

Factors Influencing Customer Choice of Ride-Hailing Services (RHS): A Case of Students at the University of Zambia

Abstract: On a global level, significant rapid business growth in the e-commerce market today has been witnessed in e-hailing, or electronic-hailing service sometimes referred to as ride-hailing. It is a process of booking a car and a driver through an e-hailing service provider's platform using a smartphone application. The purpose of this study was identify the factors influencing customer choice of ride-hailing services among the students at the University of Zambia. The empirical analysis was based on samples of students at the University of Zambia. With the stratified random sampling technique, these leaders operating in different congregations were surveyed. Data from the survey questionnaire was analysed by using the SPSS statistical program, version 24 (SPSS Inc.). Descriptive statistics (means, medians, SDs, and ranges) and Chi-Square tests were performed. It was found that almost all the respondents were aware of ride-hailing services (99%). Online Advertisements and social media, followed by Word-Of-Mouth were recorded as mediums with the highest contribution to the awareness of ride-hailing services among the respondents. Price, Convenience, Comfort, Safety, and Trip duration all had a significant relationship with the use of ride-hailing services. The percentage of males with no regard for safety was higher than the percentage of females with no regard for safety. This implies that female users of ride hailing services are more concerned about safety than males.

I. INTRODUCTION

History of ride-hailing in Zambia dates to 2010. In early 2010, Driven Taxis introduced its App on the Zambian taxi market, but it fizzled out less than two years in operation (Nkinke, 2022). Nevertheless, the ride-hailing business rose to prominence in 2017 when Ulendo, a ride-hailing service platform launched, initially beginning operations in Lusaka (Jackson, 2017). Since then, multiple ride-hailing platforms including Yango and ZamCab have emerged on the Zambian market to provide direct competition to Ulendo. These companies provide a platform for private drivers and taxi drivers to accept booking from customers through mobile applications, which can be downloaded from iOS or android smartphones (Arumugama, Ismail & Joeharee, 2020). E-hailing mobile applications allow users to book a ride using their mobile devices any time and in any place.

According to Zambia Institute for Policy Analysis and Research (ZIPAR), 2014, public transportation is the main mode of commuting among passengers in Zambia. Conventional public transportation, such as minibuses, require passengers to wait in a designated area such as a bus stop to get on a vehicle. The emergence of ride-hailing services adds a different attribute to traveling from one location to another, with maps embedded into smartphones enabling pick-up point and drop-off point from everywhere (Loa & Habib, 2021). Furthermore, ZIPAR (2014) reported that commuter satisfaction with the level of bus service was low with long waiting times at bus stations; irregular stops to pick passengers, and lack of sensitivity to time characterizing conventional public transport. Most public transport is also inaccessible to disabled people. In contrast, ride-hailing services allow for on-demand provision of vehicles which in turn saves time wasted in searching for a minibus that is heading in a customers' desired destination or by irregular stops made to pick up passengers. Moreover, the Energy Regulation Board's (ERB) decision to resort to a monthly fuel price review mechanism has created uncertainties surrounding pricing of bus fares which has adversely impacted users of conventional public transport (Shalubala, 2022). Faced with this concern as well, prices of ride-hailing services have been relatively stable compared to conventional public transportation.

II. LITERATURE REVIEW

Technological advancements have revolutionized various economic sectors take for instance the transportation sector. This is visible through the establishment of ride hailing services over the decades which greatly depend on the internet for their operation. A ride-hailing service is a company that via websites and mobile applications matches passengers

with drivers of vehicles for hire (Mey, 2021). The first ride hailing service was Uber, founded in 2009 in the United States of America (Blystone, 2022). It has since established itself as a global company with presence in Multiple continents such as North America, Europe, and Africa. In Africa, Uber is present in countries such as Nigeria, Ghana, and South Africa (Kpilaakaa, 2022). On the contrary, it is not yet available in Zambia.

