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List of abbreviations

BICO-Bureau for Industrial Cooperation

MoT-Ministry of Transportation

MSA-Merchant Shipping Act

MSCL-Marine Services Company Ltd

Mv-Marine Vessel

NBS-National Bureau of Statistics

SUMATRA-Surface and Marine Transport Regulatory Authority

SPSS-Statistical Package for Social Science

TANROADS-Tanzania National Road Agency

TAZARA-Tanzania Zambia Railway Authority

TBC-Tanzania Broadcasting Corporation

Tshs-Tanzania shillings

VIF-Value Inflation Factor

Abstract

Purpose: This study presents a ferry transport passenger's satisfaction from ferries using Lake Victoria in Tanzania. The objective is to provide a better understanding on whether route type (long route or short route) can explain the passengers' satisfaction perceptions on service quality dimensions (convenience satisfaction, customer care satisfaction, technology satisfaction, reliability satisfaction and safety satisfaction).

Methodology: Both primary and secondary data were used .Questionnaires was a main instrument in the collection of primary data. For sample selection, the study has used convenient sampling technique. Data analysis has been performed by SPSS through independent mean test comparisons and regression analysis.

Findings-Independent mean test comparison result shows that there is a statistical significant difference between long route and short route passengers in four satisfaction dimensions namely convenience, customer care, technology and reliability. The regression estimates also prove that there is significant satisfaction decrease between the short route and convenience, customer care, and technology while it shows that there is a significant passenger's satisfaction increase on service reliability.

Limitations- Major limitation faced in the study was time and financial constraints which forced the research to be conducted in only one case of Lake Victoria.

Key words: ferry transport, public transport and customer satisfaction

CHAPTER ONE

BACKGROUND AND INTRODUCTION OF PROBLEM

1.1 Introduction

This chapter gives an overview of background information, statement of the problem and research objectives. Also research questions, significance of the study and organization of the study are presented.

1.2 Research background

Customer satisfaction is one of the crucial aspects service providers should consider especially in today's world where competition has become tremendous and customers have become more knowledgeable. In transport service, passenger satisfaction is an issue that has drawn attention of practitioners, policy makers and academicians. Several studies in public transport have addressed the passengers' satisfaction in different dimensions. Among others are: service reliability (Bergantino and Bolis, 2008), safety (Lu and Tseng, 2012).

Also the report released by University of South Florida 2010 indicates several dimensions to measure passengers' satisfaction in public transport such as convenience, cleanness and comfort, punctuality, staff courtesy, seat availability and service hours among others. Customer satisfaction is crucial target for all service providers. According to Barid (2012), in order to satisfy customers firms in the service industries must have, among other things, enough knowledge about customers' expectations especially in a situation where the production and consumption of services is run simultaneously. Ferry companies being in that category are not an exception to that.

Ferry services are widely used in four water bodies found in Tanzania: Indian Ocean, Lake Victoria, Lake Tanganyika and Lake Nyasa. In Lake Victoria, ferry transport is one of the essential modes of transport which is widely used in all surrounding areas.

There are ferry service connecting Bukoba, Musoma, Mwanza, Ukerewe, and other 50 small islands found in Lake Victoria. Three regions surrounding Lake Victoria: Mwanza, Mara and Kagera, have a total population of approximately 7 million people comprising of 2.8 million (Mwanza), 2.5million (Kagera) and 1.7 million (Mara) (NBS, 2013).

Population growth in these regions has created the need for transport service to move people from one place to the other across Lake Victoria. As a result, the number of vessels carrying people and cargoes has increased dramatically, with large number of them operating in short routes.

Demand for ferry transport service in Lake Victoria used to be very high in ten years ago due to poor road infrastructure connecting three regions (Mramba, 2012). As time goes a large number of ferry users have switched to buses or small boats due to unsatisfactory ferry services. The unsatisfactory services may be due to lack of enough vessels, poor vessels conditions, poor customer care, mixing of passengers and cargo and insufficient safety equipment (Mramba, 2012).

Moreover, there has been an observation that, as time goes ferry transport in Lake Victoria is becoming user unfriendly due to frequent increase in ferry fares which is endorsed by Surface and Marine Transport Regulatory Authority (SUMATRA) (Sezzy 2011). However, the observed price increase does not match the level of services provided (Hamalos 2013). This suggests that passengers' satisfaction is still a major concern.

1.3 Statement of the problem

Passengers' satisfaction is regarded to be one of the critical issues in the transport service sector (Kai and Jen, 2006). Passengers' preference for one mode of transport or another can be highly influenced by service satisfaction. For example Mramba (2012) noted that passengers in Lake Victoria ferries tend to switch from ferry transport to other alternatives such as bus for long distance journey and boats for short distance journeys mainly due to unsatisfactory ferry services.

In the existing transport literature suggests that the state of satisfaction will vary from person to person, product to product or service to service, it also depends on a number of factors like psychological, economic or physical factors (Kumbhar, 2011).

Nonetheless, the reviewed literature revealed that none of the existing studies has considered route type as a factor which can explain passengers' satisfaction on service quality. It is expected that short route and long route are different based on factors such as the number of transport service providers and operating costs, which in turn may affect service quality.

In this regard, this study aims to fill the noted gap in literature by investigating the influence of route type (short route versus long route) on passengers' satisfaction. This general objective will be achieved under the following specific objectives and research questions:

Specific objectives:

(i)   To compare passenger's satisfaction dimensions based on travel route type.

(ii) To examine the effect of travel route type on passenger's satisfaction.

Research questions:

(i)   Is there a significant difference between long route and short route on passenger's satisfaction?

(ii) What is the effect of route type on passenger's satisfaction?

1.4   Significance of the study

The findings of this study will add knowledge to both practitioners in the ferry sector and academia on the important role of route type in measuring passengers' satisfaction. More so, the findings will provide insights to policy makers on reviewing and improving marine transport policies.

1.5   Organization of the study

This study is organized in six chapters. Chapter one is introductory chapter which provides background information, research problem, objective, research questions and significance of the study. Chapter two provides an overview of transport sector in Tanzania. Chapter three contains literature reviews for this study. Chapter four focuses on research methodology used in this study. Chapter five presents data analysis and findings. Lastly discussion, implications, limitations and areas for further studies are presented in chapter six.

1.6   Chapter Summary

In this chapter five sections have been presented: background information, statement of the research problem, research objectives and research questions, significance of the study and organization of the study.

CHAPTER TWO

OVER VIEW OF TRANSPORT SECTOR IN TANZANIA

2.1   Introduction

This chapter give an overview on introduction about Tanzania, different transport sector in Tanzania and lastly it will describe in detail Lake Victoria ferry services.

2.2   Country's background information

Tanzania is located in Eastern Africa between Longitude 29° and 41° East and Latitude 1^O and 12° South (NBS 2011) .1It is divided into 30 administrative divisions called regions. Her population is approximately 44 million (NBS 2013). Tanzania is surrounded by four major water bodies. The Indian Ocean links Tanzania mainland, Zanzibar and Pemba Islands. In the northern part there is Lake Victoria which links Mwanza, Kagera, Mara regions with countries like Kenya and Uganda. In the western part there is Lake Tanganyika which links Kigoma and Rukwa regions with Democratic Republic of Congo, Rwanda and Burundi. Lake Nyasa which is found in the south-western part links Tanzania with Mozambique and Malawi (http://geology.com/world/tanzania). All of the above mentioned water bodies use or need ferry transport services.

Figure 2.1:Map of Tanzania showing water bodies

(Source: http://www.infoplease.com/atlas/country/tanzania.html)

Ferry service providers in Tanzania include both government owned ferries and privately owned ferries. Although there is no any subsides offered to privately owned ferries, they still provide relatively better services than those owned by the government. Most of the government owned ferries are old aged vessels (MoT 2011). Due to the geographical location and infrastructures available some areas are only accessible by using ferry services. Although road and air transport could be used as substitute, but the majority of passengers cannot afford them, therefore the ferry sector of paramount important as a part of the general transport sector in Tanzania.

2.3 Tanzania transport sectors

Tanzania transport sector is managed by the ministry of transport. This sector involves different transport modes which are used to connect people and cargos from one point to another point either within a country or to another country. These transport modes are: road transport, railway transport, marine transport and air transport.

- **Road transport**

Tanzania ministry of transport through Tanzania National Roads Agency (TANROADS) manages 33,891 kilometers of national road, 12,786 kilometers of trunk road and 21,105 other kilometers of regional road. About 53,460 kilometers of urban, district and feeder roads are managed by the Office of Prime Minister-regional and Local Government Administration (http://www.tanroads.org/). The national roads not only connect all regions of Tanzania Mainland but it also connects Tanzania to neighboring countries of Kenya, Zambia, Rwanda, Burundi, Malawi, Uganda and Mozambique.

- **Railway transport**

Railway sector in Tanzania began since the colonial era. The first railway line, whose construction was completed in 1904, connects Kilimanjaro and Tanga regions. The central railway network connects the other regions in Tanzania except the Southern regions (Lindi, Mtwara and Ruvuma). The Tanzania Zambia Railway Authority (TAZARA) railway line connects Tanzania and Zambia, and it is under the joint ownership of the two countries (MoT 2011).

- **Marine transport**

Marine transport sector in Tanzania involves three lakes and the Indian Ocean. It includes main ports and small ports. Main ports which are located in Dar es Salaam, Tanga and Mtwara along Indian Ocean connect Tanzania and the whole world. Small ports such as; Mwanza, Bukoba and Kemondobay along lake Victoria; Kigoma and Katanga along lake Tanganyika and Mbambabay along lake Nyasa they both connect passengers and cargos within the country and to nearby countries as mentioned in introduction part (http://www.mot.go.tz/).

- **Air transport**

Air transport sector in Tanzania involves regional and international carriers. Regional airports which are located in each region in Tanzania are used to connect domestic passengers within the country and nearby countries. International airports which are located in Dar es Salaam, Kilimanjaro and Mbeya are used to connect passengers and cargo across the world (http://www.mot.go.tz/).

2.4   Government policy on marine transport

The government of Tanzania has formulated maritime transport policy as a tool for regulation. Among other things the policy aims at:

- Promoting waterways transport development including its infrastructures and human capacity.
- Promoting mass movement of passengers and goods in areas accessible by water so as to reduce transport demand.
- Continuing to liberalize, improve and privatize waterways transport operations and water transport institutions to make service more efficient (http://www.mot.go.tz).

