VALUING WILLINGNESS TO PAY FOR IMPROVED PUBLIC

TRANSPORT: A CASE OF COMMUTER BUSES IN DAR ES SALAAM

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CERTIFICATION

The undersigned certifies that he has read and here by recommends for acceptance by The Open University of Tanzania a dissertation entitled; **"Valuing Willingness to Pay for Improved Public Transport: A Case of Commuter Buses in Dar es Salaam"** in partial fulfilment of the requirements for the award of degree of Master in Businesses Administration in Transport and Logistics Management (MBA).

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Dr. Dionis Ndolage

(Supervisor)

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Date

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DECLARATION

I, **Kassim Kashindye Dachi,** declare that, the work presented in this dissertation is my own original work and that it has not been presented to any other University or institution for a similar or any other degree award. It is in this regard that I declare this work is originally mine. It is hereby presented in partial fulfilment of the requirement for the Degree of Master of Business Administration in Finance (MBA).

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Date

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ABSTRACT

In the world today, mostly developing countries have serious problems with the smooth operation of public transport. In addition, poor public transport service has caused the shift of public transport users to private transport users due to the absence of the desired comfort services that passengers need to consider when using their private mode of transport. The main objective of this study was to value willingness to pay for improved public transport in Dar es Salaam (DSM), Tanzania. Specifically, the study aimed at determining average fare willingness to pay for improved public transport, identifying the effect of traveler distance and evaluating the contribution of traveler time on willingness to pay for improved public transport. A primary survey data with a total of 296 respondents. The results demonstrate that the mean willingness to pay for grouped routes were as follows; for the routes operating under TSH.750, transport users are willing to pay the average amount of TSH.1100 per trip, Routes operating underTSH.500 , transport users are willing to pay average amount of TSH.880 per trip, Routes operating under TSH.450, transport users are willing to pay the average amount of TSH.780 per trip, and the routes operating under TSH.400, transport users are willing to pay the average amount of TSH.750 per trip. The results also showed that travel distance, travel time have a significant effect on the willingness to pay for public transport improvements. Based on these findings, several policies have been recommended for the government of Tanzania to increase the use of public bus transport, the government needs to reduce the use of private vehicles by focusing on significant efforts to continuously improve the quality of public bus transport.

Keywords: Willingnes to Pay, Public Transport, Communterqueue, Transport.

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LIST OF ABBREVIATIONS

BRT	Bus Rapid Transit
CVM	Contingent Valuation Method
CV	Contingent Valuation
DART	Dar es Salaam Rapid Transit
DSM	Dar es Salaam
DUTA	Dar es Salaam Urban Transport Authority
JICA	Japan International Cooperation Agency
Kms	Kilometers
NGO's	Non-Governmental Organization
NIT	National Institute of Transportation
NTP	National Transportation Policy
SMEC	Australian Corporation and Project Management
St	Saint
SUMATRA	Surface and Marine Transport Regulatory Authority
LATRA	Land Transport Regulatory Authority
TANROADS	Tanzania National Roads Agency
TPDF	Tanzania People' Defense Force
TPF	Tanzania Police Force
TSH	Tanzania shillings
UDA	Usafiri Dar es Salaam
UDSM	University of Dar es Salaam
USD	U.S. A Dollar
WTP	Willingness to Pay

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Improvement of public transport services is essential in ensuring the maintenance of operation and sustenance of patronage. Globally, sustainable and high-quality public transport is a top priority for government and city planners. As such, growing urban areas need adequate transport planning strategies that ensure, sustainable growth that does not compromise the quality of human life. Transport planners are considered to be the most powerful component in promoting and planning the quality of public transport service as it is part of urban growth (Hunge, 2019). One of the most popular transportation services in the world is the comfort of passengers.

Globally, passenger comfort is a powerful indicator that can be used to measure the quality of public transport services and an important factor in residents' choice of traffic mode (Dell 'Olio et al., 2017). Increasing travel demand and preferences in using private vehicle is causing rapid motorization in many counties around the world and most people are now highly dependent on private motorized travel, this is because of attractiveness of using private car in transportation (Beirão and Sarsfield Cabral, 2017). The increase of private motorization has resulted and caused traffic congestion which has been the source of longer travel times for many people (Beirão and Sarsfield Cabral, 2017).

