivers are travelling when there is no passenger in the vehicle. Therefore, as the number of trips increases dramatically, measuring of empty vehicles miles travelled (VMT) that is generated by ride-hailing services becomes more vital to assess their impacts on congestion and associated vehicle emissions in cities. Because VMT is a fundamental measure of transportation system performance and has significant implications on the congestion level in the network (Wenzel et al, 2019).

This work is motivated by investigating the ride-hailing services efficiency rate based on capacity utilization and thus, deadheading rate. In the literature, even though there is a number of studies pursued about the ride-hailing trips and users characteristics based on the user surveys, there is limited research available on empty trips and its impacts of ride-hailing services on urban transportation networks (Henao and Marshall, 2018; Rodier, 2018; Nair et al.n.d.). Most researchers tend to highlight that there is lack of open data source about the ride-hailing trips due to the reluctance of ride-hailing services providers to share trip data with the public (Henao & Marshall, 2018; Komanduri et al., 2018). Lack of meaningful data seems to prevent researchers from understanding and quantifying the impact of these services. In recent times, the use of Para-transit (tricycle) has become popular for transportation. The expansion of Para-transit is gradually becoming a means of full public transport in some areas of the country due to poor public transport systems and road networks. Assessment of tricycle operations revealed that the emergence of various modes of transportation occasioned by the need to cope with socio-economic trends and the adverse economic situation of the country gave rise to its operation and gave rise to its use.

In the same vein, authors have also studied the operation and quality derived from the use of Para-transit modes by both the operators and commuters. In studying the quality and operation of Para-transit modes. Nwaogbe et al (2012) were of the view that a high proportion (92%) of the operators of the Para-transit modes in Aba believed the deteriorating nature of the road network was a strong factor affecting the operation of Para-transit mode (tricycle). On the contrary, Oladeji and Agbabiaka (2021) revealed that adequate vehicle maintenance, the use of rickety vehicles, and the desire to maximize profit by the operators have a negative impact on the quality of Para-transit modes. The tricycle (keke-NAPEP), the government's poverty alleviation initiative, is a rapidly developing Para-transit alternative in Nigeria. Due to the lack of an urban transportation strategy, alternatives such as tricycles and motorcycles have grown in popularity. Poor service quality, low output, poor maintenance strategy and overcrowding have all been identified as contributing factors to public transportation failing to fulfill the demand. Therefore, people have begun to heavily invest on Para-transit modes and other similar vehicles to get around. To accommodate your last-minute travel needs, the cutting-edge mobile application CarXie offers taxis that ensure protection and convenience. It is both secure and affordable. CarXie was founded to ensure that Nigeria is an important and equal participant in the cutting-edge transportation networks that are necessary for the smooth operation of markets. The CarXie app has a lot of interesting features.

Even if you can't recognize your current location, the app will still be able to determine where you should pick up. You can rate your driver to provide feedback and assist us in raising the standard of service. Finally, you can add a credit card and use it anywhere in the world that takes that form of payment.

Statement of the Problem.

With the increasing urbanization and congestion in major cities, customs and seeking convenient and efficient transportation options.Ride-hailing services seem to provide a solution to these challenges by offering a reliable and affordable alternative to traditional taxis. Additionally, the rise of smartphone penetration in Nigeria has made it easier for customers to access and use ride-hailing apps, further driving the demand for these services. Trend in the market have also contributed to the growth of the ride-hailing industry in Nigeria. One notable trend is the increasing popularity of motorcycle ride-hailing services, also known as "Okadas". These services have gained traction due to their ability to navigate through traffic congestion and provide quick transportation options for customers. The convenience and affordability of motorcycle ride-hailing services have made them a preferred choice of many Nigerians especially in densely populated areas. Local special circumstances like child abuse, kidnapping, ritual killings, arm robbery had affected negatively the use of ride-hailing services. The country's inadequate public transportation system and the unreliability of traditional taxis have created a gap in the market that ride-hailing services become inevitable. Additionally, the high unemployment rate in Nigeria seem to lead many individuals seeking employment opportunities as ride-hailing drivers, further fueling the growth of the industry. Underlying macroeconomic factors have also played a role in the development of the ride-hailing market in Nigeria. The country's growing middle class and decreasing disposable income have contributed to the demand for convenient transportation options. As more Nigerians have the financial means to afford ride-hailing services the market has expanded to cater to this growing customer base. Furthermore, the government's efforts to improve the ease of doing business and promote entrepreneurship seem to create a favourable environment for ride-hailing companies to operate and thrive. The ride-hailing market in Nigeria has experienced significant growth and development due to customer preferences, market trends, local special circumstances, and underlying macroeconomics factors. As the country continues to urbanize and face transport action challenges, ride-hailing services are expected to play an increasing important role in providing convenient and efficient transportation options for Nigeria and mostly Aba hungry market that needs the services more than any other clime. Despite the plethora of research carried out in this study, to ascertain the relevance of Ride-hailing services as convenient and efficient means of transportation system. None has been carried out in the South-East and documented. The question poised is how can ride-hailing services be improved and integrated as efficient and convenient means of transport to the main stream of transportation system in the South East which is the main focus of this study

Objective of the study

The broad objective of the study is to determine the effect of efficient Ride-hailing services on public transport patronage in Aba Metropolis, Abia state, Nigeria. The specific objectives are to:

i).determine the effect of efficient Ride-hailing (cost -saving) on public transport patronage in Aba Metropolis, Abia state, Nigeria

ii).ascertain the effect of efficient Ride-hailing (safety) on public transport patronage in Aba Metropolis, Abia state, Nigeria

iii).investigate effect of efficient Ride-hailing (time) on public transport patronage in Aba Metropolis, Abia state, Nigeria

iv).determine effect of efficient Ride-hailing (comfort) on public transport patronage in Aba Metropolis, Abia state, Nigeria

The following research questions follow accordingly:

i).To what extent does efficient Ride-hailing (cost-saving) affect public transport patronage in Aba Metropolis, Abia state, Nigeria

ii).To what extent does efficient Ride-hailing (safety) affect public transport patronage in Aba Metropolis, Abia state, Nigeria

iii).To what extent would efficient Ride-hailing (time) affect public transport patronage in Aba Metropolis, Abia state, Nigeria

iv).To what extent would efficient Ride-hailing (comfort) affect public transport patronage in Aba Metropolis, Abia state, Nigeria

The following null hypotheses are formulated to guide the conduct of the study:

HO_1: Efficient Ride-hailing (cost- saving) has no significant effect on public transport patronage in Aba Metropolis, Abia state, Nigeria

HO_2: Efficient Ride-hailing (safety) has no significant effect on public transport patronage in Aba Metropolis, Abia state, Nigeria

HO_3: Efficient Ride-hailing (time) has no significant effect on public transport patronage in Aba Metropolis, Abia state, Nigeria

HO_4: Efficient Ride-hailing (comfort) has no significant effect on public transport patronage in Aba Metropolis, Abia state, Nigeria