2.4.1   Tanzania merchant shipping act 2003

Tanzania Merchant Shipping Act No. 21 of 2003 provides for the vessels' requirements that have to be observed by operators in order to carry passengers. These requirements are:

- Vessels not propelled by mechanical means shall not carry any passengers unless specifically authorized by the Authority.

- The maximum number of passengers carried on board in a passenger vessel or a cargo-passenger vessel shall not exceed the number identified on the Certificate of Seaworthiness.

- A notice showing the maximum number of passengers permitted to be carried on specific decks and in specific spaces, calculated in accordance to act (MSA No .21 2003 page 8).

Furthermore, the Act directs that before vessels leave port and at all times during the voyage, all life-saving appliances on board shall be in working order and ready for immediate use. Instructions for on-board maintenance of life-saving appliances shall be easily understood and illustrated where possible. And lastly, survival craft, rescue boats and launching appliances should be visually inspected weekly to ensure that they are ready for use (MSA No .21 2003 page 60). However, the implementation of this law is not properly adhered to because some of the ferry operators always violate it especially with regard to maximum number of passengers they carry, quality of the vessels and availability of lifesaving materials in their vessels.

2.5   Lake Victoria Ferry services

Lake Victoria is the largest lake in Africa and the second widest freshwater body in the world containing surface area of 68,800 Km^2. It is located between latitude 1^0S and longitude $33^0 E$ (www.ilec.ro.jp). Its extensive surface area belongs to the three countries: the Northern part about 45% belongs to Uganda, the Southern part about 49% belongs to Tanzania and about 6% of the North -eastern part belongs to Kenya (Mramba, 2012). There are a number of coastal towns such as Kisumu (Kenya), Entebbe (Uganda), Bukoba, Mwanza and Musoma (Tanzania) which are connected together through lake Victoria (www.ilec.or.jp).

Figure 2.2: Lake Victoria and its coastal towns

(Source: in2eastafrica.net)

The map below shows areas surrounding Lake Victoria, long route ferry services links and road network that connect Lake Zone regions in Tanzania. The short route links are not indicated on the map because they involve more than 50 small islands as mentioned before and some of the islands cannot be seen from the map due to the scale used.

Figure 2.3: Map showing the Lake Victoria, long route ferry links and road connections to Lake Zone regions

Source: (http://maps.google.com/maps?q=lake+victoria) some edition made by researcher to show the long route ferry links in Lake Victoria.

Key

───── Current Long route Ferry service links in Lake Victoria

───── Road links connecting Lake Victoria regions

2.5.1 Main challenge faced ferry transport in Lake Victoria

Ferry transport sector in Lake Victoria is faced with a number of challenges. Apart from lack of enough infrastructure/facilities, there are frequent ferry accidents most of which are said to be caused by overloading and using of unauthorized vessels (local boats) to carry passengers. Different reports show that, there are frequent ferries accidents in Lake Victoria from 1996 to 2012 as some of them are presented in table 2.1 below

Table 2.1: Reported accidents in Lake Victoria between 1996 and 2012.

Date	Vessel	Fatalities	Rescued	Sources(reference)
February 2012	Mv Pacific	1	16	(Mramba 2012)
February 2012	Mv Nasebwa	-	33	(SUMATRA)
November2012	Unknown	2	7	(SUMATRA)
January 2010	Mv Butiama	-	200	(Mramba 2012)
August 2010	Local	18	-	(BICO 2011)
April 2006	MvNyamageni	27	-	(mg.co.za)
May 1996	Mv Bukoba	800	114	(IPPMedia 2012)

2.5.2 Ferry trip frequencies

According to SUMATRA-Lake Zone office, short route ferries between Mwanza and near points like Kamanga and Busis carry more than 10,000 people and around 400 cars everyday .If a ferry operate on regular schedule it makes between 16 and 20 trips per day. The local (wooden) boats have no proper schedule route or estimated number of trips. Instead they operate depending on the availability of passengers, time taken and distance travelled.

In long route ferries, the trip frequency between Mwanza and Bukoba is normally 3 times per week. There is only one vessel (Mv. Victoria) which departs from Mwanza at 2100 hours and arrives in Bukoba at 0700 hours in the next day. The same day the same vessel departs from Bukoba at 2100 hours and arrives in Mwanza at 0700 hours in the next day. Ukerewe ferries' trip frequencies are more convenient compared to Bukoba ferries' trip. Every day there are two ferries departing from Mwanza to Ukerewe and also two ferries depart from Ukerewe to Mwanza. The operation time of all Ukerewe ferries in both direction between 0900 hours to 1800 hours (SUMATRA Lake Zone Office).

2.5.3 Types of vessels used

Marine Services Company Limited (MSCL) is a government agency operating all government owed ferries in Lake Victoria, Lake Tanganyika and Lake Nyasa. Provided there are other private owned vessels operating in Lake Victoria, MSCL is among the major transporters of cargo and passengers across Lake Victoria. The table below shows the list of different vessels operating in Lake Victoria.

Table 2.2: Lists of Passengers ferries operating in Lake Victoria.

Ferry name	Capacity (passengers)	Owner	Route type	Passenger/cargo
Mv .Victoria	1200	MSCL	Long route	Passenger/cargo
Mv .Butiama	200	MSCL	Long route	Passenger/cargo
Mv .Clarias	293	MSCL	Long route	Passenger/cargo/
Mv .Nyahunge	250	SM& Bros	Long route	Passenger/cargo
Mv .Mv Nyota	200	Songoro trans ltd	Long route	Passenger only
SAMAR 1		MSCL	Short route	Passenger/cargo/trucks
SAMAR III		Kamanga ferry Co	Short route	Passenger/cargo/trucks
Busis ferry		MSCL	Short route	Passenger/cargo/trucks
A total number of 123 wooden boat with no proper names	Unknown	Individuals	Short route	Passengers and small cargos only
Large number of unknown local boats.	Unknown	Unknown Individuals	Short route	Passengers and small cargos only

(Source: SUMATRA lake zone-Mwanza)

2.5.4   Ferry price rates

Price charged in different routes depends on distance travelled and type of vessel used. The main authority responsible for setting and controlling price is SUMATRA in cooperation with other ferry transport stakeholders. The table 2.3 below shows the price charged from Mwanza station to different destinations or from different destinations to Mwanza in both long route and short route. In the long route the fare prices are categorized into different classes as illustrated above while in the short route the price is not classified but some of the operators like Busis ferry offers discounts to students.

Table 2.3: Illustration of fare price charged at different point from Mwanza in two routes

Long route fare in Tanzania shillings				
From	To	Amount paid per trip (one way)		
		1st Class	2nd Class	3rd Class
Mwanza	Bukoba	36500	23500	16500
Mwanza	Ukerewe	6500	4500	No 3rd class
Short route fare in Tanzania shillings				
From	To	Amount paid per trip (one way)		
		Adult	Student	
Kamanga	Mwanza	800	800	
Busis	Mwanza	300	100	
Karumo	Mwanza	1000	1000	

(Source: Field data 2013)

2.6   Chapter Summary

In this chapter general introduction about Tanzania and different categories of transport sector found in Tanzania have been presented. In addition, Lake Victoria ferry services have been presented in detail. The next chapter is about literature review and theoretical framework.

CHAPTER THREE

LITERATURE REVIEW

3.1   Introduction

This part evaluates the literature related to this study. In doing so, key terms used such as ferry transport, customer satisfaction and public transport in relation to literature review are presented. It also discusses some theories and empirical studies that have guided this study. Finally the research model and research hypothesis of the study are provided.

3.2   Key terms

Ferry transport: Is normally a part of road or railway infrastructures that connects the sea passage when bridges or tunnels are not available. In other words it is the infrastructure that connects passage across the water bodies like ocean, lake or river. The demand of this service is mostly dependent on the frequency with which passengers or cargos are to be shipped immediately upon the arrival. The time taken during the trip (shipment time) is also very important because the vehicle rent is paid on time basis and also some products are perishable so they need quick delivery (Johan et al.,1997). Tanzania Merchant Shipping Act (2003) defines passenger's vessel (ferry/boat/cruise) as any vessel built and operated to carry more than 12 passengers and that is not a cargo-passengers vessel (MSA 2003 pp.6)

Public transport: Generally, public transport can be described as the type of transport services operating in a specific route and that can be used by general public. Public transport has been defined by different scholars. Example; (White, 2002) defined it as a type of transport which includes all modes available to the public, scheduled and non-scheduled which are providing transport services, irrespective of ownership.

 Public transport can be defined as a viable substitute to private car use (Holmgren, 2007). It includes any means of transport which a person can share with other majorities. Ships and boats are the ones of the earliest public transport forms which carries passengers from one continent to other continents (www.wisegeek.com). In this study ferry transport is termed as a public transport because it carries many passengers and trucks/cargo from one point to another point across a water body such as an ocean, a lake or a river.

Customer satisfaction: Is the measure of degrees at which customer is satisfied or meets his /her expectation by the consumption of product or service. Customer satisfaction can also be defined as personal feelings of pleasure or disappointment by making a comparison between service perceived performance and its outcome in relation to customer expectation(Kotler, 2000). Also, literature suggests customer satisfaction can be viewed as a judgmental thing borne out of the comparison of pre-purchase expectation and post purchase evaluation of the product or services (Oliver, 1980). Customer satisfaction can also be regarded as re-organizational capability to attract and maintain customer and improve the customer relationship over a period of time (Anderson et al., 1994).In this study customer satisfaction is conceptualized as the ferry passenger's perception in terms of convenience, customer care services, level of technology used, reliability and safety to meet their expectation in transportation services.

3.3   Theoretical framework

In this study two theories are used to provide the frame of reference. The theories are: theory of quality gaps and theory of expectation confirmation.

3.3.1   Theory of quality gaps model

Quality theory model is the model which is used to assess customer expectations and perceptions of service quality business. Perceived service quality gap can be defined as the difference between consumers' expectations and perceptions and the service delivered (Parasuraman et al., 1985) .The assumption made here is that the level of service quality perceived by customers is influenced by the gap between their expectation before using services and their perception of what they actually receive.

There are five dimensions proposed by this model which are used to evaluate service quality. These are: tangibility, reliability, responsiveness, assurance and empathy (Parasuraman et al., 1985).This theory suggests that if the service offered to the customer meets the five dimensions mentioned above, the customer's perception towards the service will be positive. Other scholars argue that service quality model should include functional quality, technical quality and corporate quality (Gronroos, 1984) . In this study ferry service quality was measured in five dimensions of passenger satisfaction which are: convenience, customer care, technology, reliability and safety.