In addition to congestion, private motorization is also affecting the safeness of road users and high consumption of non-renewable vehicles has caused serious threat to the human environments. Researchers agree that many problems in public transport :

can be prevented by improving quality of service in public transport (Kodukula, 2019).

In Sub-Saharan Africa public transport varies from country to country, and most public transport operators in Sub-Saharan Africa have been affected by the inconvenient services associated with overcrowding of passenger buses and long standing for commuters. If so, most people in the world use private transportation. In addition, the increase in the use of private vehicles by residents has increased traffic congestion in their cities. The increase in the above problem is due to the services provided by drivers who overload buses without considering various aspects including service productivity and efficiency (Barnum et al., 2007; De Borger and Kerstens, 2016), both related to the need for public transportation luxury.

An ever-increasing population used the service so much so that there was an increase in the number of the 14-seater Public Service Vehicle. Indeed, Matatu Welfare Association (2019) provides an estimate of over 80,000 PSV vehicles in Kenya, and 85% of these are 14-seater PSVs operating in the urban and rural areas. The Matatu Welfare Association further estimates that there are 15,000 matatus on about 50 routes in Nairobi, and about 80 percent of them – 12,000 – are the 14-seaters (Kenya Confidential, 2010). Dar es Salaam is one among the rapid growing cities in Africa (Kumar &Barret, 2008). Population growth of the city is estimated at ''4.3 percent'' (Dar es Salaam City Council, 2004). However, rapid expansion of the metropolitan area of the city, as highlighted Lupala (2020), has led to challenges in city planning, regulation, and operations of urban public transport services.

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Passenger comfort in the city is a major problem where buses are overcrowded, with few people living in it and many passengers waiting for a long time. In that case, many commuters are using their private transport which is causing an increase in traffic congestion in the city (Kumar & Barret, 2018). Urban public transport services in the city mainly rely on road transport services (Howe & Bryceson, 2017). Reliance on road-based transport services coupled with the high growth in transport demand has led to the entry of transport services and greater reliance on the use of private vehicles and consequently traffic congestion and poor traffic control.

National Transport Policy (2003) emphasizes the fact that Tanzania's urban transport system is being phased out to meet the demand for transport, traffic delays due to traffic congestion, traffic congestion, low capacity and misconduct by bus staff (Ministry of Infrastructure Development, 2016). The provision of private public transport services by private companies is emphasized at the policy level (Department of Infrastructure Development, 2016). However, the presence of many bus operators not only enforces the law and enforces the law but also leads to the unplanned provision of passenger bus services that ignore the need for service.

In Dar es Salaam, Dar es Salaam routes are assigned to a regulator (LATRA), and fares are controlled by negotiations with the bus operators' association. Otherwise, daladala as unexpected as other cities (LATRA, 2021) flexibility to do so has an impact on their economic success, but at a cost to commuters. Cars wait at the terminal until they are fully loaded. This means that passengers who wish to board some of the higher elevations along the route are usually not able to do so. The development of the City of Dar es Salaam has been partially influenced by a series of :

highways connecting five major roads and one ring intersection in the Central Business District. Five-lane roads are Kilwa Road, Nyerere Road, Morogoro Road and New and Old Bagamoyo Roads and the main road is Mandela Road. The total length of the road based on the 2005 data is approximately 1717 km of which 395 or 23% are paved, especially the main roads (JICA, 2018).

Despite the popularity of the mode of transport, there have been outcry from passengers about the quality of service offered that are very poor. Researchers and transport expert have tried to single out all problems related to transportation to level of satisfaction. For example, Fellesson and Friman (2018) conducted a study in European countries to assess the satisfaction of passengers in public transport. Results showed that passengers were not satisfied with the reliability and information, waiting time in bus stops, comfortable of seats and staff skills, knowledge and attitudes to passengers. There have been similar study in Africa where road transport is dominant compared to other mode of transport. Odufuwa (2016) highlighted some indicators for public transport to offer more efficient and safer services to passengers (Okoko 2017).