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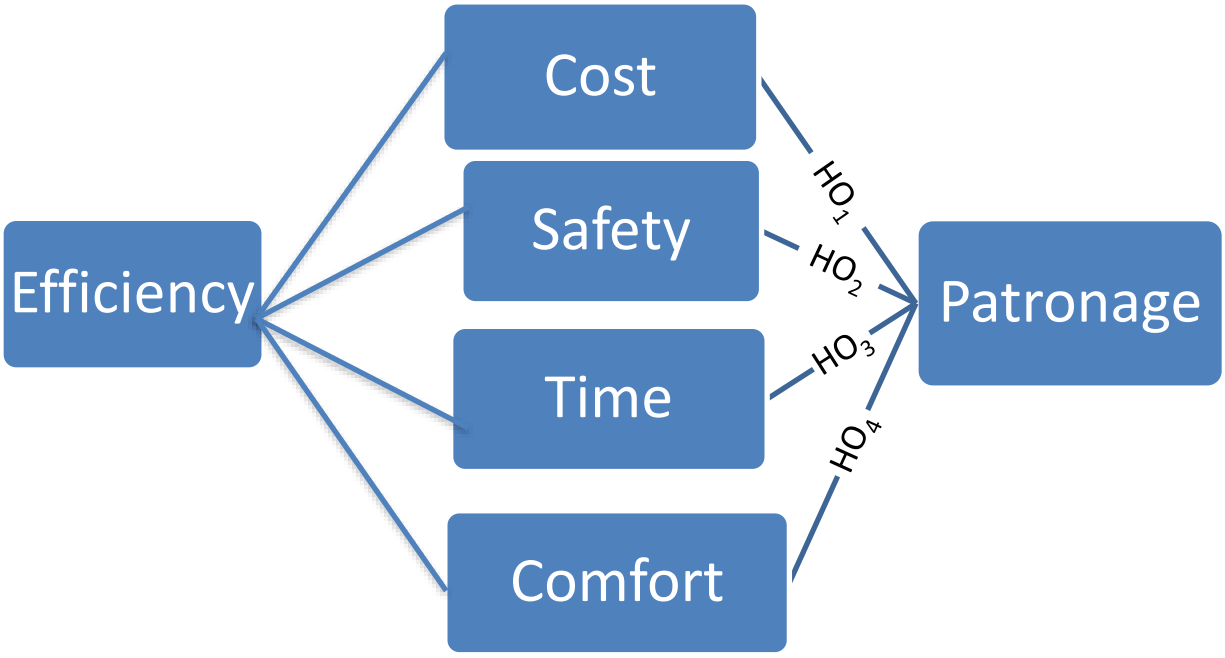
LITERATURE REVIEW

Conceptual Review-

In major cities, millions of individuals are already utilizing web applications on their mobile phones to order tailored rides to their destination for various travel needs (chatermpong et al., 2022). Conventional taxi services and ride-hailing are nowadays on high demand and primarily used by passengers for comfortability, security, and due to the shortest possible travel time from one destination to another (Szeto et al.,2014).



(Researchers' Concept, 2024)

Ride-hailing and Top 10 Taxi Apps in Nigeria

In the bustling cities and towns of Nigeria, getting around efficiently has become increasingly reliant on the convenience of taxi-hailing apps. With the advent of technology, commuting has evolved, making it easier for residents and visitors alike to navigate the vibrant streets. In Nigeria, there are many taxi apps available. Let's assume that you find yourself in a circumstance where you require the assistance of one of these taxi apps. Who would you pick to call out of the group?

There is compiled lists of the top 10 taxi apps in Nigeria along with some essential details about each one so you can make an informed choice.

Uber

Uber, a global giant, has made its mark in Nigeria, offering a seamless and reliable ride-hailing experience. With a vast network of drivers, Uber remains a popular choice for many seeking transportation in major Nigerian cities. Using the Uber app, you may request a journey, and your driver will come to pick you up and take you there quickly. The app's extremely basic interface (UI) gives the impression that everything is easy to use. It's one of the most popular taxi applications in Lagos and other parts of Nigeria. Uber makes sure you select the ideal car for your needs, regardless of your preferences for affordability, comfort, or style. Before booking an Uber ride, you can receive an estimate of the cost upfront. As a result, you will always know how much your trip will cost before you place your order. You can call local authorities directly and share your location with anyone using the app. This blog post introduces you to the diverse range of ride-hailing services available in Lagos, catering to the needs of both residents and visitors. Whether you're planning a trip to Lagos or are interested in the African tech scene, this guide provides insights into the leading taxi apps shaping the transportation landscape in this bustling metropolis".

In Driver

Comparable to Uber and Bolt is the ride-hailing app inDriver. This isn't your typical taxi service; it aims to create a new mode of transportation in which both drivers and passengers may agree on the price of a ride. Using the inDriver app, a passenger can select the driver to drive them to their desired location.You get to choose the fare you wish to pay for a ride, and if the driver accepts, you'll be driven there. The app for inDriver offers many options and is a more affordable mode of transportation. The greatest taxi app in Lagos is called inDriver.

Taxify(Bolt)

Formerly known as Taxify, Bolt competes fiercely with Uber in Nigeria. Known for its competitive pricing and user-friendly interface, Bolt has gained popularity for its reliability and efficient service. Bolt operates in several cities across the country, providing users with a convenient and reliable way to book rides through a mobile app. Here are some key points about Bolt in Nigeria:

- Competitive Pricing
- User-Friendly App
- Fare Summary and Details
- Wide Availability

- Various Vehicle Options
- Safety Features
- Driver Incentives

Pickmeup

Pickmeup is a sleek and cozy cab app in which you can use your smartphone to quickly and safely schedule a transport in a matter of minutes. In a couple of seconds, it connects passengers directly to drivers in nearby areas via GPS technology. Their taxi booking app is incredibly easy to use and straightforward. It only takes a few seconds to sign up and begin scheduling rides. Pickmeup provides the quickest and most convenient way to book transport for cars, SUVs, minivans, bikes, and keke. By enabling a passenger to see the driver's name, picture, reviews, and vehicle details before the driver arrives, it is intended to increase safety. You may travel with comfort knowing that Pickmeup makes significant investments in offline driver screenings, in-app safety, and safety training for our drivers.

Holla

Holla is a taxi firm founded in Lagos that offers cab services all across Nigeria. To make travel convenient for their passengers, they can place a higher value on comfort and elegance. They have driven convenience for their passengers with the highest professionalism since their founding. Their goal is to deliver accurate drop-off times and prompt pickup. It's safe to travel with their polite, well-mannered drivers. They provide a GPS-enabled mobile and online application that allows users to rapidly book and obtain local taxis. Taxi reservations are simple to make, and customers can select from a variety of car models according to what suits them best.

easyTaxi

easyTaxi is a new, affordable, on-demand booking app. With just a button push, passengers and taxi drivers may connect and enjoy a quick, easy, and safe ride thanks to the application. easyTaxi is accessible for B2B clients via easyTaxi Pro and Easy Taxi Corporate solutions, as well as for Android, iOS, Blackberry, and Windows Phone devices. easyTaxi was the first online taxi service provider in Latin America when it was established in Rio de Janeiro, Brazil, in April 2012. With 26 nations and 82 cities currently offering the app and counting. it has completely changed the way people book taxis worldwide.

CarXie

CarXie is one of the best taxi apps in Nigeria which is run by Nigerians. To accommodate your last-minute travel needs, the cutting-edge mobile application CarXie offers taxis that ensure protection and convenience. It is both secure and affordable. CarXie was founded to ensure that

Nigeria is an important and equal participant in the cutting-edge transportation networks that are necessary for the smooth operation of markets. The CarXie app has a lot of interesting features. Even if you can't recognize your current location, the app will still be able to determine where you should pick up. You can rate your driver to provide feedback and assist us in raising the standard of service. Finally, you can add a credit card and use it anywhere in the world that takes that form of payment.

Jekalo

In the Jekalo app, you might be able to find a ride for an individual who is traveling in the same direction as you. Jekalo is a simple and cost-effective way to get home this evening, to your next meeting, or for drinks after work, whether you're a ride owner or a passenger. The main objective of the app is to promote an environment of caring and giving.You don't have to make the trip yourself because Jekalo can assist you with picking up or distributing the merchandise. Jekalo ride owners can receive incredible discounts on a variety of services, such as auto maintenance, third-party insurance, gas coupons, airtime, data, and options for cash withdrawal. Most of the taxi apps are higher-priced than Jekalo.

RideMe

Customers can find taxis in their area by using the RideMe Taxi service. RideMe Taxi was created to make traveling both inside and outside of the city easier. If you need a nearby taxi to get to or from the airport, to shop at your favorite malls, or to meet up with friends, RideMe Taxi can help. Through a Live Chat feature, RideMe, a recently launched taxi app in Nigeria, provides riders with exceptional customer service. You may now have simultaneous resolutions for all of your problems. With our online booking tool, you can book a taxi at a price that suits you. Finding a ride has never been simpler or more reasonably priced. The rider was taken into consideration when developing the user-friendly RideMe Taxi app. With just a few clicks, you can easily book a ride to any location in the city.