The first ride hailing service in Zambia was Driven by Taxis in 2010 but it failed due to a lack of infrastructure such as poor internet connectivity and low use of mobile commerce to support it at the time (Nkinke, 2022). Years later, the first successful ride hailing service known as Ulendo launched in 2017. Ever since, various competitors have joined the Zambian market to provide direct competition to Ulendo. In Zambia, road passenger transportation is primarily through conventional public transport means such as minibuses. Ride hailing services provide a different dimension passenger transport are currently an option for Zambians wishing to commute from one destination to another.

Awareness

In the context of this study awareness entails brand awareness. Brand awareness is a customer's ability to recognize and recall a brand when provided an indication (Berry, 2000). Brand plays a huge role in the product's commercial success in the market Kotler and Armstrong (2015). Brand awareness is primarily composed of the presented brand, but is also affected by external brand communication. Brand meaning is foremost affected by the customer's experience with the company, but also indirectly affected by external brand communication and the presented brand. The idea is that a customer is aware of various brands of ride-hailing services available to him or her before settling on using one of them. The service branding model presents broad elements that affect brand awareness of customers of ride-hailing services is utilized as well empirical studies on ride-hailing services relating to the awareness aspect are submitted (Hermansson et al., (2005).

Service Branding Model

This model was conceptualized by Leonard Berry. According to Hermansson et al., brand awareness is a sum of the company's presented brand as well as external brand communications. The presented brand is the company's-controlled communication of its identity and purpose through its advertisements, service facilities, and the appearance of service providers (Hermansson et al., (2005). The company's effective presentation of its brand contributes directly to brand awareness. External brand communications refer to information customers absorb about the company and its service that essentially is uncontrolled by the company (Berry, 2000). Word-of-mouth communications and publicity are the most common forms of external brand communications. Customers may gain awareness or form impressions about a brand not only from company communications but from communications about the company offered by independent sources. The presented brand is the company's-controlled communication of its identity and purpose through its advertisements, service facilities, and the appearance of service providers(Hermansson et al., (2005). The company's effective presentation of its brand contributes directly to brand awareness. This study presented elements such as advertising, social media, word-of mouth, referrals, among others to assess awareness of ride-hailing services among customers (Berry, 2000). This study will present elements such as advertising, social media, direct sales agents/brochures, word-of mouth, referrals, celebrity endorsements among others to assess awareness of ride-hailing services among customers.

Use of Service

In this study, service use is the extent to which people are utilizing ride-hailing services that are available and accessible to them. Emphasis was placed on the factors or attributes that influence the use and/or potential use of ride hailing among customers. A discrete choice model theorized by the researchers is used to identify attributes that would most likely affect the use of ride-hailing services among customers.

Discrete Choice models

According to Bernasco and Block 2009, the discrete choice framework was developed in the 1970's by McFadden (1973) and others working in the field of travel demand, and the first applications of discrete choice were in the study of travel mode choice (i.e., the choice between train, bus, car, or airplane).Discrete models have played an important role in transportation modelling and are used to provide a detailed presentation of aspects relating to transportation demand (Ben-Akiva and Bierlaire, 1997). These models allow for a custom-built model based on four modelling assumptions. These assumptions surround the decision maker, alternatives, attributes, and decision rules . The discrete choice framework consists of a set of assumptions regarding four elements of a choice situation (Ben-Akiva & Bierlaire 1999)

The decision maker: These assumptions define who the decision maker is and what their characteristics are. Furthermore, because discrete choice models are considered disaggregate models, the decision maker is assumed to be an individual. In this study, the decision maker is a student and characteristics under consideration will be age and gender.

Alternatives: These assumptions determine what the possible alternatives of the decision maker are. Analysing the choice of an individual requires the knowledge of what has been chosen but also of what has not been chosen. Thus, assumptions must be made about options that were considered by the individual to perform a choice. Alternatives to ride-hailing services available to customers include traditional taxis, personal/private motor vehicles as well as conventional public transportation (mini-buses).