For decades, Dar es Salaam has been facing similar challenges of accommodating passengers during the rush hours Fellesson and Friman (2018) conducted a transnational comparison of customers' public transport perceived service satisfaction in eight cities (Stockholm, Barcelona, Copenhagen, Geneva, Helsinki, Vienna, Berlin, Manchester and Oslo) in Europe. The result showed four general factors: system such as traffic supply, reliability and information; bus and bus stop design that makes customer comfortable and enjoy the travel experience; staff skill,
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knowledge and attitude toward customer; and safety not only both in the bus and bus stop but also safe from traffic accident. Furthermore, it was concluded that differences in public transport technology and infrastructure may cause differences in individual item loadings.

1.2 Statement of the Problem

For more four decades, passengers in Dar es Salaam have been using commuter buses to make trip to various economic, social and leisure activities. Up to now, in some area around the city people are served by the same mode of transport after long debate of stopping them to operate in city centers. Daladala were characterized with a number of drawbacks including unscheduled time, changing of fare, change of routes, poor cleanliness inside the bus, abuse language from drivers and conductors to passengers and many others (Lupala, 2017). Serious traffic congestion in DSM is observed between 6:30 – 9:00 a.m., when most workers leave for their workplaces (heavy traffic jams), and between 01:30 a.m. – 2:00 p.m., when workers go on their lunch breaks (medium traffic congestion) and the times between 15:00 – 22:00 when most workers return to their homes (high level of traffic congestion).

From the above facts, it can be concluded that most of the commuters (labourers and people in general) report very late to their workplaces such as offices, markets, schools and hospitals due to traffic congestion caused by the increased number of private vehicle users who have transferred from suburban buses Public transport due to lack of transport comfort, indicates that you can find only two passengers in a passenger car with (4-6) seats, which means that residents are willing to use private vehicles, which are more expensive than public transport vehicles due to comfort
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requirements.

Generally, transport comfort service among public commuter buses in DSM is, inefficient, unreliable and not given priority. Hence this condition negatively affects the sector performance in advance. However, its impact remains largely unknown and probably not well documented so to speak. Accordingly, the study aims at 'assessing factors affecting willingness to pay for improved public transport in Dar es Salaam Tanzania.

1.3 Objective of the Study

1.3.1 General Objective

This study aimed at ''valuing willingness to pay for improved public transport.'' in Dar es Salaam Tanzania.

1.3.2 Specific Objectives

i.   To determine average amount for the passenger's willingness to pay for improved public transport.

ii.   To identify the effect of traveler distance on willingness to pay for improved public transport.

iii.   To evaluate the contribution of traveler time willingness to pay for improved public transport.

1.4 Research Questions

i.   What is the average amount for the passenger's willingness to pay for improved public transport through level seat?

ii.   Is traveler distance affect willingness to pay for improved public transport?

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iii.   Does traveler time contribute on willingness to pay for improved public transport?

1.5 Significance of the study

The study will be very important in different aspects as explained below:

The study will provide the government with the non-cost way of reducing the level of road traffic congestion by improving public transport comfort through introduction of level seat program in the city. This will encourage the shift of private transport users to public transport.

The study will provide mean willingness to pay as guidance to policy makers in establishing different policies that can govern public transport improvement in the city. Also, the study finding as a supportive document will provide some basics that enable policy makers in the process of establishing other policies on transport sector. The study findings will provide to Land Transport Regulatory Authority (LATRA) with best practice to ensure effective performance of public transport sector which is through promoting public transport comfort through level seat. Also, the study will direct the authority the mean willingness to pay basis for improving public transport through level seat in the city.

1.6 Scope of the Study

The study was conducted in Dar es Salaam because the city has the highest-level passengers, commuter overcrowding and road traffic jam considering with any other cities and regions in Tanzania. It is also the highest populated city with many public transport operators and huge number of employers and employees both from formal

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and informal sectors; being private, public or international who actually depend on both private and public transport. For that case, it was easy to investigate in advance the direct relationship with the commuter bus overcrowding and road traffic congestion.