3.3.2 Expectations confirmation theory (ECT)

The expectations theory deals with four main constructs which are expectations, performance, confirmation/disconfirmation and satisfaction. This theory holds that service performance expectations has an impact on post purchase satisfaction. The theory provides for two post purchase outcomes: confirmation or disconfirmation between performance and expectation. If the service or product meets customer's expectations, the customer is satisfied; while if a service fails to meet customer's expectation, the customers is likely to be dissatisfied (Spreng et al., 1996). Expectations reflect the anticipated performance behavior (Churchill and Surprenant, 1982). Disconfirmation (negative satisfaction) is the divergence of the actual service experience from the customer's prior expectations. In relation to this study, the theory explains that ferry passengers feel satisfied or dissatisfied with ferry services when they meet their expectations. Passenger's judgment on service satisfaction was measured by rating their satisfaction dimension on given service quality dimensions.

Figure 3.1.Expectation confirmation model
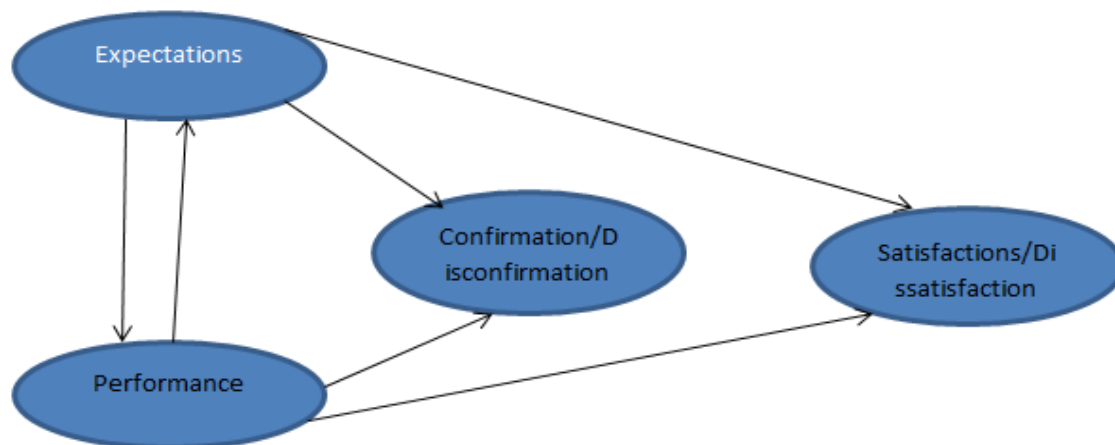
Adapted from Cathy (2005)

3.4   Empirical studies

Geetika and Nandan (2010) conducted a study on railway platform in India. The study intended to identify the features for passenger satisfaction on railway platforms. After grouping some factors together, the study came up with five factors which were considered to be the most important for determining passenger's satisfaction in railway platforms. The factors suggested were: refreshments, behavior of the operating staff, information system and efficiency, basic facilities, and safety satisfaction. This study employs similar approach to assess the passenger's perception on five service quality dimensions, however the focus is on whether route type influence passenger satisfaction.

Kai and Jen (2006) conducted a study on passengers perceived service quality on city bus in Tai Pei in China. The aim of the study was to understand passenger's perception and expectation towards quality of services provided. They developed four service quality dimensions which are: interaction with passengers, tangible services equipment's, convenience of the service and operating management support. Kai and Jen (2006), recommended that using the assessment of four dimensions management can detect whether the services quality is acceptable by passengers or not. In that case five service quality dimensions used to understand passenger's satisfaction perception between two routes.

Kumar (2012) conducted a qualitative study with the purpose of ascertaining the expectation and perception of passengers using public transport in India. A total number of 200 passengers were selected as a sample size. The study used six dimensions assurance, empathy, reliability, responsiveness, tangible and comfort. The study revealed that there is a big difference on passenger's perception towards various service quality dimensions. Using a Chi-square test they compared satisfaction on the basis of gender and occupation. The results showed that there is a difference between satisfaction gained by male and female travelers; likewise, between passengers of different occupations. However, they did not show if the satisfaction perceived can be different based on route type. Therefore this study will use independent mean test and regression analysis to compare the satisfaction gained by passengers in short and long routes, in relation to their socio economic background such as gender, income and age.

Most of the above mentioned studies were conducted in Asian countries whose context may be different from African countries like Tanzania. In addition the studies addressed other transport sectors other than ferry sector. However, these studies still provide useful insights on further assessment of public transport service satisfaction.

3.5 Research model

In order to answer research questions, this study developed a research model (figure 3.2) composed of route type as the main predictor variable, on the following five dimensions of satisfaction: convenience, customer care, technology, reliability and safety. In addition to route type, the model included three control variables: customer's age, income and gender.

Figure 3.2. Research model of passenger satisfaction.
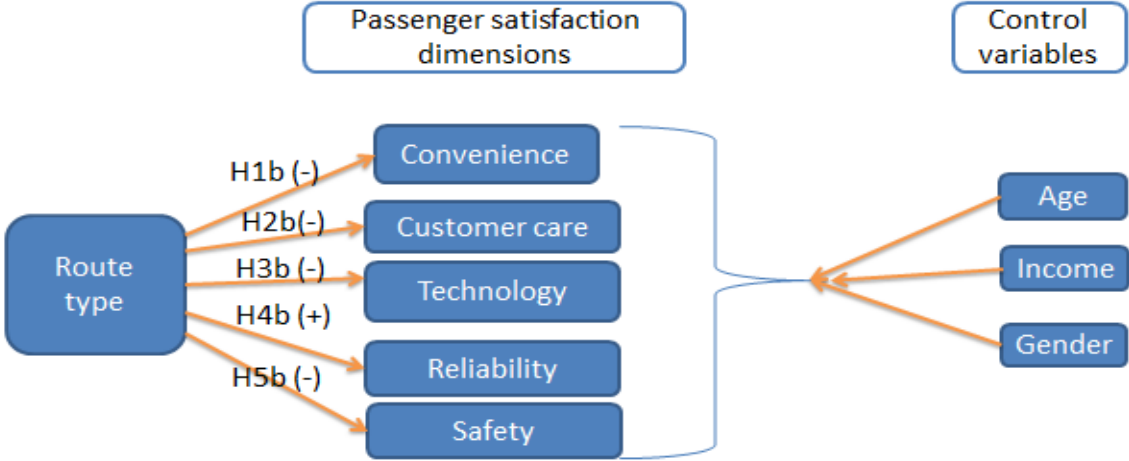
(Source:literature review)

3.6 Research hypotheses

In order to test the above research model the following hypotheses were formulated:

3.6.1 Route type and convenience satisfaction

Convenience means consumer's perception related to the time and effort on using the services. Convenience is a multidimensional concept which includes transaction convenience, benefit convenience and access convenience (Berry, Seiders, and Grewal 2012). Convenience of service is considered as non-monetary values offered to customers(Colwell et al., 2006). In this study convenience satisfaction means the situation whereby the passengers are fitted and comfortable in using ferry services.

With reference to the ferry services in Lake Victoria, it is expected that long route ferries are more convenient to customers than short route ferries due to seat condition and shelter facilities found in respective vessels. Also long route ferries are more connected to other modes of transport such as railway, road and near to airport than short route ferries. Based on the above arguments it is hypothesized that:

H_{1a}: There is a significant difference on convenience satisfaction between long routes and short routes.

H_{1b}.Convinience satisfaction decreases in short routes as compared to long routes.

3.6.2 Route type and Customer care satisfaction

The essential approach to standard of services quality is customer care. It involves understanding customers and their expectations. (Clutterbuck, 1992).Customer care means caring about one's customer and this can be reflected from the services provided. This includes how one talks with one's customers, how delivers a consistent services and how one involve one's whole team in customer care process (www.icaew.com). According to (Daniels, 1993),the customer care and service quality management are two objects moving parallel. In this study the term customer care is focused on how passengers enjoy the ferry services and other associated services before and during the travel among two the route types. Services such as food, drinks and time table awareness offered in the long route ferries expected to be better than in the short route ferries. Hence on that basis the following hypotheses are formulated

H_{2a}: There is a significant difference on customer care satisfaction between long routes and short routes.

H_{2b}.Customer care satisfaction decreases in short routes as compared to long routes.

3.6.3 Route type and technology satisfaction

Technology can be defined as a process of embodying innovative and advanced techniques with aim of achieving positive economic ends (Njoh, 1999). Among the things considered in transport model are travel speed and time to make a trip. These two items can be contributed by the type of vessel and infrastructure used.

In this study the term technology satisfaction aims at comparing how passengers in the two routes are satisfied with the level of vessels and infrastructure used, time to make a trip and smoothness of the ride among two routes. Most of the vessels and infrastructures used in long route are somehow advanced compared to short route ferries. Hence from that point we can hypothesize that,

H_{3a}: There is a significant difference on technology satisfaction between long routes and short routes.

H_{3b}.Technology satisfaction decreases in short routes as compared to long routes.

3.6.4   Route type and Reliability satisfaction

Service reliability refers to the situation whereby services are available when needed. It allows customers to have uninterrupted services. (Galetzka et al., 2006).The expression service reliability is satisfied when services are delivered to customers on time (Gunes and Deveci, 2002). In this study reliability satisfaction aims at comparing on time availability of ferry service between short route and long route. According to SUMATRA 2010, there is large number of short route service providers operating on short services and compared to few ferries operating in long route services (SUMATRA, 2010).Basing on this, the hypotheses below can be set.

H_{4a}: There is a significant difference on reliability satisfaction between long routes and short routes.

H_{4b}.Reliability satisfaction increases in short routes as compared to long routes.

3.6.5   Route type and safety satisfaction

Safety means protection of passengers' lives and their property. It is very important to assess passenger's safety in maritime industry because absence of safety causes passengers' dissatisfaction. In order to ensure that passengers are free from harms provision of safety instructions and rescue equipment seems to be crucial (Lu and Tseng, 2012). Safety training can improve passenger's safety consciousness and reduce damages in an accident (Lois et al., 2004).In this part the study wants to compare the safety satisfaction gained among the two routes.

It assumed that most of the short route ferries are riskier than long route ferries. According to BICO (2010), the large number of short route service provider operating in Lake Victoria are not safe and it is highly risks compared to long route ferries. For that reason the following hypothesis was formulated.