HOPIN

HOPIN app is the most widely used taxi app in Slovakia and was launched in 2012. You can quickly order a taxi and drive a luxurious limousine using HOPIN. These days, HOPIN is the most convenient way to move around the city in Nigeria. This popular transportation app, which is mostly useful in cities, has been downloaded by over 700,000 users and is compatible with Android, Huawei, and iOS smartphones.

As Nigeria's urban landscape continues to evolve, these top 10 taxi apps play a crucial role in shaping the future of transportation. Apical Application is a top taxi app development company in Nigeria that provides a wide range of services and solutions that are specifically designed to satisfy the particular needs of the transportation sector. Whether they're developing feature-rich

applications for both drivers and passengers, adding safe payment methods and real-time tracking, or offering scalable solutions to meet the industry's expanding needs, these businesses demonstrate their commitment to revolutionizing the taxi industry. These highly regarded businesses are in a position to lead innovation and influence the direction of ride-hailing and taxi app development in Nigeria as the sector develops (https: // www.appical.com>blog>

Theoretical Review

In recent years, many transportation networks around the globe have experienced severe transportation externalities. Usually, the three primary transportation externalities are the accidental collision of vehicles on freeways and road intersections, traffic congestion and air pollution caused in the road transportation networks. Notably, from 2003 to 2013, private vehicle ownership in developing countries such as South Africa has skyrocketed from 25% to 35% (Olayode et al., 2020, Isaac et al., 2021 b). The increase in the growth of population- with the south African population growing at the rate of 1.6% (group 2017), the increase in the usage of road facilities per person per day and the significant growth of the middle class, which is the primary user of road transportation system in developing and developed countries (Burger et al., 2015, Tech, 2015). The elevated demand for road transportation systems and increment in private vehicle ownership has increased traffic congestion in developing countries such as South Africa.

Mere Exposure Effect

Mere exposure effect or the familiarity principle is the idea that people tend to prefer things that are familiar. This means that having already encountered something creates a preference for it. For example, when people are repeatedly exposed to advertisements, they tend to favour the product because it is more familiar than brands they are not familiar with. The mere exposure effect applies to every area of a person's life, including people, things, words, paintings, and sounds. Both attraction and memory can enhance it. If a person sees a familiar dish on a menu amongst unfamiliar ones, they are more likely to choose the familiar food. This is because the unknown of the other dishes creates a sense of uncertainty over whether they will enjoy them. The mere exposure effect also explain why people are more likely to vote for a candidate whose name or face seems familiar, even if they are not sure which candidates' policies more closely align with their own views. They perceive less uncertainty because they have been exposed to their name or image previously. Reported exposure to something enables a person's brain to process it with greater speed and less effort. This is why people prefer certain transport companies above others when making trunk journeys to places like Abuja or Lagos. For instance I have consistently used GIG motors for countless trips to Abuja and all the while enjoyed assured safety, relative comfort, near accurate bus departure time schedule and more. I intend to prefer its use without winking an eye. Interestingly too, the same transport company enjoys the patronage of many more passengers by the reason of the observations I had made overtime about their services.

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Theory of Commitment and Consistency

Dr. Cialdini theorized around how one can gain the loyalty and the respect of those who haven't reached a high level of trust with you yet. How can we sell a product to someone who doesn't know our brand from the next, and therefore can't be sure that we're the right fit? The conclusion that Cialdini reached was the best way to encourage people to pass on their loyalty was to get them to commit to something consistently. The theory leans heavily on the idea will take a mental shortcut and avoid the agony of choice. We like to keep things simple. If someone makes a single decision at one point in time, they will regularly go with the same choice again and again for simplicity's sake. Cross-setting-Offer them something. This is not to be confused with upsetting, think of the used car salesman who encourages you to pay for a better model than you want, instead cross-selling is where you show people items that would go well with their current purchase. This is more like the, "often bought with", section that you see on e-commerce stores. You'll also get these offers regularly appearing when purchasing larger ticket items such as electronic foods, then offering the after-care package. When there is committed consistency towards efficient services, the patronage naturally comes.

Analysis Paralysis.

Analysis paralysis (or paralysis by analysis) describes an individual or group process where over analyzing or over thinking a situationcan cause forward motion or decision-making to become "paralyzed", meaning that no solution or course of action is decided upon within a natural time frame. A situation may be deemed too complicated and a decision is never made, or made much this late, due to anxiety that a potentially larger problem may arise. A person may desire a perfect solution but may fear making a decision that could result in error, while on the way to a better solution. Equally, a person may hold that a superior solution is a short step away, and stall in its endless pursuit with no concept of diminishing returns. On the opposite end of the time spectrum is the phrase extinct by instinct, which is making a fatal decision based on hasty judgment or agut reaction. .For instance when there is indecision towards use of one amongst many transport scheduled rides had left terminals. Danger illumes touching variables like: time, safety, cost and discomfort. Analysis paralysis is when the fear of either making an error or foregoing a superior solution outweighs the realistic expectation. This imbalance results in suppressed decision making in an unconscious effort to preserve existing options. An overload of options and overwhelm the situation and cause this "paralysis" rendering one unable to come to a conclusion. It can become a larger problem in critical situations where a decision needs to be reached but a person is not able to provide a response fast enough, potentially causing a bigger issue than they would have had, had they made a decision. Decision becomes a mirage when the variables of time, cost, safety and comfort cannot be ascertained appropriately for proper action---Wikipedia

Customer Satisfaction and Time.

In recent years many transportation networks around the globe have experienced severe transportation externalities. Usually, the three primary transportation externalities are the accidental collision of vehicles on freeways and road intersections, traffic congestion and air pollution caused in the road transportation networks. Notably, from 2003 to 2013, privatevehicle ownership in developing countries such as South Africa has skyrocketed from 25%to 35% (olayode et al., 2016). The primary occurrences majorly caused this increased demand for private vehicle ownership; (2) an increase in the growth of the human population with the South African population growing at the rate of 1.6% (group, 2017), the increase in the usage of road facilities perperson perday and the significant growth of the middle class, which is the primary user of road transportation systems in developing and developed countries (burger et al., 2015, Tech 2015). This elevated demand for road transportation systems and increment in private vehicle ownership has increased traffic congestion in developing countries such as South Africa and therefore impede the time frame work of the customer. Recently too research by (Schaller, 2017) identified an anomaly known as "empty seats, full streets" (Scaller, 2017) based his research on urban transportation in Manhattan, New York, and discovered that there are more than 10 minutes between the time that the prospective user requests ride-hailing services and the time the driver gets there. This problem is majorly caused when DiDi or Uber driver is driving to pick up their customer. However, en-route to the customer, they receive another request, significantly adding more to the customer pick up request time.

Customer Satisfaction and Cost

In its current form, Ride-hailing cannot be considered a broadly affordable mode of transportation. Income is consistently shown to correlate positively with RH use (Young & Farber, 2019; Rayle et al., 2016), which leads us to categorize this travel mode as a luxury service. The cost of ride-hailing in comparison to public transit, and its use of smartphones and electronic payment methods further attribute to this categorization. While it's use smartphone technologies is perceived as convenient for most, it also restricts the use of RH services among low-income populations, as many are unable to afford the devices and phone plans required to fully take advantage of these services. Take the United States for example, where in 2018 only 67% of low-income individuals, those making less than $30,000 per year, owned a smartphone capable of ordering RH trips (PEW, 2018). While smartphone ownership is on the rise, many segments of the population continue to struggle to afford mobile devices, and are inherently excluded from taking advantage of the benefits that RH services are said to provide. For convenience and safety reasons, RH companies only allow cashless transactions in most markets. While applauded as an attractive feature for many users, this technological advancement also forces users to have a credit or debit card in order to request trips. Those without bank accounts, which are commonly referred to as the unbanked and are typically comprised of lower-income households, represent 5% of the adult population in

the United States as of 2017 (Federal Reserve Board, 2018), and remain unable to use RH services even if they have access to a mobile device (Shaheen & Cohen, 2018).