This study were included people living and working in Dar es Salaam, whereby organizations from both public and private sectors were studied in order to represent all formal employees in the city of Dar es Salaam. Also, respondents from some of higher learning institutions were included in the study. Another critical area of this study were conducted in different commuter bus stops whereby commuter bus operators such as owners, drivers, and conductors of public transport commonly known as daladala for different selected routes were included. Also, business men and women at Kariakoo market were also involved.

1.7 Organization of the Study

This study was organized into five chapters: Chapter one presented the introduction and background to the study, statement of the problem, research objectives and research questions. It also covered significance of the study, scope of the study and finally organization of the study. Chapter two presented the literature review related to the study. It provided the definitions of key terms as used in this study, theoretical review, empirical review and conceptual framework of the study. Chapter three presented research methodology used in the study. It provided research design, sampling methods, data collection methods, data analysis, validity, reliability of data and finally the issue of ethical consideration. Chapter four presents the data. It analyzes and discussed the findings as per objective of the study. Chapter five

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summarized the findings, conclusion and recommendations made with regard to the

study findings and objectives. It also provided areas for further studies.

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CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This chapter reviewed various definitions of the key terms and relevant from different sources in order to provide a theoretical framework and establish the basis for the knowledge gap and determination of the research problem as well as investigate how far the problem was in consideration to several authors. It is based on theoretical literature review and empirical literature review.

2.2 Definition of the Key Terms

2.2.1 Daladala

This refers to the famous name of min bus with seats ranging from 16 to 40 used in DSM city as a means for public transport. They operate under transport set by the government through its regulatory authority (SUMATRA 2017). Daladala are minibus share taxis in Tanzania Often overcrowded and operated at unsafe speeds, these minibuses developed as a response to an insufficient public transport system in the country while the name may be a corruption of the English word dollar, (Trip, 2019)

2.2.2 Public Transport

This refers to the public transport operation in which operators holding capacity passenger's base on seats available in a vehicle and not more than that. Under this practice, no passenger is allowed to stand in a vehicle all passengers travel while seated. Public transport is a shared passenger transport service which is available for use by the general public, as distinct from modes such as taxicab, carpooling or hired
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buses which are not shared by strangers without private arrangement. Public transport modes include buses, trolleybuses, trams and trains, rapid transit and ferries (Roth, 2018).

2.2.3 Willingness to Pay (WTP).

It refers to the desire and ability of a person to pay for something for the reason of protection, improving, and formation. Also, refers to the maximum amount an individual is willing to sacrifice in order to procure a good or avoid something undesirable (Lupala, 2020).

2.3 Theoretical Literature Review

In this part, the overview of the willingness to pay theory will be discussed. This chapter will also introduce the concept of willingness to pay on the improved public transport through level seat among public transport users.

2.3.1 Willingness to Pay Theory

Willingness to pay (WTP) is the maximum amount an individual is willing to sacrifice in order to procure a good or avoid something undesirable. The price of any goods transaction will thus be any point between a buyer's willingness to pay and a seller's willingness to accept. The net difference between WTP and WTA is the social surplus created by the trading of goods. Indifferent literature the researcher found that there are methods to value public goods. These methods are many, but some are; Hedonic pricing, Travel cost method and Contingent Valuation Method (CVM). Among all of the methods Contingent Valuation Method represent the most promising approach yet developed for determining the public's willingness to pay, :

and this is because the method is capable of valuing and measuring types of benefits that most of the other methods cannot measure (Carson, 2017).

According to Mitchell and Carson, (2017) goods for which ordinary market does not exist, and their price determined arbitrarily or provided freely, are considered as public goods. Accordingly, in Tanzania transport is controlled by the government through regulatory authority SUMATRA this shows that transport service in Tanzania is a public good or service. In literature, the researcher finds different methods to value public or non-marketable goods or services such. Furthermore the method can be used to show willingness to pay and its relationship to other variables such as age, income, and location. The weakness of this method is a possibility of getting biased information from given biased answers which include strategic bias, compliance bias, information bias and starting point bias, which can be associated with the choice of a higher (or lower) starting willingness to pay point leading to a low (high) mean willingness to pay value, and hypothetical bias. In this study, attempt was made to ensure the applicability of the CVM in the context of improving public transport service quality through level seat.