H_{5a}: There is a significant difference on safety satisfaction between long routes and short routes.

H_{5b}.Safety satisfaction decreases in short routes as compared to long routes.

3.7 The impact of control variable

Passenger's satisfaction in this study is mainly explained by route type. Apart from route type also it can be explained by other three socio economic factors namely age, gender and monthly income. These three factors are called control variables because they can be used to provide alternative explanation on dependent variables instead of route type.

- Age

Age of the passenger can be used to explain the passenger's satisfaction perception on ferry services. For example, the aged passengers are expected to be more satisfied with technology and safety satisfactions compared to young passengers.

- Gender

Satisfaction perception between male and female on service quality it can be different. It is expected that in ferry transport service males will be more satisfied in customer care, technology and convenience compared to females.

- Monthly Income

The monthly income of the passengers can have effect on satisfaction perception. It is expected that the lower income earners to be more satisfied with satisfaction dimensions compared to higher income earners who cannot be satisfied easily due to their economic status.

3.8 Chapter Summary

In this chapter different theories and key terms have been presented. Empirical studies from different studies have also been discussed. In addition, the research model and research hypotheses have been presented. The next chapter will describe the research methodology and approaches used in this study.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1   Introduction

This chapter presents research design, study location and population sampling procedure, questionnaire development, data collection procedures, variables measurement and data analysis tools.

4.2   Research design

Research design is a term used to describe steps to be undertaken by researcher in collecting and analyzing data (Churchill, 1999 pp. 98). Mahotra and Birks, (2006) mentioned six important elements that should be enclosed in research design process. These are: information needed in a research, type of research to be applied, measurement techniques, questionnaires development, sampling procedure and sample size, and finally the way data will be analyzed. Churchill (1999) categorized research design into explorative research, descriptive research or casual research. Descriptive research is a type of research design which deals with finding the relationship between two variables. Descriptive research is divided into two categories: cross sectional research and longitudinal research. Cross sectional research is the type of research whereby data is collected only once with a specified sample. (Frankfort-Nachmias and Nachmias, 1996). In this study descriptive research, specifically cross sectional research, was useful because the research objectives and research questions were clearly identified and data collected only once.

4.3   Study location, population and sampling procedure.

This study covers Mwanza and nearby islands. The choice of this area is based on the nature of the problem. Mwanza has the highest demand for ferry services among Lake Victoria regions with crucial connections to Bukoba, Musoma and other small islands found in Lake Victoria. Also, Mwanza was more convenient for the researcher in terms of time and financial constraints. The study employs non probabilistic sampling technique based on the subjective judgment to select individual respondents.The main reasons for using this technique are respondent's behavior and time constraints .It had been assumed that some respondents would be reluctant in responding to questionnaires.

4.4 Questionnaire development

The questionnaire was developed based on review of literatures and previous research conducted in public transport. Examples of previous studies that used this approach include: Irfan (2012) that assessed passengers' perceived service on railway transport in Pakistan; and Kai and Jen (2006) that assessed passengers' perceived service quality on city bus transport in Tai Pei – China.

Prior to administering the questionnaire the researcher went to the research field to make observations and get familiar with issues related to ferry transport in Lake Victoria. Based on the knowledge acquired through observations and the guidance of the supervisor a questionnaire was developed (Appendix 4).

The questionnaire was divided into five parts :(1) Passengers general information age, gender and occupation (2) Information about trip, (3) Passengers travelling behavior, (4) Effects of price paid on passenger travelling behavior and (5) Dimensions measuring service quality whereby respondents were asked to rate their satisfaction level. In this case Likert scale was used and the rating ranged from strongly dissatisfied to strongly satisfied. The choice to use Likert scale was based among others on argument in Myers, (1991) that "Customer satisfaction can be measured through simple performance rating whereby the higher the rating the higher the satisfaction".

Because the national language in Tanzania is Swahili, we had to interpret the questionnaire from English to Swahili so that it could be easily understood by passengers. Language experts from the University of Dar es salaam were used to translate the questionnaire. The translated version of the questionnaire was finally used in the field.

4.5 Data collection procedure

According to Kothari (2006) in order to deal with any research problem collection of appropriate data is necessary. In this study both primary and secondary data were collected. For convenience and timely collection of primary data the researcher employed a structured questionnaire to conduct personal interviews with passengers on board and sometimes at the ferry terminals. This method was more appropriate to the study setting as compared to other methods of administering questionnaires such as using mails, or telephones (Churchill, 1999).

Personal interviews were more reliable in order to save time because leaving questionnaires to respondents to respond would need more time for follow up. A total of 192 questionnaires out were collected while the planned sample was 200 questionnaires.

Secondary data was collected from different institutions, websites and other relevant published materials. In addition to the main data collection, the researcher also conducted a personal interview with Lake Victoria zonal SUMATRA manager and SUMATRA seafarer's manager from headquarters in Dar es Salaam in order to gain more insights about the ferry services on Lake Victoria.

Besides the information obtained from primary and secondary sources, other information was obtained by using direct observation during the survey. Visits to different vessels provided an insight into the different sizes and types of vessel used, customer care satisfaction services, distance and time taken to make a trip between some points. The whole process of data collection took six weeks from 21st January to 2nd March 2013.

4.5.1   Problems encountered during the data collection

Even though the researcher managed to collect the relevant data, some limitations were encountered. First due to time and financial constraints, the researcher was unable to go to all places expected to be visited during data collection process. Secondly, some of the passengers mostly females were not willing to respond to the questionnaires. From all the collected filled questionnaires only 37.7% were responded to by female respondents. Thirdly since most people who use ferry transport frequently in their daily activities are energetic people, more data were collected from among young people and thus making inadequate representation of old people's views. Fourthly, some of the passengers did not like to be interviewed for a long time and that led to 38 questionnaires being incomplete and had to be eliminated during data analysis.

4.6   Variables measurement

This study comprises of three different variables namely independent variable, dependent variables and control variables. There is only one independent variable which is route type, five dependent variables namely convenience satisfaction, customer care satisfaction, technology satisfaction, reliability satisfaction and safety satisfaction. The three control variables were passenger's age, gender and income.

- **Dependent variable**

In this part five customer satisfaction dimensions are used as dependent variables. These are: convenience, customer care, technology, reliability and safety. These dimensions reflect some of the categories used in the existing literatures (Kai and Jen, 2006; Geetika and Nandeem, 2010; Irfan, 2012).

All dimensions were measured using four items except for customer care which contains six items. To measure how passengers perceive the satisfaction gained from those dimensions a seven point Likert scale was used to rate passenger's perceptions from 1 strongly dissatisfied to 7 strongly satisfied

Convenience satisfaction: includes four items which are seat comfortability, shelter facilities, connection to other modes and stop near destination.

Customer care satisfaction: includes six items namely cleanness of the vessel, route time table awareness, passenger information, response and courtesy from staff, extra service offered and condition of the toilets.

Technology satisfaction: includes four items which are; vehicle and infrastructure used, time to make a trip, travel speed and smoothness of the ride.

Reliability satisfaction: comprises of service hours and days, punctuality, service on week end days, and boarding time used at the station.

Safety satisfaction: includes on board safety satisfaction instructions given to passengers, availability of safety satisfaction equipment's such as life jackets, competent of the captain/drivers and loading situation of the vessels.

- **Independent variable**

The main independent variable in this study was route type. In this study route type is classified into two routes which are long route and short route. The main criteria used to differentiate between long route and short route is distance travelled. According to SUMATRA any vessel carrying passengers which travel more than 25miles are grouped as long route ferries while all vessels travel below 25 miles are grouped as short route ferries. In the regression model route type was introduced as a dummy variable, 1 for short route and 0 for long route to examine satisfaction gained from each dimension between two routes.

Control variables

- **Age**

The age of respondents was categorized into four groups which are: Group one contains respondents whose age are below 18 years; group two ranges from 18 years to 30 years; group three ranges from 31 years to 60 years and group four contains respondents having 60 years and above. In data analysis the groups are coded from number 1 to number 4

- **Income**

Income means the average amount of money which a respondent earns per month. This variable is categorized into three groups and coded from number 1 to 3. These groups are; Group 1 for those who earn less than 80,000 Tanzania shillings (Tshs), Group 2 between those who earn from 80,000 to 500,000 Tshs and group 3 is for those who earn more than 500,000 Tshs per month.

- **Gender**

Passengers were asked to indicate their gender of the respondents either male or female. In the regression analysis gender was introduced as a dummy variable were male coded as 0 and female coded as 1.

4.7 Data analysis tools

The data collected was analyzed quantitatively and qualitatively. Statistical package for social science (SPSS) was used to manage and analyze the collected data. The study used independent mean test comparison to compare the level of passenger's satisfaction between the two routes (Pallant, 2011). Furthermore Regression analysis is used to investigate if there is relationship between passenger's satisfaction and route type.

4.8 Chapter Summary

This chapter has presented the research methodology used. Key issues like study area, sampling and sample size, data collection process, measurement of variables and data analysis techniques have been discussed. In additional all the challenges encountered during data collection have been outlined. The next chapter presents data analysis and findings of study.

CHAPTER FIVE

DATA ANALYSIS AND FINDINGS

5.1   Introduction

This chapter gives an overview of data analysis and findings of the study. The chapter comprises several sections which describe the quality of data, descriptive statistics of respondents, descriptive statistics of variables, study findings and hypotheses testing.

5.2   Assessment of data quality

The quality of data is determined if the data collected fits the intended purposes. The data collected have the following strengths:

- Adequate sample size: 154 respondents.
- They cover both long route passengers (61 respondents) and short route passengers (93 respondents) as the purpose of the study is to compare the passenger satisfaction between long route ferries and short route ferries.
- The data collected are relevant for the intended purpose as they were collected from ferries' passengers in Lake Victoria.

According to Tobachnik and Fidel (2007) in the multiple regression analysis a rule of thumb based on the ratio of cases to independent variables is that: $N>50+8m$, where N is the number of sample size and m is the number of independent variables, Therefore in this study all regression models had a total of four predictor variables therefore minimum sample size of $82=50+ (8*4)$ is required. However this study manages to have a total of 154 ferry passengers, therefore it meets the sample size requirement for multiple regressions.

5.3   Assessment of missing data

Before data analysis is done, it is always suggested that data should be checked for errors which might have an impact on the results (Pallant, 2011). A total of 192 passengers were interviewed under this study. However, during the initial examination for missing data a total number of 38 questionnaires were rejected because of incomplete filling of questionnaires and thus 154 questionnaires were accepted for data analysis.