Surge pricing is another potential barrier to RH use among low-income populations. Used as a way of meeting consumer demand and incentivising drivers, surge pricing involves raising the cost of rides during rush hour or other periods of the day where demand exceeds supply. While this is an effective business strategy, these real-time price adjustments render RH services even less affordable to low-income individuals. The inability to predict the occurrence and level of surges makes matters worse, as some, fearing the risk of a surge, will decide to use other, more predictable modes of transportation. In order to combat this problem, companies such as Uber and Lyft enable customers to schedule trips in advance, but acknowledge that knowing when one might need a ride is not always possible ahead of time. Combined, the expensive requirements and unpredictable pricing strategy of RH services impose substantial barriers to usage, and narrow the probability that low-income individuals will actually benefit from the added mobility that RH services aim to provide. Fortunately, whether RH companies are grasping the magnitude of this problem or merely trying to attract an untapped source of new riders, they are now beginning to offer split fare features and carpooling options (e.g. UberPool and LyftLine) to facilitate cost sharing and enable passengers traveling in the same general direction to share rides. These features reposition RH well within the per-rider cost range of public transit, at least for shorter distance trips, and may enable previously excluded low-income travelers to benefit from the mobility advantages that RH services provides, assuming they can afford the other requirements. In Toronto, for instance, public transit costs $3.25 per person, which means that any RH trip below $12, would be cheaper if split four ways. To summarize, due to the cost, technological barriers, and banking and payment requirements of RH, many low-income individuals may be excluded from its use. Additional research is required to determine the extent of each of these barriers, and to evaluate whether, and under which circumstances, low-income individuals are willing to pay for the increased convenience and comfort of a RH trip.

Customer Satisfaction and Ride Comfort

Automobile drivers may also be impacted by the arrival and widespread usage of RH. Looking primarily the comfort garnered not by the rider alone but also the driver- RH results in an increase of vehicles on the road, this will inevitably materialize into higher levels of congestion. In San Francisco, recent reports found RH vehicles to account for approximately 50% of the increase in traffic congestion between 2010 and 2016 (Erhardt et al., 2019) and similar trends appeared in New York City a well (Mangrum & Molnar, 2017). Others are less convinced of its detrimental impact upon congestion and believe that the arrival and widespread usage of RH may result in lower levels of congestion as it removes the need to own a private vehicle in the first place (Rayle et al. 2016; Clewlow & Mishra, 2017; Young, 2018). To support this, researchers point towards the small, yet consequential, portion of RH users that have given up their personal vehicle, or that plan to do so in the near future in response to the arrival of RH (Clewlow & Mishra, 2017).

Moreover, the reported late-night popularity of RH goes to show the level comfort and safety it offers. All the same RH services are reducing the amount of dangerous vehicle kilometers traveled. A study by Greenwood and Wattal (2015) found the entry of UberX, Uber's most popular service, to be associated with a decrease in the rate of motor vehicle homicides in the State of California by up to 5.6%. This finding was later corroborated by survey participants reporting, even when unprompted, that alcohol consumption was a major determinant in their decision to use RH services (Clewlow & Mishra, 2017; Feigon and Murphy, 2016). Thus while potentially increasing the level of congestion within cities, RH may also reduce the rate of motor vehicle fatalities ensuing from drunk driving.

Empirical Review

System reviews on the evaluation of the effect of ride-hailing services on public road transportation. Isaac Oyeyemi Olayode, Allessandro Severino, Frimpong Justice Alex, Elzbieta Macioszek, Lagouge Kwanda Tartibu. The first step of their literature review was a search of the Web of Science and Scopus databases for relevant scholarly articles. They extend their article search to the period between the last two decades, which roughly parallels the expansion of ride-sharing services in major cities worldwide. They also used the online search engine to investigate ridesourcing (or ride-sourcing) and ride-hailing (or ride-hailing). While "ride-sourcing" is the preferred phrase among transportation experts, "ride-hailing" has gained popularity in the popular media (Jin et al., 2018b). They found 1530 items after conducting our search in January 2023. Their study used the keywords listed above and below to collect relevant materials to answer the research questions and construct a robust, systematic, reproducible literature selection strategy. SCOPUS and Web of Science were used to search the literature between February 2022 and January 2023. Peer-reviewed journal articles, conference papers, working papers, graduate theses, and government and agency reports were searched. Their review articles were carefully assessed and commented on for reliability. Their set of keywords is similar to those used by (Tirachini, 2020), such as "ride-hailing," "ride-sourcing," "Transportation Network Companies," "mobile taxi booking," "online taxi," "Uber," "ride splitting," and "Grab Taxi". Searches included shared mobilities keywords. Cities, nations, local ride-hailing app names (13 cabs, Didi, and Uber in Australia, where the corresponding author is from), and informal modes of transportation in developed and developing countries were included. Searching for sources cited by keywordsearched publications employed the snowball strategy (the snowball approach refers to identifying more papers by leveraging a paper's reference list or citations). English-language articles were searched but not restricted to any publication period. However, articles from any field that addressed issues of equality, environmental sustainability, or both in the context of ride-hailing were not considered. The lack of a discussion of shared urban mobility or ridehailing was a standard criterion for excluding these publications. However, they did include publications that offered strategies for environmentally friendly ride-sharing policies and methodologies. In addition, they did not include works that evaluate shared mobility technologies but failed to differentiate between ride-hailing and other forms of shared road transportation. It is important to

note that during their review of literature on ridehailing and shared mobilities, they focused more on the United States of America, China and South Africa because these three countries are among the largest users of ridehailing apps (such as Uber, Bolt and DiDi) in their respective continents. All the articles are from scholarly journals published by trusted academic publishing organizations such as Elsevier, Springer, Wiley, Emerald, Taylor and Francis.

The African continent is known to be among the significant locations of early and present urban mobilization; the African continent is projected soon to have a human population of more than 3 billion in the next three decades (Boateng, 2021). The African continent is also known as the location of worldwide poverty and high unemployment (Chakravorti and Chaturvedi, 2019). Less than 50 % of Africa's human population lives below the poverty line set by the United Nations. However, the younger African generation continues to struggle to gain meaningful employment or even live on a salary that will ensure the sustainability of their lifestyle (Fox and Gandhi, 2021). The inefficiency and lack of adequate road transportation infrastructure, which represents more than 90 % of the means of transportation of most Africans, are in a problematic state. To elaborate on this worrisome statement, based on the research conducted by (Boateng, 2020), the rate of car accidents in Africa is the worst in the World; for example, world health organization put the ratio at 27 deaths per 100,000 people. Based on their report, the United Nations Environment Program (UNEP) stated that the carbon monoxide from car exhaust pipes will lead to a mortality rate of 600,000 yearly on the African continent (Bonsu et al., 2020).

Researchers such as (Acheampong, 2021, Delaunay, 2021, Junior Dzisi et al., 2021) stated that the majority of the governments in Africa are granting operating licenses to ride-hailing companies such as Uber, Taxify and 13 cabs to ply their ride-hailing services in their respective public road transportation networks. Introducing these ride-hailing companies has contributed immensely to the rise of indigenous ridehailing companies on the African continent. The evolution of ridehailing companies on the African continent has led to the Africa transportation network embracing the concept of ride-hailing services using digital technology, which has led to tremendous growth in the economic development of the continent (Echendu and Okafor, 2021). Ride-hailing is created on the ideology of a sharing economy, the internet meaning of ease of access compared to ownership of underutilized goods and services. This is to ensure that ride-sharing and passenger-sharing can work hand in hand. By encouraging car and passenger car sharing, the demand for ride-sharing services are seen as a considerable boost in tackling traffic congestion and an efficient way of discouraging the usage of private vehicle, especially in congested cities (Alonso-Mora et al., 2017; Fulton et al., 2017, Jin et al., 2018b, Vazifeh et al., 2018). Ultimately, consumer behaviour will shift toward owning fewer personal vehicles, which will lead to a maximum decrease in the number of vehicles on roadways. This will result in greater public benefits, including significant reductions in traffic congestion, energy and growing young adult unemployment without negatively impacting the driving environment. The catch is that some technology experts are starting to wonder if 'smart' apps and other digital interventions are up to tackling society's most intractable issues (Green, 2019, Programme, 2020). They caution that

solutions focusing primarily on technology are likely to have serious unintended consequences and seldom address the underlying power systems contributing to many societal issues. Furthermore, the benefits of technology transfer are not always guaranteed. It's well-established that when technologies go between cultures and are accepted by those with vastly different socio-cultural, politicaleconomic systems, the technologies shape and are shaped by those systems (Kebede et al., 2013). Consequently, changes may improve or diminish the technology's usefulness. Therefore, it is important to study the fast growth of ride-hailing services in Africa to understand how they influence and influence the socio-cultural, political, and economic structures and dynamics of Africa's transport industries. This will allow for a more accurate assessment of the technology's ability to facilitate the creation of well-paying employment and the sustainability of private vehicles across the African continent.