2.4 Empirical Literature Review

2.4.1 Average Amount for the Passenger's Willingness to Pay

Many studies have been conducted and proved that there is importance improving public transport through ensuring bus comfort. For instance, Vovsha et al. (2017) conducted a survey on the importance of passenger load in determining bus comfort and showed that when a probability of getting a seat by a passenger is less than 40 %, he or she feels uncomfortable. Kumar et al. (2004) evaluated the comfort

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perception of rural bus passengers under three travel conditions seating, standing comfortably, and standing in a crowd he came up with emphasizes that comfort perception significantly affected the generalized cost of passengers. He also found that the effects of Crowding do not only affect physical comfort but also psychological issues, such as nervousness, pressure, stress, and feelings of one's confidentiality being invaded.

Li and Hensher (2017) suggested that, in addition to using objective measures (e.g. passenger load), bus operators and authorities should conduct perception surveys to obtain information on passengers' subjective evaluation of bus services (e.g. bus comfort).Thus, precisely evaluating passengers' willingness to pay perceptions on improving public transport through commuter buses comfort service is necessary.

2.4.2 The Effect of Traveller's Distance on Willingness to Pay for Improved Public Transport

Several studies on urban public transport in DSM have been undertaken by different researchers each addressing specific objectives. And these studies have been overviewed below as follows; the study titled as comprehensive overview of the state of urban transport across major cities of Africa, DSM being one among them conducted by Kumar et al. (2008). This study aimed at investigating main challenges facing urban transport sector and the solutions to address them. The study focused on commercial buses, taxis, and motorcycles as means of public transport.

Another study by Kanyama et al. (2004) which attempted to investigate issues related to public transport in Dar es Salaam city. The study comprised of four objectives which are investigating existing public transport planning approaches in :

Dar es Salaam, examining the extent of vehicle emissions and occurrences of accidents, examining constraints and potentials for the development of public participation in public transport, and identifying factors that inhibit institutional co-ordination.

2.4.3 The Contribution of Traveller's Time Willingness to Pay for Improved Public Transport

Also, a study entitled to assess passenger load and vehicle time (Eboli and Mazzulla 2017; Shek and Chan 2018). The study focused on the impact of passenger load on luxury levels. In particular, the research attention given to vehicle timing, which may also contribute to the perception of passenger comfort, is limited, especially in the context of quantity ratings. Where passenger decisions regarding specific service attributes can be considered as our own estimate of service quality, then operator-based performance standards may serve as standard service quality standards.

Another study by Eboli and Mazzella (2019) who studied the effects of passenger load on choosing travel mode using measurement and selection options; however, they consider only two levels of bus congestion: congestion and congestion. Litman (2018) suggested that if the bus provides a comfortable ride, the travel time considered by passengers is less than the actual travel time. However, the author did not consider whether the actual time of the passengers' journey affected the idea of luxury.

Another study conducted by Transport Corporation to Wilbur Smith Associates Inc in 1990 is a study called Urban Passenger services in Dar es Salaam. The objectives :

of the study were to initiate a program to improve the efficiency, quality, and efficiency of bus services and to balance the need for bus services and to compare existing and potential provision. A study by Cup et al. (2017) investigated the links between public transport and the lives of the urban poor in Dar es Salaam. This study has developed a way to gather information on travel times, bus conditions including overcrowding and living conditions, hygiene conditions, working conditions for drivers, etc.

2.5 Research Gap

After reading different definitions, models and empirical literatures written by different researchers, the researcher find that most literatures reviewed show that many studies on willingness to pay, were estimating transport in the context of transport service improvements. While a large number of these studies focused on willingness to pay estimations for travel time saving, only few studies based on willingness to pay estimations for transport service improvements in other attributes of services such as customer handling, service frequency, reliability of buses to come on time, and bus overcrowding. Therefore, in this study, the researcher considers public transport service improvements in a very basic aspect which can provide a solution of the most of attributes explained above. Accordingly, unlike to most other studies, the researcher focus is on valuating willingness to pay for improved public transport.