5.4 Assessment of assumption

- **Normality**

Assessment of data normality assumption is very important before regression analysis. This can be checked by either graphs or skewness and kurtosis (Gaur and Guar ,2006). In this study graphs, skewness and kurtosis are used to test the normality of the data. It is suggested that skewness index absolute value should not exceed 3.0 and kurtosis absolute value should not exceed 10.0 (Kline, 2005).

In this output Skewness maximum absolute value is 2.8 while the kurtosis maximum absolute value is 9.0 which guarantee a proof that data is normally distributed (Appendix 2 and 3).

- **Multicollinearlity**

All variables were subjected to multicollinearlity test. Multicollinearlity presents the relationship among the variables and it exists when there is a significant correlation. Usually we expect existence of correlation between dependent and independent variables but not among independent variables. The highest correlation is revealed when correlation among variables is more than 0.9　($r \geq 0.9$) (Pallant, 2010). In this study correlation was examined and presented in table 5.1 below.

Table 5.1 Variables inter-correlation matrix

Factor	1	2	3	4	5	6	7	8	9
1Convenience	1	.629[**]	.141	-.088	.024	.085	.403[**]	-.543[**]	-.096
2Customer care		1	.285[**]	-.024	.090	.129	.478[**]	-.579[**]	-.047
3Technology			1	.151	.011	-.032	.114	-.301[**]	-.038
4Reliability				1	.341[**]	-.010	-.034	.334[**]	.030
5Safety					1	.091	.023	.042	.018
6Age						1	.116	-.054	-.069
7Monthly income							1	-.238[**]	-.046
8Short route								1	.136
9Female									1
Mean	**3.47**	**3.39**	**3.58**	**4.52**	**3.07**	**2.47**	**1.94**	**.60**	**.38**
Std. deviation	**.879**	**.830**	**.864**	**.715**	**.604**	**.607**	**.760**	**.491**	**.486**

**. Correlation is significant at the 0.01 level (2-tailed).

5.5   Descriptive statistics of respondents

5.5.1   Description of passengers by gender

The descriptive results shows that majority (62.3%) of the respondents were male passengers (n=96) compared to female passengers (n=58) who accounted for 37.7 percent of the total sample.

5.5.2 Passenger's distribution by age

Table 5.2 below shows that 51.3% of the respondents' age range between 18-30 years and 42.9% of the respondents' age range between 31-60 years, each of the remaining age group counts approximately 3%.

Table 5.2:Age of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	below18 years	4	2.6	2.6	2.6
	18-30years	79	51.3	51.3	53.9
	31-60years	66	42.9	42.9	96.8
	above 60	5	3.2	3.2	100.0
	Total	154	100.0	100.0	

(Source: Field data 2013)

5.5.3   Passenger's distribution by Occupation

The figure 5.1 below shows the distribution of interviewed passengers based on their occupation. Most of the respondents are working (employed and self-employed) followed by students. The rest of the groups seem to be fewer in number compared to the mentioned groups.

Figure 5.1: Passengers distribution by occupation
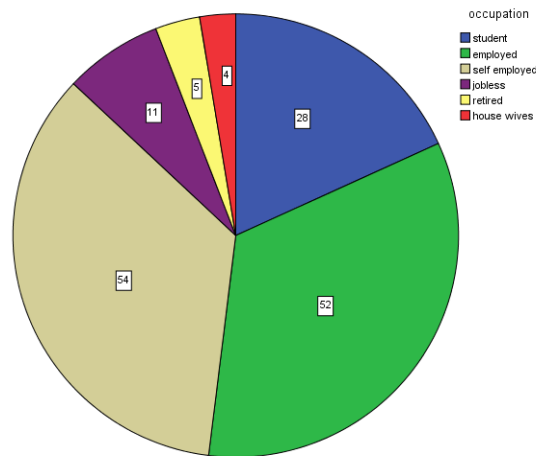
(Source: Field data 2013)

5.6   Description of passengers travelling behaviors

This section describes how frequently passengers use a ferry and the main reason for using a ferry. Passengers were asked to identify how often they use a ferry. In the long route 31.1% indicated that they use a ferry once/twice per week while 68.9% indicated that they use a ferry occasionally. In the short route 58.1% passengers were found to use a ferry daily while 20.4% passengers were identified to use ferry once /twice per week and 21.5% passengers were found to use a ferry occasionally. This shows that the frequency of ferry usage by passengers in the short route is higher than in the long route.

Figure 5.2: Passengers travelling behaviors in two routes.
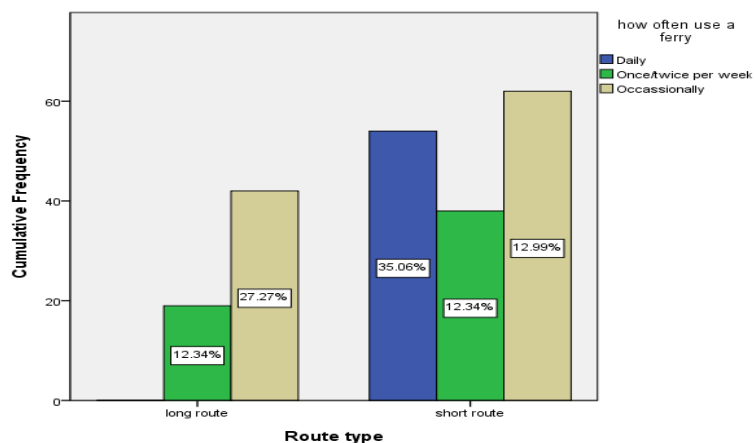
(Source: Field data 2013)

5.6.1 Reasons for using ferry transport

Table 5.3 below shows that the main users of a ferry in the long route are workers and visitors. The response shows that 4.9% passengers use a ferry for school purpose, 37.7% passengers for work, 14.8 % passengers for shopping, 21.3% passengers for visits, 1.6% passengers for leisure and 19.7% passengers for other purposes. In short route most of the respondents use a ferry for school, work and shopping and their percentages are as follows: 21.5% passengers use a ferry for school purposes, 43% passengers for work purposes, 20.4% passengers for shopping purposes and the rest of 15.1% passengers use it for visit and other purposes. No any respondent in the short route indicates to use a ferry for leisure purpose

Table 5.3:Reasons for using a ferry transport

Route type			Frequency	Percent	Valid Percent	Cumulative Percent
long route	Valid	School	3	4.9	4.9	4.9
		Work	23	37.7	37.7	42.6
		Shopping	9	14.8	14.8	57.4
		Visits	13	21.3	21.3	78.7
		Leisure	1	1.6	1.6	80.3
		Others	12	19.7	19.7	100.0
		Total	61	100.0	100.0	
short route	Valid	School	20	21.5	21.5	21.5
		Work	40	43.0	43.0	64.5
		Shopping	19	20.4	20.4	84.9
		Visits	4	4.3	4.3	89.2
		Others	10	10.8	10.8	100.0
		Total	93	100.0	100.0	

(Source: field data 2013)

The cross tabulation in table 5.4 below shows the relationship between the passengers income and how often they use a ferry. In long route the statistics shows that about 44% of higher income earners (more than 500,000 Tshs), 28.6% of middle income earners (80,000 to 500,000 Tshs) and 13.3% of low income earners(less than 80,000Tshs) use a ferry once/twice per week while 86.7% of low income earners use a ferry occasionally compared to 56% of high income earners. In short route about 73% of higher income earners, 58.8% of middle income earners and 52.3% of low income earners use a ferry daily. Also it shows that about 26.5% of low income earners use a ferry occasionally while only 6.7% of the high income earners use a ferry occasionally. The statistics concludes that a large proportion of high income earners use a ferry more frequently compare to proportion of low income earners.

Table 5.4: Cross tabulation between income and frequency of using the ferry

| Route type | | Monthly income | | | |
		less tan 80,000	80,000-500,000	Above 500,000	Total
Long Route	Once/twice per week	13.3%	28.6%	44.0%	31.1%
	Occassionally	86.7%	71.4%	56.0%	68.9%
		100.0%	100.0%	100.0%	100.0%
Short Route	Daily	58.8%	52.3%	73.3%	58.1%
	Once/twice per week	14.7%	25.0%	20.0%	20.4%
	Occassionally	26.5%	22.7%	6.7%	21.5%
		100.0%	100.0%	100.0%	100.0%

(Source: Field data 2013)

Generally it shows that the passengers travelling behavior differ from long route to short route. In long route most of the passengers using a ferry occasionally and few of them use a ferry once/twice per week mostly for work, shopping or visiting purposes. In short route about 58% of the interviewed passengers use ferry a daily mostly for work and school purposes while the rest of them use ferry a once/twice per week and occasionally mostly for shopping, visiting and other purposes.

5.6.2 Passengers' perception on fare Price charged.

The findings from table 5.5 below reveal that on price satisfaction only 19.7% of the long route respondents are satisfied while 80.3% are not satisfied. In the short route 55.9% of all respondents indicate to be satisfied with the price while 44.1% of the total respondents are not satisfied. This suggests that passengers in long routes are more concerned about price charged than their counterparts in short routes

Table 5.5: Passengers satisfied with price charged

Route type			Frequency	Percent	Valid Percent	Cumulative Percent
long route	Valid	yes	12	19.7	19.7	19.7
		no	49	80.3	80.3	100.0
		Total	61	100.0	100.0	
short route	Valid	yes	52	55.9	55.9	55.9
		no	41	44.1	44.1	100.0
		Total	93	100.0	100.0	

(Source: Field data 2013)

5.7 Variables descriptive statistics

It is recommended that before data analysis, the data should be exposed to descriptive analysis in order to characterize them.(Pallant,2011).Descriptive statistics produced in this study comprise of means, standard deviation, and range of scores (minimum and maximum). SPSS output shown on appendix 1 shows the mentioned features of variables as used in this study. One variable (price) was transformed by taking its natural logarithm. Formerly minimum fare price paid before were 100 and the maximum was 36500, while after transformation the minimum value is 5 and maximum value is 11 which relates with other variables.

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Table 5.6:Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Convenience	154	1	6	3.47	.883
Customer care	154	2	5	3.39	.830
Technology	154	2	6	3.59	.864
Reliability	154	2	6	4.52	.715
Safety	154	2	4	3.07	.604

5.7.1 Description of passenger's satisfaction dimensions by route type

The descriptive analysis was performed to examine how the respondents perceive satisfaction gained from ferry service. From the collected data the mean score in different service dimensions was computed (table 5.7) to analyze and make comparison on perceived passenger's satisfaction among the two routes.