Cities in South Africa have a background of curtailed mobilities due to apartheid-era municipal design. It was challenging to get about the city without permission from the authorities during the apartheid era (Smith, 2003). Moreover, the city was planned to prevent racial mixing by erecting artificial borders between distinct 'Group Areas.' In apartheid-era South Africa, people of colour needed special authorization in the form of a "passbook" to enter areas reserved for whites (Smith, 2003). Access between different parts of the city was also planned to be restricted by the architecture of some sections, including roads and public transit. The city was planned with the white population in mind; hence, cars were the most common mode of transport for the white population (Smith, 2003). Public transit was created so non-white workers could more easily commute to and from jobs in primarily white neighborhoods (Smith, 2003). Therefore, South African cities are dispersed, and there are few ways to travel between neighborhoods. Even though the government no longer enforces these mobility limitations, getting about the city is still challenging. In a way, this restricts the mobility of many South Africans, and strangely, it affects neighborhoods of varying socio-economic status. The government of South Africa initially supported a limited network of public transportation options. However, in the 1970 s, due to rising demand, informal public transit systems began to develop in many South African cities (Ingle, 2009). The proliferation of minibus taxis, as these unofficial, privately owned vehicles are commonly referred to in South Africa, is a prime example of this trend (Ingle, 2009). Minibus taxis, often known as kombis in South Africa, are a sort of Para transit that transports people inside and between cities along informal routes. Minibus taxis are a standard mode of transportation in South Africa, especially for the working poor population who need to get from the slums to the city centres and other employment hubs (Czegl´edy, 2004). Some law has been passed to control the extensively utilised minibus cab system, but it is generally unenforced by government authorities despite efforts to modernize the sector (Ingle, 2009).

Since the end of apartheid, there has been some improvement in public transit in South Africa. New bus rapid transit networks, such as My CitiBus and Rea Vaya, have been established in some South African cities, most notably Cape Town and Johannesburg (Venter, 2013). In addition, the O.R. Tambo International Airport is now easily accessible via the Gauteng province's railway

system (Walters, 2013). Before the 2010 FIFA World Cup, many countries built these transit networks to facilitate travel within the host cities, but progress has slowed significantly since then (Walters, 2013). Thus, road transportation remains one of South Africa's most pressing urban problems (Czegl´edy, 2004). The coverage and connectivity of the current public transit systems are still insufficient. Connections between townships on the outskirts of cities and the commercial hubs where most people find employment are still the backbone of these systems (Czegl´edy, 2004). Moreover, public transportation in the country has serious safety problems, especially at night (Czegl´edy, 2004, Ingle, 2009). Poor road infrastructure, because of inadequate government funding for public transportation, and fear of criminality contribute to these insecurities (Ingle, 2009, Lerer and Matzopoulos, 1996). Minibus taxis and personal vehicles account for most trips taken in South Africa (Czegl´edy, 2004). With 39.7 deaths per 100,000 people annually, South Africa has one of the world's highest rates of road accident fatalities, primarily attributable to the country's high vehicle ownership rate and lax enforcement of traffic laws (Sukhai et al., 2011). Over twice the global average number of people die in car accidents yearly (Seedat et al., 2009). Alcohol intoxication is a significant factor in many of these collisions, with over half of all driving deaths involving BACs above the legal limit (Seedat et al., 2009). There is a pervasive culture of drunk driving in South Africa, and studies suggest that it is only becoming worse as more young people have access to alcohol and own vehicles (Ramsoomar and Morojele, 2012; Sinclair, 2013). Therefore, studies suggest that there is a problem with getting around South Africa due to a lack of public transit options, and there are also severe issues with drunk driving.

Countries such as Nigeria, with over 120 million people, are bedriddled with either a lack of public road infrastructure or the non-existence of road networks to support the implementation of effective ride-hailing services. However, in cities such as Lagos, where the population density is high, the popularity of Uber and Bolt is growing exponentially, with many pedestrians preferring them because of their comfortability and their avoidance of traffic congestion and not because of their exorbitant fees being charged by these ride-hailing companies. Uber and Didi Chuxing collectively dominate a significant share of the ride-hailing market in China. In the year 2014, both entities commenced the provision of ride-hailing services within the Chinese market. In the aforementioned year, a total of seven major cities were entered, namely Beijing, Shanghai, Guangzhou, Shenzhen, Chongqing, Chengdu, and Hangzhou (Zhong et al., 2020). During the subsequent years, they consistently gained access to further urban areas. These prominent ride-hailing companies made their respective market entries in various cities at different times of the year. This timeline presents a conducive environment for conducting natural experiments to analyse the shifts in private car usage in urban settings before and after the introduction of widespread ride-hailing services in cities (Zhong et al., 2020).

According to a report by China Internet Network Information Centre (CNNIC) in 2017, the total number of users for online taxi-hailing services in December 2016 was recorded at 226 million (Tang et al., 2020). Additionally, the number of users for other online ride-hailing services during the same period was reported to be 168 million (Tang et al., 2020). Based on the research

conducted by an undisclosed source, it was found that DIDI Chuxing, which is recognised as the foremost ondemand ride-hailing services platform in China and one of the largest globally, offer a range of services, encompassing both private car ridehailing and online taxi-hailing services. According to the study conducted by Gao et al., it was determined that the use of ride-hailing services has led to a decrease in the reliance on private vehicles, resulting in a notable reduction in carbon dioxide (CO2) emissions (Gao et al., 2022).

According to the study conducted by Sui et al., it was determined that Didi trips exhibit shorter idle distances and delivery distances than public taxi trips. This finding suggests that Didi trips can contribute to reducing fuel consumption and emissions by minimizing empty driving (Sui et al., 2019). According to Zhu and Mo's research, ride-hailing services have been proven to effectively decrease the total distance driven by vehicles, reducing both petroleum consumption and carbon emissions (Zhu and Mo, 2022). In contrast, the study conducted by Wang et al. (year) revealed that ride-sharing services in Shenzhen, I.O. Olayode et al. Transportation Research Interdisciplinary Perspectives 22 (2023) 100943 13 China, have a substitutive impact on public transport, leading to a rise in the number of vehicles on the roads and subsequently causing detrimental effects on urban air quality (Wang et al., 2022). According to Wu and Zhi (Wu and Zhi, 2016), it has been contended that using ridehailing services may result in increased car usage, potentially giving rise to adverse environmental consequences. Based on existing literature on the field of ride-hailing in China, it was concluded that the emergence of ride-hailing services, exemplified by Uber and Didi Chuxing, has exerted a noteworthy influence on China's public transportation system. The following are a few significant impacts (Sun et al., 2017, Wu et al., 2018, Wang et al., 2022, Tang et al., 2020, Wang et al., 2019, Jun et al., 2020, Li and Ma, 2021, Barnes et al., 2020):

i).The introduction of ride-hailing services in China's urban areas has significantly enhanced the accessibility of transportation, hence resulting in heightened convenience for individuals. The introduction of mobile applications for booking ride-hailing services in major cities in China has significantly reduced travellers' reliance on conventional taxis and public transportation. This phenomenon has resulted in heightened levels of mobility for several persons, particularly in regions characterised by restricted access to taxi services or underdeveloped public transportation networks.

ii).Ride-hailing services in certain urban cities in China have been associated with a decline in private car ownership. In densely populated urban cities with restricted parking availability, individuals may opt for ride-hailing platforms as a more economically viable and convenient alternative to car ownership. The aforementioned trend possesses the capacity to mitigate traffic congestion and alleviate air pollution.

iii).The integration of ride-hailing services with public transportation has been observed in several ride-hailing businesses operating in China. As an illustration, individuals can utilise the Didi application to avail themselves of not solely private transportation options but also public modes

of transportation such as buses, subways, and even bike-sharing programmes. Implementing this integration can enhance passengers' convenience in planning multi-modal trips and decrease their dependence on private vehicles.

iv).The emergence of ride-hailing services in China has had a significant disruptive effect on the conventional taxi sector. Traditional taxi drivers have encountered heightened competition and occasional demonstrations from ride-hailing drivers who operate outside the purview of comparable regulations and tariffs. Certain urban areas have enacted regulatory measures to create a fair and equitable environment while promoting ride-hailing platform adoption by conventional taxi drivers. Conclusively, ride-hailing services have significantly influenced China's public road transportation sector. The provision of enhanced convenience and mobility alternatives for passengers has simultaneously posed issues and presented opportunities for conventional transportation sectors and regulatory bodies. It is quite probable that the ongoing development of these ride-hailing services will continue to exert a significant influence on the transport sector in China in the foreseeable future.