2.6 Conceptual Framework

A conceptual framework is a research tool which postulates the relationships among study variables it helps the researcher and readers be familiar and understand how

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valuation of public transport users willing to pay for improved public transport depend on various variables. The basic features of conceptual framework include independent, variables and dependent variables. Independent variables are a variable which does not depend on others variables, and dependent variables are variables that depend on variation of other variables. In this study willingness to pay for improved public transport depends on public transport users who affected by factors such as, travel distance, travel time in peak hours, monthly income, type of transport used, employment status, daladala service conditions, daladala travel condition, and control variables such as age, sex, marital,

Independent Variable   **Dependent Variable**
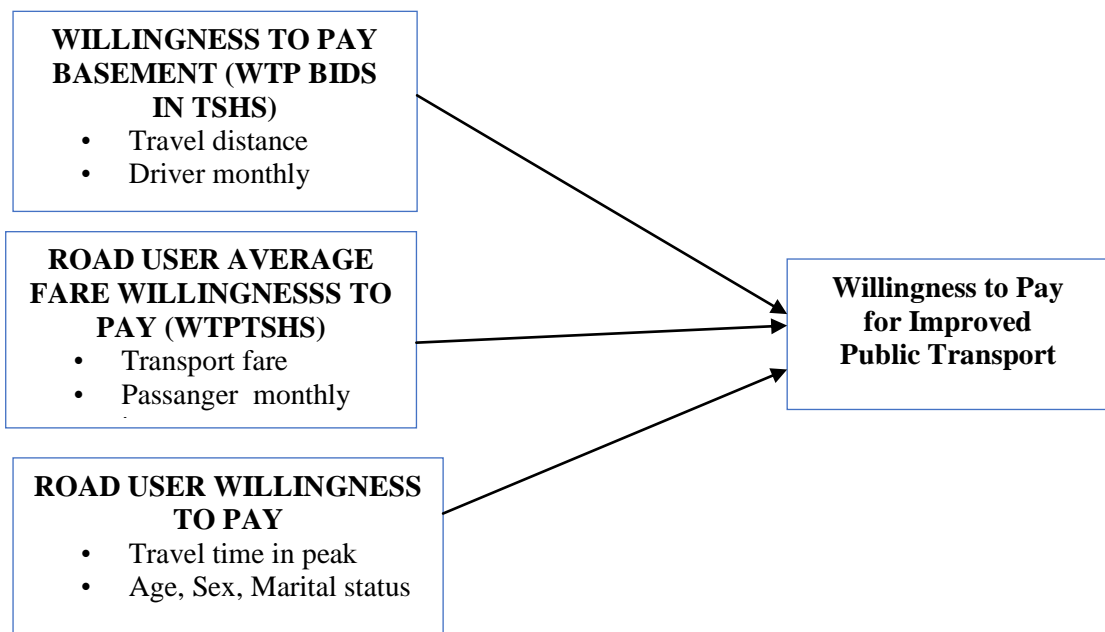
Figure 2.1: Conceptual Framework.

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CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the procedures, methods and techniques that adopted in the research work. Research work most often is appraised based on the quality and accurateness of the analysis and information it provides at the end. The research methodology comprises the tools or techniques for research design, area of the study, target population, sample size, sampling techniques, source of data, data collection techniques, data management and analysis as well as ethical consideration.

3.2 Research Philosophy

Research philosophy is defined as a way in which a researcher views the world (Saunders, Lewis, & Thornhill, 2006)' (Saunders, Lewis, & Thornhill, 2009). The research philosophy helps researchers in designing research processes but their selection is determined by research questions in hand (Saunders et al., 2009). Three research philosophies have been identified; ontology, epistemology and axiology (Saunders et al., 2009)' (Saunders et al., 2006), but ontology and epistemology are the main once (Saunders, et al., 2009)

Ontology is a branch of philosophy that regards world as a natural reality. The branch is further subdivided into two sub groups; objectivism and subjectivism. Objectivism assumes that phenomenon under study is free from researchers' influence while subjects assumes that social phenomenon is a result of perceptions or interpretations and understanding of researchers (Saunders, et al., 2006). Another
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branch of ontology is subjectivism. This form philosophy holds a view that social phenomenon is created from perceptions and consequent actions of social actors (Saunders, et al., 2009).