Table 5.7: Mean comparison between satisfactions gained from the two routes.

Group Statistics

	Route type	N	Mean	Std. Deviation	Std. Error Mean
Convenience satisfaction	long route	61	4.06	.881	.113
	short route	93	3.08	.635	.066
Customer care satisfaction	long route	61	3.98	.785	.101
	short route	93	3.00	.600	.062
Technology satisfaction	long route	61	3.91	.900	.115
	short route	93	3.37	.772	.080
Reliability satisfaction	long route	61	4.23	.744	.095
	short route	93	4.71	.629	.065
Safety satisfaction	long route	61	3.04	.773	.099
	short route	93	3.09	.464	.048

(Source: Field data 2013)

Generally, the results in table 5.7 indicate that except for reliability satisfaction and safety satisfaction, in all other dimensions, long route scored higher than short route. Under reliability satisfaction short route scored higher than long run, while safety satisfaction indicated no major differences between the two routes. To confirm the existence of a satisfaction difference in the two routes further statistical tests were carried out and resulted presented in the next section.

5.8   Testing of mean differences

An independent (t-test) was employed to test for the significance of the mean differences in satisfaction dimensions based on route type. Initially, Levene's test[1] was used to check for equality for variances as recommended by (Pallant, 2011).Table 5.9 presents the result.

Table 5.8: Statistical significant table.

		Independent Samples Test								
		Equality of Variances		t-test for Equality of Means						
						Sig. (2-tailed)	Mean Difference	Std. Error Differenc e	Interval of the	
		F	Sig.	t	df				Lower	Upper
Technology	Equal variances assumed	4.890	.029	3.896	152	.000	.531	.136	.262	.800
	Equal variances not assumed			3.771	114.099	.000	.531	.141	.252	.809
Convinience	Equal variances assumed	23.358	.000	8.522	152	.000	.982	.115	.754	1.209
	Equal variances not assumed			7.869	95.153	.000	.982	.125	.734	1.230
Customerca re	Equal variances assumed	6.269	.013	11.092	152	.000	1.042	.094	.856	1.228
	Equal variances not assumed			10.345	98.960	.000	1.042	.101	.842	1.242
Reliability	Equal variances assumed	2.688	.103	-4.386	152	.000	-.490	.112	-.710	-.269
	Equal variances not assumed			-4.238	113.426	.000	-.490	.116	-.719	-.261
Safety	Equal variances assumed	14.425	.000	-.520	152	.604	-.052	.100	-.249	.145
	Equal variances not assumed			-.471	88.518	.639	-.052	.110	-.271	.167

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[1] "Levenes test is the test for checking equality of variances as a part of t test and analysis of variances analyses" (Pallant, 2011 page 207)

Based on table 5.8, the Levene's test statistics indicate that except for reliability satisfaction which met the assumption of equal variance between the groups, all other dimensions did not meet that assumption as indicated by their respective Levene's variance being larger than the cutoff point of 0.05 (Pallant, 2011). In that scenario, this study followed recommendation by Pallant (2011) and assessed the significance of the mean differences using t values under equal variances not assumed for the respective constructs which violated the equal variance assumption. Therefore, hypothesis H_{1a}, H_{2a}, H_{3a} and H_{4a} were supported at p<0.05, while hypothesis H_{5a} was not supported. These main results reveal that:

- H_{1a} : Convenience satisfaction is significantly different between the long route and short route passengers (mean difference = 0.982 t value = 7.869 p< 0.05 two tailed)

- H_{2a} : Customer care satisfaction is significantly different between the long route and short route passengers (mean difference= 1.042 t value = 10.345 p< 0.05 two tailed)

- H_{3a} :Technology satisfaction is significantly different between the long route and route passengers (mean difference= 0.531 t value = 3.771 p< 0.05 two tailed)

- H_{4a}: Reliability satisfaction is significantly different between the short route and long route passengers (mean difference=-0.490 t value = -4.386 p< 0.05 two tailed).

The second objective of the study was to test passenger's satisfaction variation between the long route and short route on different satisfaction dimensions. This objective was achieved by using a regression analysis whereby each satisfaction dimension was regressed on route type while age, income and gender were used as control variables. Regression analysis is a statistical tool which is concerned with the investigation of the relationship between a set of variables (Sykes, 1992).

5.9   Estimation of regression models

The regression model used in this study took the following form.

$Y=a+ b_1X_1+ b_2X_2+ b_3X_3 + b_4X_4 + \varepsilon$

Where by:

Y=Dependent variables: a=Constant: $X_1X_2…X_n$= Independent variables: ε = Error term

Regression model: Satisfaction= b_0+ b_1Age+ b_2Female + b_3Income + b_4Short route+ ε

Dependent variables: Convenience satisfaction, customer care satisfaction, technology satisfaction, reliability satisfaction and safety satisfaction.

Independent variable: Route type (dummy variable, 1 short route, 0 long route)

Control variables: Age, Income, gender (Dummy variable, 1 female, 0 male).

5.9.1 Testing of hypothesis 1b

H_{1b}: Convenience satisfaction decreases in short routes as compared to long routes

Convenience satisfaction= 3.256 - 0.027Female + 0.334Income + 0.036Age - 0.852shortroute+ ε

Table 5.9.1 presents the regression statistics for the convenience satisfaction model. This seems to satisfactory model as supported by an adjusted R^2 value of 0.361 which means that about 36% of convenience variation can be explained by the model. Also, the F test shows fitness of the model as indicated by F value (4, 154) = 22.640, p <0.01. Regarding the impact of route type, the result shows convenience satisfaction for ferry passengers decreases in short routes as compared to long routes. (b = - 0.852, t = -7.058, p<0.01). Therefore hypothesis 1b is supported.

Table 5.9.1: Convenience satisfaction model

Model 1 R^2=0.378;R^2Adjust=0.361; F (4,154)=22.640,p = 0.000	Unstandardized Coefficients		Collinearity Statistics	
	b	t- values	Tolerance	VIF
1 (Constant)	3.256	11.052***		
Age	.036	.380	.982	1.018
Monthly income	.334	4.302***	.933	1.072
Female	-.027	-.231	.978	1.023
short route	-.852	-7.058***	.927	1.078

***indicates p<0.01 (2-tail)

5.9.2 Testing of Hypothesis 2b

H2b: Technology satisfaction decreases in short routes as compared to long routes

Technology satisfaction = 3.962 + 0.016female + 0.056Income - 0.070Age - 0.529shortroute + ε

Table 5.9.2 presents the regression statistics for the technology satisfaction model. The model fitness is indicated by an adjusted R2 value of 0.0.075 which means that 7.5% of variation in technology can be explained by the model. In addition to that the F test shows that the model is fit with F (4, 154) = 4.107, p <0.01. The negative coefficient of short route shows that, technology satisfaction decreases in short routes as compared to long routes and this is supported (b = - 0.529, t = -3.721, p<0.01).

Table 5.9.2: Technology satisfaction model

Model 2 R^2 =0.99,R^2Adjusted = 0.075 F (4, 154) = 4.107, p = 0.003	Unstandardized Coefficients b	t-values	Collinearity Statistics	
			Tolerance	VIF
1 (Constant)	3.962	11.411		
Age	-.070	-.622	.982	1.018
Monthly income	.056	.613	.933	1.072
Female	.016	.113	.978	1.023
short route	-.529	-3.721***	.927	1.078

***indicates p<0.01 (2-tail)

5.9.3 Testing of Hypothesis 3b

H₃b: Customer care satisfaction decreases in short routes as compared to long routes

Customer care satisfaction = 2.904 + 0.070female + 0.387Income - 0.087Age - 0.840shortroute + ε

Table 5.9.3 presents the regression statistics for the customer care satisfaction model. The fitness of the model is indicated by an adjusted R2 value of 0.449 which means that 44.9% of variation in customer care satisfaction can be explained by the model. Furthermore the F test shows that the model is fit with F (4, 154) = 32.158, p <0.01. The estimated coefficient of short route shows that, Customer care satisfaction decreases significantly in short routes as compared to long routes (b = -0.840, t = -7.970, p<0.01).

Table 5.9.3: Customer care satisfaction model

Model 3 R^2 =0.463,R^{2}Adjust = 0.449 F (4, 154) = 32.158, p = 0.000	Unstandardized Coefficients		Collinearity Statistics	
	b	t	Tolerance	VIF
1 (Constant)	2.904	11.283***		
age	.087	1.051	.982	1.018
Monthly income	.387	5.707***	.933	1.072
Female	.070	.675	.978	1.023
short route	-.840	-7.970***	.927	1.078

***indicates p<0.01 (2-tail)

5.9.4 Testing of hypothesis 4b

H4b: reliability satisfaction increases in short routes as compared to long routes

Reliability satisfaction = 4.127 - 0.021female + 0.045Income + 0.003Age + 0.507shortroute $+ \varepsilon$

Table 5.9.4 presents the regression estimates for the reliability satisfaction model. The general fitness of the model is explained by adjusted R^2 value of 0.090 which describes that 9% of variation in reliability satisfaction can be explained by this model. Also, the F test shows that the model is significantly fit with F (4, 154) = 4.790, p <0.01). The positive coefficient of short route indicates that, reliability satisfaction increases significantly in short routes as compared to long routes   (b = 0.507, t = 4.339, p<0.01).

Table 5.9.4: Reliability satisfaction model

Model 4 R^2=0.114; AdjustedR^2= 0.090; F (4, 154) = 4.790, p = 0.001	Unstandardized Coefficients		Collinearity Statistics	
	b	t value	Tolerance	VIF
1 (Constant)	4.127	14.476***		
age	.003	.033	.982	1.018
Monthly income	.045	.597	.933	1.072
Female	-.021	-.186	.978	1.023
short route	.507	4.339***	.927	1.078

***indicates p<0.01 (2-tail)

5.9.5 The impact of control variables

In this study age, gender and income were used as control variables while estimating the effects of route type on different satisfaction dimensions. Among all the three control variables, only monthly income indicated significant positive effects on convenience satisfaction ($_b$ = 0.334, t = 4.302, p<0.01) and customer care satisfaction (b= 0.387, t = 5.707, p<0.01) as shown in table 5.9.1 and 5.9.3 respectively. Both Age and gender were insignificant to explain the satisfaction perceptions.