Attributes: These assumptions identify the attributes of each potential alternative that the decision maker is considering to make their decision. Some attributes may be generic to all alternatives. This study selected attributes that are generic to the alternatives and are likely to affect the choice of the individual. These include price, convenience, comfort, safety, and trip duration.

Decision Rules: They describe the process used by the decision maker to reach his/her choice. The Neoclassical Economic theory is an example of a decision rule that can be used by customers. It assumes that each decision-maker can compare two alternatives a and b in their choice set using a preference-indifference operator, that is, the decision maker either prefers a to b or is indifferent between the two alternatives. The preference-indifference operator is supposed to have the properties of reflexivity, transitivity, and comparability.

However, in this study, the purpose of the discrete choice model that has been established by the researchers will be limited to the attributes assumptions to identify the factors affecting the use of ride-hailing services as follows:

Safety

Like all modes of public transport, safety concerns are inherent in ride hailing services. An example of a safety concern would be the likelihood of a car crash due to a driver over speeding. A study was conducted in by Alemi et al (2019) to discover what drives the use of ride-hailing in California, United States of America. They analysed data from a California millennials dataset comprising 1975 subjects collected through an online survey administered to both millennials and members of the preceding Generation X. They estimated an ordered probit model with sample selection and a zero-inflated ordered probit model with correlated error terms to distinguish the factors affecting the frequency of use of ride-hailing from those affecting the adoption of these services. The findings suggested that subjects with stronger concerns about the safety/security of ride-hailing were less likely to be frequent users of ride-hailing services. Other findings were that individuals with higher willingness to pay to reduce their travel time used ride-hailing more often. Individuals who frequently use smartphone apps to manage other aspects of their travel were more likely to use ride-hailing more often.

Another study was conducted by Tang et al (2021) which aimed to explore the gender-related operational issues arising from on-demand ride-hailing platforms in terms of safety concerns and system configuration in Hong Kong. The researchers used secondary data provided by various institutions and applied regression analysis to analyse their data. Their findings revealed that there were more safety unconcerned females compared to safety concerned females. They further revealed, that among safety concerned males and female, the regard for safety was higher among the females.

Trip Duration

The duration of trips for similar distances may vary depending on the kind of transport used. Public transport is usually associated with longer travel times due to factors such as time spent boarding passengers to the fill the capacity of the motor vehicle used. Research was conducted by Dong (2020) to investigate individual willingness to use ride-hailing versus transit in Philadelphia, United States of America. A survey was used to examine who uses ride-hail and investigate ride-hail users' willingness to use ride-hailing versus public transport. Thereafter, mixed logit regression analysis based on stated preference choice experiments was used. Findings indicated longer trip duration was a significant limitation for travel by public transport. Respondents considered the time spent on walking to and from transit more burdensome than in-vehicle travel time and wait time for ride-hail.

Price

The use of various services can be impacted by slight changes in the price of those services. It can also determine how easily customers of a service can switch to competitors of that service or substitute it with alternatives. Most studies

surrounding ride hailing services focus on the price element in assessing adoption or use of the platforms. Assegaff and Pranoto (2020) aimed to find out which dominant factors influence customer loyalty in ride-hailing service in Surabaya, Indonesia. Data had been collected using questionnaires from 400 participants in Surabaya by simple random sampling which was then processed using SPSS 25.00. This research then applied models of service quality, service benefit, price, corporate image, system quality, customer satisfaction, and consumer loyalty. Results showed that, compared to the other four factors applied in the study (service benefit, corporate image, service quality and system quality), price becomes the most dominant factor that influences customer loyalty in ride-hailing services.