According to the research conducted by Olayode et al. (2023), Isaac et al. (2021), Barberi et al. (2022), and Severino et al. (2021) in which, they all agree that traffic congestion is a persistent issue in urban areas of both developed and developing countries. The proliferation of ridehailing apps has had a profound impact on urban transportation systems around the world in recent years. The availability of flexible employment opportunities (Chen et al., 2019), improved service quality (Athey et al., 2018, Wallsten, 2015), and reduced driver moral hazard (Liu et al., 2021) are just a few of the positive socioeconomic effects that have been demonstrated by research. Despite these assurances and proven advantages, several governments worldwide are cautiously approaching these platforms. They seek to regulate them because of their alleged contribution to growing urban congestion. For instance, ride-hailing licence registrations were recently frozen in New York City, making it the first US city to do so. In contrast, proposals for ride-hailing congestion pricing were recently approved in Seattle, Chicago, and New York City. These developments have sparked an increase in interest in researching the externalities and sustainability issues associated with ride-hailing services (Benjaafar and Hu, 2020; Yu et al., 2020). However, there is scant causal evidence linking ride-hailing to traffic congestion, perhaps due to a lack of data and challenges in pinpointing the cause. The results of the existing studies are inconsistent and focus solely on the United States. Current research indicates that ride-hailing firms have conflicting effects on traffic congestion. One set of studies finds that these services can cut down on traffic by reducing the number of people who own cars, increasing the number of people who use public transportation, and increasing the efficiency with which transportation infrastructure is used (Agatz et al., 2012; Alonso-Mora et al., 2017; Hampshire et al., 2017). The early excitement surrounding ride-hailing services has led to rapid expansion, especially in cities with strong regulations on traditional taxi services (like New York). However, more recent research has painted a gloomier picture, suggesting that ridehailing services may be (1) replacing more efficient public transportation (Babar and Burtch, 2017, Rayle et al., 2016) and (2) increasing the number of miles driven by

empty vehicles, a practice known as "deadheading" (Cramer and Krueger, 2016, Schaller, 2017b, Henao and Marshall, 2019, Tirachini, 2020).

Several multidisciplinary empirical studies have been conducted to determine how ride-hailing services affect many facets of urban mobility. As mentioned in the subsections above, several studies have highlighted specific ways ride-hailing may affect mobility (e.g., the relationship with public transportation, deadheading, etc.). Still, few have directly examined congestion effects, and those reported conflicting results (Li et al., 2016, Diao et al., 2021, Erhardt et al., 2019, Tarduno, 2021). This is mainly because it is difficult to identify specific traffic statistics, isolate the causal influence of ride-sharing services in intricate transportation networks, and explain the processes underlying observed effects. The phased arrival of Uber into US metropolitan areas and MSAmonth level congestion measurements are used by (Li et al., 2016, Diao et al., 2021) to determine whether ride-hailing cars have decreased or increased congestion in the US, respectively. As we demonstrate later in the study, aggregating at a higher level might mask the full impact of these services because aggregating at the city level already considerably underestimates the congestion effect of ride-hailing cars. Moreover, any within-day variation in impacts is likely to be hidden by the aggregate measurements. It is crucial to re-evaluate this subject using more precise metrics because local and peak-hour applications of most congestionrelief strategies are common. Because the causal identification in these papers also heavily relies on the assumption of entry exogeneity, the results may be biased if the entrance decisions of these companies are based on unaccounted-for variables related to congestion. By comparing average speeds in San Francisco in 2016 to a counterfactual expected flow using a traffic prediction model, (Erhardt et al., 2019) conclude that ride-hailing automobiles have contributed to increased congestion in the city. Even though ride-hailing can be used to tackle the problem of traffic congestion and reduce the problem of "too many vehicles on the road", it is still a major contributing factor to the underlying problems of most congested roads.

METHODOLOGY

Survey research design was adopted. The area of study is Aba metropolis comprising of the following Local government areas: Aba North, Aba South and Osisioma Ngwa which are the commercial hub of the state where modern transportation activities take place. The population of the study is 1,099,300 for the three local government areas of study (NPC, 2007). The sample size of the study is 400 which was drawn from the study population using Taro Yamane formula, as shown below:

$$n = \frac{N}{1+N(e)^2}$$

Where n = sample size

N = population

I = constant

E = significant level (5%)

Thus:

$$n = \frac{1{,}099{,}300}{1+1{,}099{,}300(0.05)^2}$$

$$= \frac{1{,}099{,}300}{1+1{,}099{,}300(0.0025)}$$

$$= \frac{1{,}099{,}300}{1+2748.25}$$

$$= \frac{1{,}099{,}300}{2749.25} = 399.85$$

$n = 400$ approximately.

Data were collected from primary sources. Pilot testing that pre-tests the instrument was incorporated to identify issues to improve accuracy in the research work. Also, experts in the field were consulted to evaluate the instrument for content and construct validity. The instrument was administered to a small group to identify issues which went further to give us the confidence of reliability. The instrument was evaluated and assessed to ensure effectiveness and efficiency in the study.. The data were analyzed using descriptive and regression analysis. While the descriptive analysis was used to present the demographic nature of the respondents, the regression was used to ascertain the effect of ride-hailing on the efficiency of public transport patronage in Aba Metropolis, Abia state, Nigeria. The regression analysis model is stated below:

$Y = a + Bx_1 + Bx_2 + Bx_3 + Bx_4 + e$
Y= Patronage
x_1=cost
x_2= Safety
x_3= time
x_4= Comfort

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Data Presentation and Analysis

Table 1. Analysis of effect of ride-hailing services on the efficiency of public transport patronage in Aba Metropolis, Abia state, Nigeria.

Variable	Linear	Semi log	Double log	+exponential
Constant	19129.814 (0.868)	-185385.517 (-1.114)	1.375 (0.818)	9.659 (42.120)***
X_1 Cost	1394.936 (2.953)***	49603.295 (3.014)***	0.683 (4.108)***	0.021 (-2.211)**
X_2 Time	0.529 (1.94)	42835.611 (1.603)	1.643 (6.086)***	1.540E-5 (5.363)***
X_3Safety	-17873.055 (-2.490)**	-16335.420 (-2.342)**	-0.146 (-2.075)*	0.193 (4.581)***
X_4 Comfort	-10506.621 (-1.448)	-7495.925 (-0.918)	-0.115 (-1.387)	0.233 (3.081)***
R^2	0.343	0.350	0.729	0.709
F-ratio	5.275***	5.444***	27.124***	24.630***

Source: Computations from field survey data, 2024.

Note: Figures in parenthesis are t – values

***, **, * - denote 1%, 5% and 10% significance level.

+ - lead equation.

The four functional forms of the regression model were tried and the exponential form chosen as a lead equations based on some econometric considerations such as number and size of the significant variables, the F-ratio and the R^2 value. From the equation, the coefficients of cost, time, safety and comfort were all significant variables.