5.9.6 Assessment of multicollinearlity problems in regression models

In addition to hypothesis testing, all models were checked for multicollinearlity problems using value inflation factor (VIF) and tolerance coefficients which indicated no signs of multicollinearlity problems as they were all within the recommended cut off points. All VIFs values were less than 10, and all tolerance values were greater than 0.1 (Pallant, 2011).

5.10 Chapter Summary

This chapter has presented and explained the findings of the study based on four objectives as explained in different sections of chapter 5.The result shows that two objectives have been answered. As regard to the hypotheses formulated in chapter 2 the results show that four hypotheses are supported and one hypothesis was not supported in each test (See table 5.10). The next chapter presents conclusion of the findings, implication, limitations to the study and recommendation for future research.

Table 5.10: Summary of results on hypotheses testing

Hypotheses	Variables	Effect	Findings
Hypothesis 1b	Short route and convenience satisfaction	-***	Supported
Hypothesis 2b	Short route and Customer care satisfaction	-***	Supported
Hypothesis 3b	Short route and technology satisfaction	-***	Supported
Hypothesis 4b	Short route and reliability satisfaction	+***	Supported
Hypothesis 5b	Short route and safety satisfaction	+	Not supported

CHAPTER SIX

DISCUSSION, IMPLICATIONS, LIMITATIONS AND FUTURE RESEARCH

6.1 Introduction

This chapter presents summary of the findings and its discussion, followed by managerial implication, limitations faced in the study then conclusion and recommendation for future research.

6.2 Findings discussions and theoretical implications

From independent mean test as shown in table 5.8 we observe that there is a statistical significant difference in the level of passengers satisfaction perceived between long route and short route passengers in four dimensions namely convenience satisfaction, customer care satisfaction, technology satisfaction used and reliability satisfaction. The following values were obtained: Convenience satisfaction (mean difference = 0.982, t value = 7.869, p< 0.05 two tailed); Customer care satisfaction (mean difference= 1.042, t value = 10.345, p< 0.05 two tailed); Technology satisfaction (mean difference= 0.531, t value = 3.771, p< 0.05 two tailed) and Reliability satisfaction (mean difference=-0.490, t value = -4.386, p< 0.05 two tailed).These findings strongly support the formulated hypotheses 1a, 2a, 3a and 4a.

Regression analysis shows that passenger's satisfaction can be explained based on route type. The regression results provide the evidence that among the five satisfaction dimensions short route passengers are highly satisfied with service reliability (b = 0.507, t = 4.339, p<0.01), compared to long route passengers. In addition to that, the results show that short route passengers are less satisfied with convenience satisfaction ((b = - 0.852, t = -7.058, p<0.01), customer care satisfaction (b = -0.840, t = -7.970, p<0.01), and technology satisfaction (b = -0.529, t = -3.721, p<0.01) as compared to long route passengers. This means that passengers perceive less satisfaction in the three service quality dimensions when move from the long route ferry services to the short route ferry services. This perception differences can be due to the fact that passengers pay different attentions to different services dimensions depending on the time they spend in the ferry. In the short route the passengers may have limited time to create any expectations on available technology, or provision of food and drinks or even availability of seats, but they are more concerned with reliability of the services.

As highlighted before many studies have been conducted to examine how service dimensions affect passengers' satisfaction without specifying their effect in each route type. This study adds an insight to the existing literature on how route type can affect passenger satisfaction.

6.3   Managerial implications

The significant difference on passenger's satisfactions dimensions between two routes provides important implications to managers or operators of ferry companies in Lake Victoria. This implies that if they need to improve passenger's satisfaction, among other things, they need to consider whether they operate in the short route or the long route. The positive association between short route and reliability satisfaction implies that managers of short routes should put more effort on strategies which improve reliability of their services, because reliability was of importance. However, managers of long route ferries need to pay more attention on improving reliability satisfaction of their ferry services such as punctuality, service on week end days and service hours and days because their passengers indicated low satisfaction levels as compared to short route passengers . The significant negative relationship between short route and convenience satisfaction, customer care satisfaction and technology satisfaction implies that managers of short route ferries need to improve more on these dimensions, as compared to long route ferries.

The findings of the study can also be useful to policy makers in Tanzania. The findings suggest that policy makers should consider, among other things also a route type in formulation and implementation of policy and directives for ferry services. It is interesting to note the findings suggest that ferry passengers in Lake Victoria are less concerned about safety which is contrary to what literature would predict. The issue of safety is of paramount importance in Tanzania as the country in recent years has experienced a number of fatal marine accidents. The findings of this study imply that in Tanzanian context probably authority should not let market forces alone instead policy makers should intervene and making appropriate policy tools that would promote safety in marine transport.

6.4   Study Limitations

The study coverage was limited to Ferry services in Lake Victoria which operate from Mwanza, due to time and financial constraints other ferries in different regions were not included. Therefore, some of the findings in this study may not be generalizable.

In addition, passenger's satisfaction perspective has been narrowed. In this study passenger satisfaction has been narrowly defined into five dimensions. Some other dimensions such as security satisfaction could also be interesting but were not included in this study. According to Agrawal (2001), it is common for practical studies to address only a subset of the elements mentioned in the literature but these missing data certainly limit the study. Therefore, in this study the missing dimensions also can be termed as a limitation of the study. Limited scientific literatures to explain the research problem can be sited as another challenge in this study. The existence of scientific literatures in how route type can be explanatory factor in passenger's satisfaction dimensions was quite a challenge.

6.5   Recommendations for future research

The study recommends further research to be conducted by assessing passenger satisfaction between private owned ferries and government owned ferries operating in the same route (either long route or short route).

Moreover, since this study was conducted only on ferry services then in future other researchers can conduct similar study on other modes of transport such as road, railway and air.

As mentioned in data analysis the last regression model (safety satisfaction) indicated insignificant relationship route type. Therefore, it is suggested that this relationship may be tested in future studies.

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APPENDICES

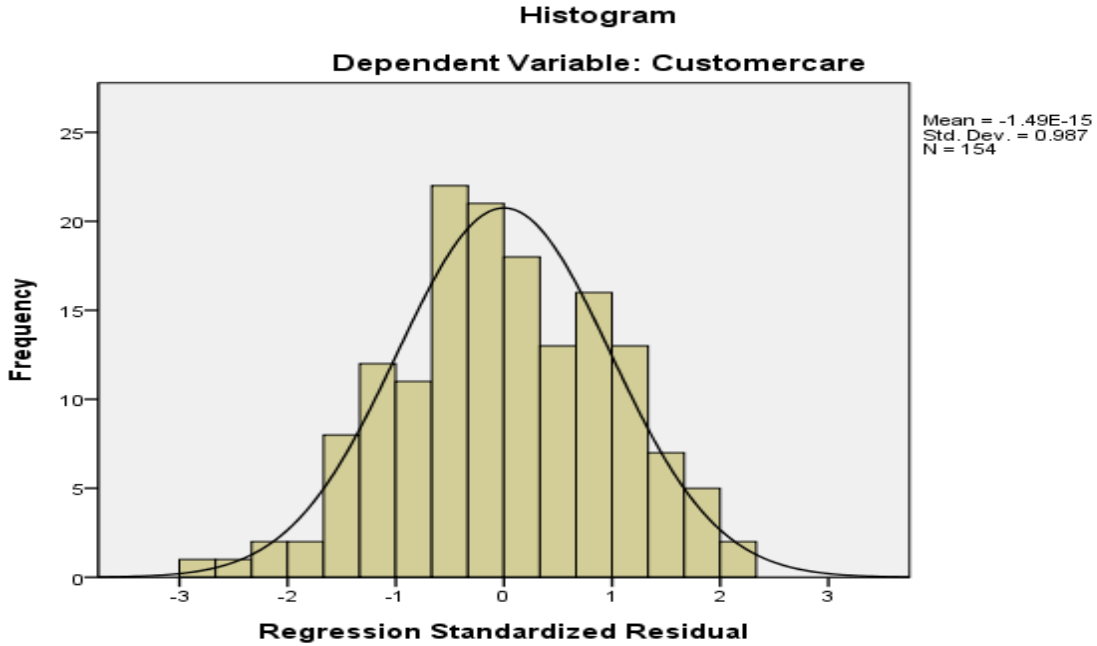Appendix 1: Descriptive statistics of variables.

Appendix 2.Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Gender	154	1	2	1.62	.486
Age	154	1	4	2.47	.607
Occupation	154	1	6	2.51	1.127
number of people travelled	154	1	5	1.29	.722
how often use a ferry	154	1	3	2.05	.869
times per day you take a ferry	154	0	1	.35	.479
reason for using a ferry	154	1	6	2.84	1.556
number of ferries taken	154	1	2	1.12	.322
ferry accidents affect travel pattern	154	1	2	1.84	.370
satisfied with price	154	1	2	1.58	.494
price reduced by 25% will you use ferry more	154	1	2	1.60	.492
Pay 50% more for more security	154	1	2	1.51	.502
Monthly income	154	1	3	1.94	.760
Ln(Price charged)	154	5	11	7.41	1.603
Valid N (listwise)	154				

Appendix 2.Skewness and Kurtosis

Appendix 3.Skewness and Kurtosis

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
gender	154	-.514	.195	-1.759	.389
age	154	.215	.195	-.292	.389
occupation	154	.855	.195	1.105	.389
number of people travelled	154	2.866	.195	9.025	.389
how often use a ferry	154	-.101	.195	-1.676	.389
times per day you take a ferry	154	.632	.195	-1.622	.389
reason for using a ferry	154	.960	.195	-.121	.389
number of ferries taken	154	2.408	.195	3.851	.389
ferry accidents affect travel pattern	154	-1.849	.195	1.439	.389
satisfied with price	154	-.346	.195	-1.905	.389
price reduced by 25% will you use ferry more	154	-.401	.195	-1.863	.389
Pay 50% more for more security	154	-.026	.195	-2.026	.389
Monthly income	154	.099	.195	-1.256	.389
Ln(fare paid)	154	.340	.195	-.741	.389
Technology satisfaction	154	-.104	.195	-.400	.389
Convenience satisfaction	154	.335	.195	-.257	.389
Customer care satisfaction	154	.353	.195	-.599	.389
Reliability satisfaction	154	-.646	.195	-.122	.389
Safety satisfaction	154	-.006	.195	.052	.389
Valid N (listwise)	154				