Convenience

Ali et al (2022) oversaw research that aimed at investigating the behaviour of commuters towards ride-hailing services in Lahore, the second largest city in Pakistan and can be considered as a case study of a developing country. A total of 531 usable valid responses were collected through face-to-face interactions, including the sociodemographics (SEDs) and behaviour of commuters towards these services. The results of an explanatory factor analysis (EFA) and structural equation modelling (SEM) revealed that some of the significant latent variables of these ride-hailing services are comfort, convenience, privacy and security, the fare system, social protection, and safety. The commuters' overall evaluation of the services was positive and affected their present and future preferences. Notably, the structural coefficient between convenience and the variable of present preference was significant and negative. This showed that there were respondents who infrequently used ride-hailing services despite having high satisfaction associated with the convenience of ride hailing services (Ali et al 2022).

III. RESEARCH METHODOLOGY

The design adopted in this research quantitative research design that illustrates factors affecting the use of ride-hailing services among customers at the University of Zambia.

SAMPLING

This study will use simple random sampling to select subjects of the population for inclusion in the sample for a study both the undergraduates and postgraduates.

To determine our sample size, we shall use the Taro Yamane (1967) formula:

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

- Where n represents *sample size*, N represents *population size*, and e represents the *margin of error*.

According to Lusaka Times (2017) the student population at the University of Zambia is 30,000. Furthermore, a margin of error of 5% was agreed on. By replacing these figures into the Taro Yamane formula, a sample size of 395 respondents was generated.

Data Collection

The data was collected using questionnaires comprise of closed-ended questions where administered.

IV. PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS

Gender

53% of the respondents were male and 47% were female

General Awareness of ride-hailing services

99% were aware of ride-hailing services whereas 1% respondent was not aware of any ride-hailing service.

Awareness of specific ride-hailing services

Yango is the ride-hailing service that the 99% respondents were most aware of followed by Ulendo 81%, then MyRide 21% and ZamCab 21%.

Mediums contributing to awareness of ride-hailing services

77% respondents attributed both social media and online advertisements as mediums contributing to their awareness of ride hailing services whereas 59.6% of the respondents' identified word-of-mouth/recommendations as a contributing medium. Lastly, 15.2% percent and 7.1% percent of the respondents selected TV & radio advertisements and direct sales agents/brochures as mediums contributing to their awareness of ride-hailing services respectively.

General Use of ride-hailing services

82% respondents have used a ride hailing service before while 18% have not used.

Use of specific ride-hailing services

Of the 92% respondents that have used a ride-hailing service before, 94.6% percent have used Yango, 64.1% have used Ulendo whereas 3.3% have used both MyRide and ZamCab before.

Usage rate of ride-hailing services.

6% indicated that they have never, 55% rarely (less than twice a month), 25% moderately (two to five times a month), 7% not at all, 7% very often (more than 5 times a month) used ride-hailing services.

Factors affecting potential use of ride hailing services

72.6% selected price, 50.5% selected convenience, 33.7% selected safety, 28.4% selected comfort and 27.4% selected trip duration as factors affecting their potential use of ride-hailing services.

Chi-square tests for factors affecting potential use against the use of ride hailing services.

All five factors assumed to affect the potential use of ride-hailing services had a p-value of (.000) which was less than the designated alpha level of the chi-square test (0.05). This meant that they were all significantly associated to the use of ride hailing services.

Gender and Safety.

Multiple analyses involving the cross tabulation of gender against the five factors assumed to affect the potential use of ride-hailing services was performed. Of the five factors, only safety was found to have a significant association with the gender of the respondents.

Safety as a factor affecting the potential use of ride-hailing services when analysed against gender had a p-value of (.028) which was greater than the designated alpha level of the chi-square test (0.05). This implied that there was a significant relationship between gender and safety as seen from the frequencies above, males with no regard for safety (77.4%) is higher than the percentage of females with no regard for safety (55.3%). Alternatively, the percentage of females with regard for safety (44.7%) is higher than the percentage of males with regard for safety (20.8%). This implies that female users of ride hailing services are more concerned about safety than males.