Cost was seen with a negative sign but statistically significant at 5 percent probability level. This means that a decrease in cost of ride hailing transportation will cause the respondents to patronize ride hailing transportation services. Agwu and Duru (2010) had opined that price of transportation

remain a factor in transportation industry and suggest transport service firms to consider it when they want to penetrate the market. This assertion align with the findings of this study.

The coefficient of time was also statistically significant at 1 percent probability level and positively related. This meant that as the ride hailing services delivers its services in shortest time, the respondents will patronize them. Ezeh (2006) had observed that increase in time saving when service delivery is involved remain a major strategy to retain customers in service industry. This result is in line with the findings of the study.

Safety was statistical significant at 1% with a positive sign. This means that safety was positively related to patronage implying that the safer the respondents perceive ride hailing servicesthe more they patronize the ride hailing activities.

Comfort was also statistically significant at 1 percent probability level with a positive sign. This portrays a positive relationship between the variables and suggest that increasing the comfort of the respondents as they use the services will increase the patronage level. This result align with Wisdom (2019) who posited that service firms should ensure that comfort of their clients or customers be made paramount as that has the capacity to cause a repeat purchase.

The R^2 was 0.709, meaning that 70.9 percent of the variability in the equation has been explained, this also goes to show that the model is a good fit as attested by the high R^2, while the F – ration was 24.630 which was significant at 1 percent level.

FINDINGS AND DISCUSSIONS

On the regression analysis, we ascertained that cost is a factor to ride hailing services in the study area. Result shows that if the ride hailing service providers increase their cost, the respondents in the study area would likely use alternative transportation means. This also shows that the respondents in the study area are price sensitive. A decrease in cost of ride hailing transportation will cause the respondents to patronize ride hailing transportation services.

Time was another factor that can increase or decrease level of patronage in ride hairling industry. Time efficiency showed to be positively related to patronage. The more the ride hailing service providers work on their time management and see that the ordering time, arrival time and delivery time meet the expectations of the respondents, the respondents would choose the services over other forms of transportation means..

Safety shows a positive correlation with patronage. When respondents see the service to be safer, the possibility of using it will increase. When measures that signifies safety is perceived by the respondents, they will go for ride hailing services over other type of transportation means. .Comfort is another factor that related positively to patronage.The result showed that when customers perceive the services to offer some level of comfort, it has the capacity to cause them patronize ride hailing industry.

Summary of Findings.
The important findings of the study showed that cost, time, safety and comfort are major factors to consider when setting the business. The cost factor remains cardinal and important as the respondents would consider it before any other thing. This shows that transportation firms must price their ride hailing services technically having price sensitivity nature of the respondents in the study area. Whereas price or cost is a factor, time is also a factor which can invariable give competitive advantage over other forms of transportation. Ensuring service delivery is done in shortest time has the capacity to cause the studied respondents to patronize ride hailing services. While it is important to deliver service in shortest time, this must be done having in mind the cost sensitivity of the respondents. Safety showed to have effect on the level of patronage in the industry. Ensuring that customers perceive ride hailing services would help to increase the level of patronage. Human is always conscious of its security and would always go for services or products that have been proven over time to be secured if used. Comfort proved to be a salient factor as long as patronage is concerned. Making the customers feel good and relax showed to have the capacity of causing a repeat purchase.

CONCLUSION

Transportation business in the studied area is a highly competitive business. It has some environmental factors. A marketer's ability to factor its internal arsenal's to overcome the environmental factors remain the only way to succeed in the market. Cost, time, safety and comfort of the respondents are variables that are within the reach of the marketer depending on his internal resources. Knowing that the cost of the ride hailing would compete with the cost of other alternative transportation means that the service providers of ride hailing firms in the study area must incorporate this factor when taken decision.There are exogenous factors that can militate against the synchronization of these identified variables not to be much felt when using ride hailing services, but when an in-depth study of those exogenous factors, a good solution on how to meet the customers' expectations would be provided having the identified variables in mind.

Recommendations

Based on the findings of the study, the following recommendations are made for the ride hailing industry:

i. Effective management of cost must be made a priority. This is because the respondents in the studied area showed to be cost sensitive.
ii. Safety, time and comfort also need to be prioritized since it contributes to patronage. This means that ride hailing firms would need to show presence of these variables in their service delivery.

Contribution to Knowledge

The broad objective of this study was to ascertain the effect of ride hailing services on the efficiency of public transport patronage in Aba Metropolis, Abia state, Nigeria. Since this industry

seems to be having difficulties in the studied areas, the study has provided to the people who would want to operate such service firm an opportunity to know factors that can enhance their performance and make them successful. This study also revealed to us the nature of the respondents in the study area which can help other business ventures to know how to penetrate the market in the area studied. The study serves as a reference material to be referred to by both present and potential researchers who would be doing related work in the future.

REFERENCES

Acheampong, R. A., Siiba, A., Okyere, D. K., &Tuffour, J. P. (2020). Mobility-on-demand: An empirical study of internet-based ride-hailing adoption factors, travel characteristics and mode substitution effects. Transportation Research Part C: Emerging Technologies, 115, 102638. https://doi.org/10.1016/j.trc.2020.102638.

Adam, M., Kee, D. M. H., Junaina, I., Fadhilah, N., Uwais, N., Al Rashidi, F., Al Shammari, H., Quttainah, M. A., Srivastava, A., &Pandey, R. (2020). The influence of customer satisfaction on grab services in Malaysia. International Journal of Tourism and Hospitality in Asia Pasific, 3(2), 26–37. https://doi.org/10.32535/ ijthap.v3i2.820.

Ahmed, S. I., Bidwell, N. J., Zade, H., Muralidhar, S. H., Dhareshwar, A., Karachiwala, B., Tandong, C. N., & O'Neill, J. (2016). Peer-topeer in the Workplace: A View from the Road. In Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16). Association for Computing Machinery, New York, NY, USA, 5063–5075.https://doi.org/10.1145/2858036.2858393.

Alifah Dina, S. (2017). Moving out of poverty: Go-jek as innovative support for motorcycle taxi in Jakarta.(Masters Thesis).Development Studies, Erasmus University Rotterdam.

ALMEC & Oriental Consultants.(2015). Transport Demand Characteristics Based on MUCEP Person Trip Survey.MMUTIS Update and Enhancement Project, Japan International Cooperation Agency (JICA).

Chandler, C. (2019). Grab vs. Go-Jek: Inside Asia's battle of the 'super apps. Fortune.Retrieved Dec 20, 2020 from https://fortune.com/ longform/grab-gojek-super-apps/ Chen, L. (2020).Improving digital connectivity for e-commerce: A policy framework and empirical note for ASEAN.Research Institute for ASEAN and East Asia (ERIA) Discussion Paper Series.

Consumer News and Business Channel. (2020). These are the 2020 CNBC Disruptor 50 companies. https://www.cnbc.com/2020/06/16/ meet-the-2020-cnbc-disruptor-50-companies.html.

Davis, F. D., Bagozzi, R., &Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. Management Science, 35(8), 982–1003.https://doi.org/10.1287/mnsc. 35.8.982.

De Haan, F., &Rotmans, J. (2018).A proposed theoretical framework for actors in transformative change. Technological Forecasting and Social Change, 128, 275–286. https://doi.org/10.1016/j.techfore.2017. 12.017.

Deighton-Smith, R. (2018). The economics of regulating ride-hailing and dockless bike share. International Transport Forum.

Federal Reserve Board. (2018). Report on the economic well-being of U.S. households in

2017. *Board of Governors of the Federal Reserve System*. Retrieved fromhttps://www.federalreserve.gov/publications/files/2017-report-economic-well-being-us households-201805.pdf

Faulkner, G. E., Buliung, R. N., & Flora, P. K. (2009). Active school transport, physical activity levels and body weight of children and youth: a systematicreview. *Preventive medicine*.

Feigon, S. & Murphy, C. (2016).Shared mobility and the transformation of public transit. Report submitted by the Shared-Use Mobility Center (SUMC) for the American Public Transportation Association.