Appendix 3.Normality tests

Histogram

Dependent Variable: Convinience

Mean = -9.41E-17
Std. Dev. = 0.987
N = 154

Histogram

Dependent Variable: Customercare

Mean = -1.49E-15
Std. Dev. = 0.987
N = 154

Histogram

Dependent Variable: Technology

Mean = 7.72E-17
Std. Dev. = 0.987
N = 154

Histogram

Dependent Variable: Safety

Mean = 8.67E-17
Std. Dev. = 0.987
N = 154
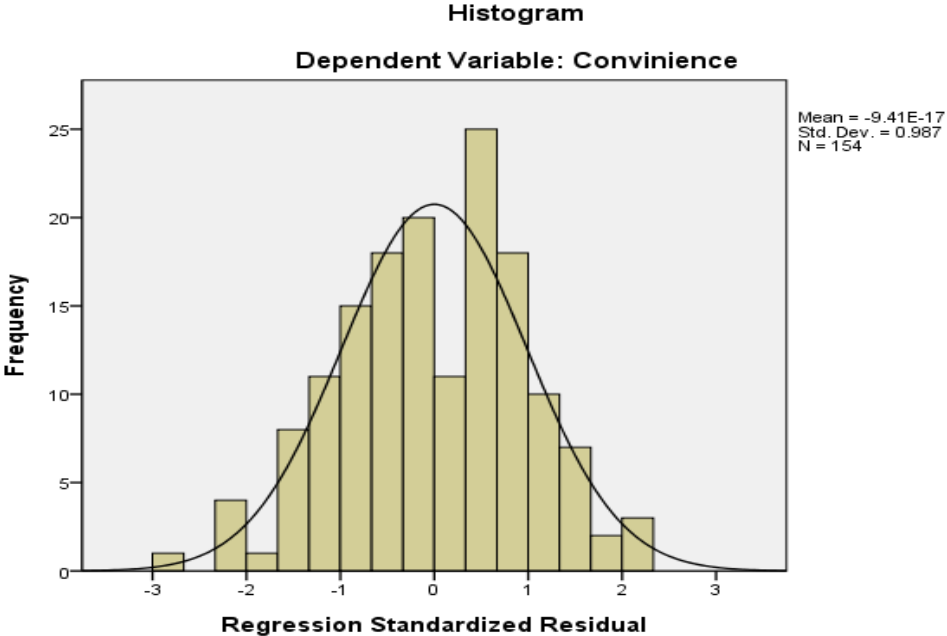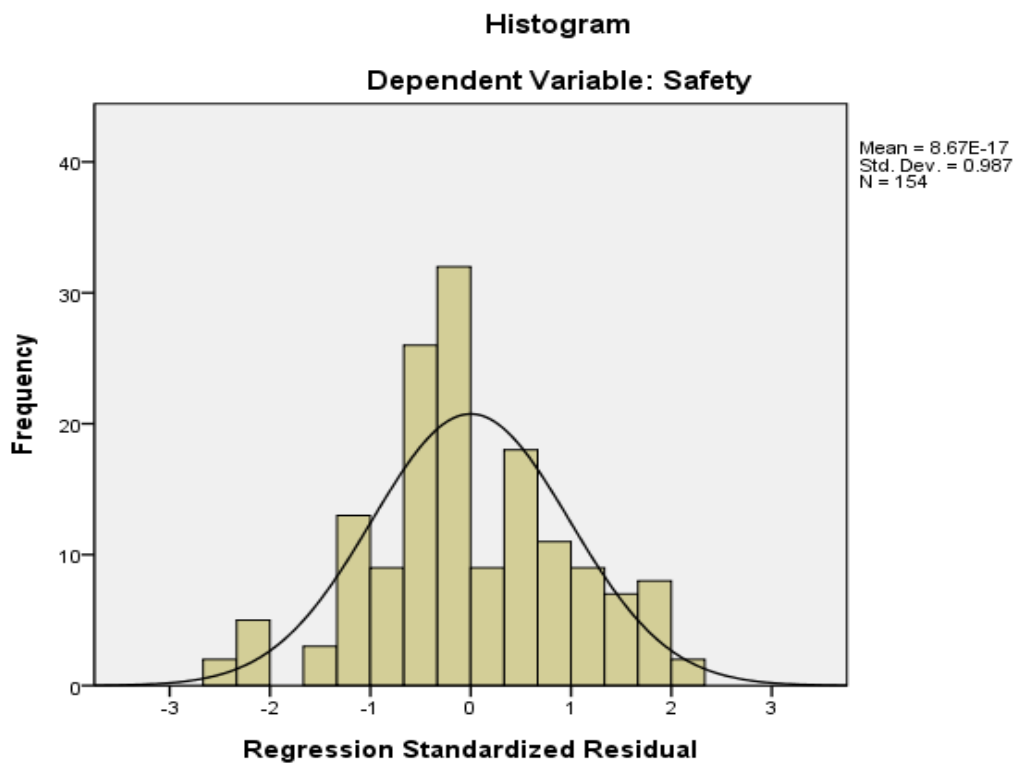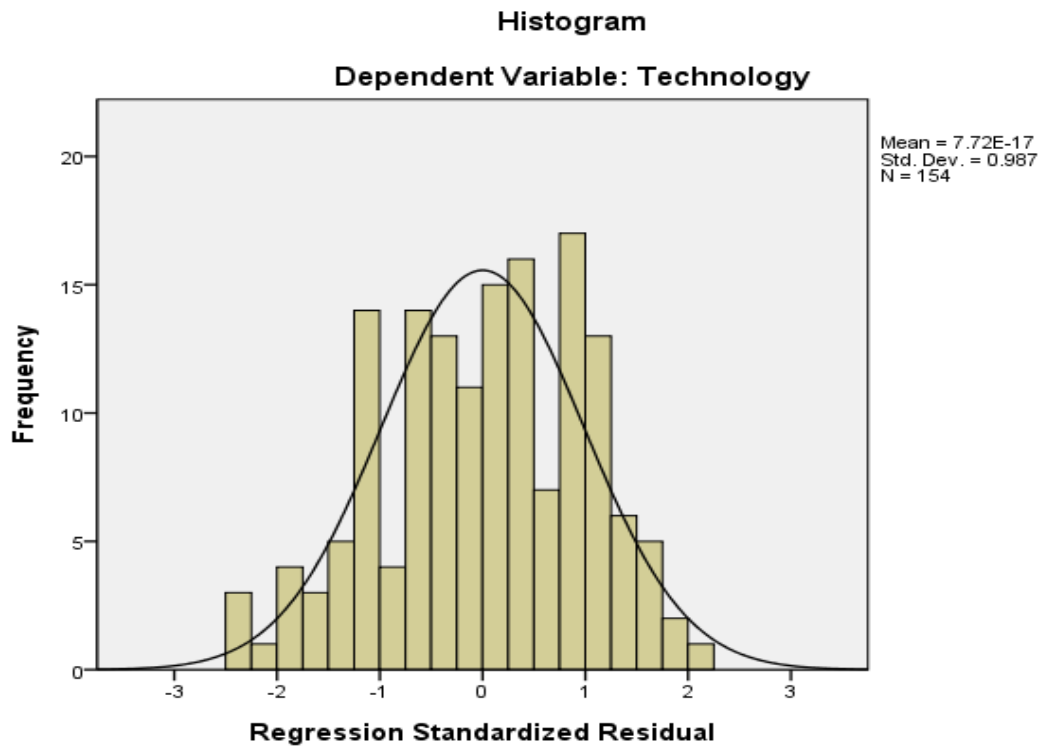
Appendix 4. Survey Questionnaire

Survey on ferry transport passenger's satisfaction: an empirical assessment of the influence of the ferry route type

Kindly provide the appropriate answers to each of the following questions.

1. Passenger information
   a. Gender:_____

   b. Age: Below 18yrs_____,18 - 30yrs_____,30 -60yrs_____,Above 60yrs_____

   c. Occupation: _____

 2. Information about this trip
   a. What is the first origin of your trip today: _____

   b. What is the final destination of your trip today (one way):_____

   c. How long will your entire trip be today (one way): _____ hours and_____ minutes

   d. How many persons are you travelling with (family/friends):_____

   e. What is the fare that you paid for this trip? _____

3. Passengers travel behavior
   a. How often do you use ferry: (a) Daily (b) Once/twice per week   (c) Occasionally

   b. If is daily how many times per day. (a) Twice (b) more than twice

   c. What is the reason for you to use ferry? (a) Work (b) shopping (c) school (d) Visit (e)leisure (f) others

   d. How many ferries do you take before reaching your destination?_____

4. Perception on fare price charged
   a. Are you satisfied with price charged per each trip? (a)Yes   (b)No

   b. Would you use ferry more if price reduced by 25%? (a)Yes (b) No

   c. Would you use ferry less if price increased by 25%? (a)Yes (b) No

d. Would you be willing to pay 50% more for a trip if you had more secured, faster and comfortable ferry?   (a)Yes   (b) No   (e.g. Azam Ferries)

e. Monthly   income(Tshs):Less   than80,000____,80,000-500,000____,Above 500,000____

5. The table below shows the criteria related transport service quality measures in transportation modes. Please indicate how you are satisfied by each of the following criteria. Please use number 1-7(from strongly dissatisfied to strongly satisfied) for your answer. Please rank the criteria by ticking the appropriate box that is most closely related.

Note: 1= strongly dissatisfied   4=Neutral   7= strongly satisfied

	Strongly dissatisfied				strongly satisfied		
	1	2	3	4	5	6	7
a)**Convenience satisfaction**							
Shelter facilities on board							
Availability of the seats							
Having stations/stops near destination							
Connectivity to other modes							
b)**Customer care satisfaction**							
Cleanliness of vessel							
Route time table awareness							
Stations/stops information							
Response and courtesy from staffs							
Extra services offered e.g. food, drinks							
Condition of toilets							

c)Technology satisfaction								
Vehicles used and infrastructure used								
Time to make a trip								
Travel Speed								
Smoothness of the ride and Quietness of vehicle								
d)Reliability satisfaction								
Service hours and days								
Punctuality								
Service on week end days								
Boarding time at stations								
e)Safety satisfaction								
On board safety satisfaction instruction								
On board safety satisfaction equipment's e.g. Life jackets								
Competent captains/conductors								
Loading situation								

6. Kindly give out your other comments that you think its consideration can improve ferry transportation in Lake Victoria.

_____
_____
_____
_____
_____
_____
_____