V. DISCUSSION

Almost all the respondents (99%) were aware of ride-hailing services. Mediums contributing to awareness of a service can be classified as presented brand and external brand communications (Berry, 2000). For presented brand, online advertisements, social media, TV & Radio advertisements, and direct sales agents/brochures contribution to awareness were assessed whereas for external brand communications word-of-mouth contribution was assessed. According to the findings, the main mediums contributing to awareness of ride hailing services were both classified as presented brand mediums. These were social media and online advertisements as 69.7% of the applicable respondents attributed their awareness of ride-hailing services to each of them. This implied that the two most effective tools contributing to the awareness of ride-hailing services among customers are under the direct control of organizations that provide the services. In relation to social media, the findings of this research were consistent with the research conducted by Lampe et al (2022) in Indonesia which revealed that that social media was an alternative mode of increasing customers of ride-hailing services in Indonesia. The findings further revealed that online advertisements were as equally effective as social media for increasing awareness of ride-hailing services among customers.

Word-of-mouth communications were selected by 59.6% of applicable respondents as a medium contributing to their awareness of ride-hailing services. Majority of the respondents attributing word-of-mouth to their awareness of ride-hailing services provides similarities to the study performed by Chin, Lai & Tat (2018) in Malaysia on Grab, a ride hailing service. The study revealed that word-of-mouth can considerably enhance the popularity of a brand among customers of ride-hailing services. Besides word-of-mouth being a form of external brand communication and not under the direct control of ride-hailing companies, its contribution to awareness of those companies was almost as mediums under their direct control. This suggests that customers of ride-hailing services can be a good medium for promoting these organisations on their behalf. Thus, ride-hailing companies can attempt to leave a good impression on new users

of their services as well as consistently meet the needs, wants and expectations of their customers so that they can enhance positive word-of-mouth promotions.

It was found that 93% of the respondents had used a ride-hailing service before. However, more than half of the respondents (55%) had only used ride hailing services only rarely (once or twice a month) whereas 7% had never used ride-hailing services before. Thus, majority of the respondents were not frequent users of ride-hailing services (62%). This revealed a possible concern for ride hailing services because despite majority of the respondents being aware of ride hailing services and having used them before, only a small portion of the respondents were frequent users of the services.

- I. After running chi-square tests for price, convenience, comfort, safety, and trip duration against the use of ride hailing services, it was found that all the five factors had a significant relationship with the use of ride hailing services. Price (72.6%) was the highest factor influencing the potential use of ride-hailing services followed by Convenience (50.5%), then Safety (33.7%), then Comfort (28.4%) and then Trip duration (27.4%). These findings provided a similarity with the study performed by Assegaff and Pranoto (2020) which showed that when compared to different factors, price becomes the most dominant factor that influencing the use ride-hailing services. Furthermore, the findings were also consistent with the research of Ali et al (2022) which revealed that there are customers who infrequently used ride-hailing services despite having high satisfaction associated with the convenience of ride hailing services. This was evident as more than half of the respondents in this research were not frequent users of ride hailing services (62%) besides half of them (50.5%) selecting convenience as a factor affecting their potential use of ride-hailing services. When the factors influencing the potential use of RHS were analysed against demographics, only one significant relationship between Gender and Safety was discovered. This finding was reflective of an empirical study by Tang et al (2021) in China which revealed that female customers tend to be more concerned about the safety of ride-hailing services than male customers.

VI. CONCLUSION

Most respondents were aware of ride-hailing services. Online Advertisements and social media, followed by Word-Of-Mouth were recorded as mediums with the highest contribution to the awareness of ride-hailing services among the respondents. Price, Convenience, Comfort, Safety, and Trip duration all had a significant relationship with the use of ride-hailing services. When the factors influencing the potential use of ride-hailing services were analysed against demographics, only one significant relationship between Gender and Safety was discovered. The percentage of males with no regard for safety was higher than the percentage of females with no regard for safety. This implies that female users of ride hailing services are more concerned about safety than males.

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