Fitzsimmons, G. E. (2018, August 8). Why a cap on Uber in New York would be a major blow for the ride-hail giant. *The New York Times*. Retrieved August 18, 2019, from https://www.nytimes.com/2018/08/08/nyregion/nyc-uber-cap-regulations.html

Ge, Y., Knittel, R. C., &MacKenzie, D. (2016).Racial and gender discrimination in transportation network companies. NBER Working Paper No. 22776.

Golant, S. M. (2015). *Aging in the right place*. Baltimore, MD: Health Professions Press.

Greenwood, B. &Wattal, S. (2015). Show Me the Way to Go Home: An Empirical Investigation of Ride Sharing and Alcohol Related Motor Vehicle Homicide. Fox School of Business Research Paper No. 15-054.

Grengs, J. (2002). Community-based planning as a source of political change: The transit equity movement of Los Angeles' bus rider union. *Journal of the American Planning Association, 68*(2): 165-178.

Ge, Y., Knittel, R. C., &MacKenzie, D. (2016).Racial and gender discrimination in transportation network companies. NBER Working Paper No. 22776.

Golant, S. M. (2015). *Aging in the right place*. Baltimore, MD: Health Professions Press.

Greenwood, B. &Wattal, S. (2015). Show Me the Way to Go Home: An Empirical Investigation of Ride Sharing and Alcohol Related Motor Vehicle Homicide. Fox School of Business Research Paper No. 15-054.

Grengs, J. (2002). Community-based planning as a source of political change: The transit equity movement of Los Angeles' bus rider union. *Journal of the American Planning Association, 68*(2): 165-178.

Hall, J. D., Palsson, C., & Price, J. (2017).*Is Uber a substitute or complement for public transit?* Working Papers tecipa-585, University of Toronto, Department of Economics.24 p.

Hall, J. V. & Krueger, A. B. (2017).An analysis of the labor market for Uber's driver-partners in the United States.*ILR Review, 71*(3): 705–732.

Hill, S. (2015, December 22). The ticking time bomb of Uber.*Truthout*.Retrieved fromhttp://www.truth-out.org/progressivepicks/ item/34167-the-ticking-time-bomb-of-uber.

Isaac, M. (2017, June 15). Uber is sued by woman who was raped by one of its drivers in India.*The New York Times*. Retrieved from https://www.nytimes.com/2017/06/15/technology/uber-india-rape-lawsuit.html

Komanduri, A., Wafa, Z., &Proussaloglou, K. (2018). Assessing the impact of app-based ride share systems in an urban context: Findings from Austin.*Transportation Research Record, 2672*(7): 34-46.

Law, R. (1999). Beyond women and transport: towards new geographies of gender and daily mobility. *Progress in Human Geography, 23*(4): 567-588.

Lucas, K. (2004). Transport and social exclusion. In Lucas, K. (Ed.) *Running on empty: Transport, social exclusion and environmental justice*, Bristol, UK: Policy Press.

Lucas, K. (2012). Transport and social exclusion: Where are we now? *Transport Policy, 20*: 105-113.

Lucas, K., Tyler, S. & Christodoulou, G. (2008).*The value of new transport in deprived areas: who benefits, how and why?* Joseph Rowntree Foundation.

Lyft.(2018). Safety policies. Retrieved August 18, 2019, from https://help.lyft.com/hc/en-ca/articles/115012923127-Safety-policies

Mangrum, D. & Molnar, A. (2017).The marginal congestion of a taxi in New York City.Processed, Vanderbilt University.

McDonald, N. (2015). Are millennials really the "go-nowhere" generation? *Journal of the American Planning Association, 81*(2): 90-103.

McDonald, N. C. & Aalborg, A. E. (2009). Why parents drive children to school: Implications for safe routes to school programs. *Journal of the American Planning Association, 75*(3): 331-342.

Mercado, R. G., Paez, A., & Farber, S. (2012). Explaining transportation mode use of low-income persons for journey to work in urban areas: a case study of Ontario and Quebec.*Transportmetrica.*

Meyer, D. M. & Miller, J. E. (2001).*Urban Transportation Planning*.2nd Ed. New York, NY: McGraw-Hill, 642 p.

NYLPI. (2018). Left behind: New York's for-hire vehicle industry continues to exclude people with disabilities. Retrieved August 18, 2019, from http://www.nylpi.org/wp-content/uploads/2018/05/Left-Behind-Report.pdf

Paez, A., Mercado, R. G., & Farber, S. (2009). *Mobility and social exclusion in Canadian communities: An empirical investigation of opportunity access and deprivation from the perspective of vulnerable groups.* Toronto, ON: Policy Research Directorate Strategic Policy and Research. 21p.

PEW (2018).Mobile Fact Sheet.Pew Research Centre. Retrieved August 18, 2019, fromhttp://www.pewinternet.org/fact-sheet/mobile/ *

Rayle, L., Dai, D., & Chan, N. (2016). Just a better taxi? A survey-based comparison of taxis, transit, and ridesourcing services in San Francisco. *Transport Policy*, *45*: 168–178.

Rietveld, P. (2007). Chapter 18, Urban transport policies: The Dutch struggle with market failures and policy failures. In Arnott, J. R., and McMillen, P. D. (2007).*A Companion to Urban Economics.*Wiley-Blackwell, 608 p.

Rosenbloom, S. (2009). Meeting transportation needs in an aging-friendly community. *Generations*, *33*(2): 33-43.

Schulz, D. & Gilbert, S. (1996, October). Women and Transit Security: A new look at an old issue/ Women's travel issues. Proceedings from the second national conference, FHWA-PL-97-024.*Office of Highway Information Management, HPM-40, Federal Highway Administration.* Washington, DC: US Department of Transportation.

Shaheen, S. & Cohen, A. (2018).Equity and shared mobility.*ITS Berkeley Policy Briefs*, doi: 10.7922/G2MC8X6K.

Sheller, M. &Urry, J. (2000).The city and the car.*International journal of urban and regional research*, *24*(4): 737-757.

Shirgaokar, M. (2017).*Which barriers prevent seniors from accessing transportation network company (TNC) services? Identifying ways forward for a gendered policy approach* (No. 17-04921).

Statistica. (2018). Distribution of Uber's employees in the United States in 2017 and 2018, by ethnicity. Retrieved August 18, 2019, from https://www.statista.com/statistics/693838/uber-employee-ethnicity-us/

Transportation Tomorrow Survey (2016). TTS 2016 Data Guide. Retrieved from http://dmg.utoronto.ca/pdf/tts/2016/2016TTS_DataGuide.pdf

Uber Enhanced Customer Experience CX (2024). Renascence.

Uber (2018a). About us: We ignite opportunity by setting the world in motion. Retrieved August 18, 2019, from https://www.uber.com/en-CA/about/

Uber (2018b). Your safety is our priority. Retrieved August 18, 2019, from https://www.uber.com/en-CA/blog/safety-features/

Uber (2018c). Where to drive: Toronto. Retrieved August 18, 2019, from https://www.uber.com/en-CA/drive/toronto/where-to-drive/

Wakabayashi, B. (2018). Former Uber engineer's lawsuit claims sexual harassment. *The New York Times*. Retrieved August 18, 2019, from https://www.nytimes.com/2018/05/21/technology/uber-sexual-harassment-lawsuit.html

Weatherby, B. (2018). Disabled Bristol man left 'embarrassed' and 'mortified' after Uber drivers refuse to pick him up. *BristolLive*. Retrieved August 18, 2019, from https://www.bristolpost.co.uk/news/bristol-news/disabled-bristol-man-left-embarrassed-1124216

Young, M. (2018). Ride-hailing's impact on Canadian cities: Now let's consider the long game. *Canadian Geographer*.

Young, M., & Farber, S. (2019).The who, why, when of Uber and other ride-hailing trips: An examination of a large sample household travel survey. *Transportation Research Part A*119: 383–392.

Young, M., Allen, J., & Farber, S. (2020). Measuring when Uber behaves as a substitute or supplement to transit: An examination of travel-time differences in Toronto. *Journal of Transport Geography*, *82*, 102629.

Zwick, A. & Spicer, Z. (2018). Good or bad? Ridesharing's impact on Canadian cities, *The Canadian Geographer*.Retrieved from https://onlinelibrary.wiley.com/doi/epdf/10.1111/cag.12481.