Epistemology is one of the two most important branches of philosophy that is concerns about what constitutes acceptable knowledge in a field of study (Saunders et al., 2009). This category of research view assumes that the world is independent of researchers and their personal views have no influence on the results, hence, data collected are bias free. The branch is also divided into two sub-branches; positivism and interpretivism. Researchers using positivism see the world as natural science and their studies involve facts that can be used to make generalizations or laws (Gray, 2014). On other hand, interpretivism philosophy is a view that the world as a social science and it understand varies basing on researchers' experiences (Gray, 2014).

As it was pointed out by Gray (2014), there is a close relationship between objectivism and positivism as both argue that the reality exists external to the researcher and must be investigated. This study was following the two philosophies of positivism and objectivism that emphasize household willingness to pay of phenomena of study independent of researchers and use of data for generalization. The choice of the philosophies is led by the fact that this study aims to measure, Factors Influencing willingness to pay for improved public transport through level seat. And its findings were presented. Also, were used a questionnaire to ensure consistence of asking similar questions to various respondents and avoid biases from the researcher.

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3.3 Research Approach

Quantitative approaches were used to collect the necessary data. Quantitative approach was used to give more description on what were obtained from intensive discussions done by presenting it in tables and frequencies. The information was gathered and complemented by a review of relevant documents and a review of results from empirical studies to be undertaken elsewhere to establish a well documented on willingness to pay for improved public transport and the provision of service within Dar es Salaam

3.4 Research Design

Kothari, (2004) explained research design as the conceptual structure within which the research is conducted, it comprises of the plan for gathering measuring and data analysis. Case study design was effectively used for individual, group and phenomenon analysis on a case-by-case basis. The reason for choosing a case study design is due to the availability of information on willingness to pay for improved public transport and the provision of service within Dar es Salaam. For example, the flexibility of methods and techniques to collect data from different sources in a short period of time with minimal financial impact for research (Saunders, Lewis & Thornhill, 2000). Respondents was provided details on on willingness to pay for improved public transport and the provision of service within Dar es Salaam.

3.5 Population and Study Area

A sample was used because of the costs in terms of funds, time and materials that involved in surveying the whole population. The total survey population target was public transport operators and road transport users (private transport and public

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transport). The study was incorporated with licensed public transport operators and public transport users or passengers. Observation, interview, and questionnaires was conducted with some people of the general public, concerning their views on level seat plan and their willingness to pay for it. In this area, people was selected according to their daily route they normally use during their daily activities. The method to be applied was purposive sampling. Therefore, the total population of the licensed public transport operators is 15,700 in Dar es Salaam (LATRA, 2021). All these was chosen randomly and purposively. The probability sampling was used to reduce the risk of bias and give the population equal probabilities of being chosen.

3.6 Sampling Design and Procedure

Sampling is the process of drawing a sample from the large population. Is defined a sample design as a definite plan for obtaining a sample from a given population Kothari (2017). A sample is the part drawn from the total population. Sampling frame is the systematic and organized list of the sampling units. In research, there are many sampling methodologies. According to this research the researcher has employed cluster sampling method. This is because it includes people of similar characteristics in a particular location.

In purposive sampling, this method was employed because it involves selection of respondents that was judged as appropriate for the given study. And in this case, public transport operators and passengers from DSM was selected to be involved in this study. This method is appropriate when what is important is the typicality and specific relevance of the sampling units to the study and not their overall representatives to the population.

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3.7 Sample Size

The selection of sample size in this study was based on the rule given by (Curry and Rick, 2016) that recommended a sample of 10% for a population of 101-1000 respondents for descriptive studies. The sample to be selected was enabled the researcher to provide answers to the research questions and come up with comprehensive, reliable and accurate data. The sample used to present public transport operators under this study were drawn from the number of public transport vehicles licensed (new licensed vehicles and renewed licenses) of the year 2021/2022 by LATRA in each route as shown in table 3.1.

Table 3.1: Sample Size for Public Transport Operators in DSM used under the Study

/No	NAME OF THE ROUTE	TOTAL VEHICLE LICENCED (N)	SAMPLE SIZE (n)
1	G/MBOTO TO KIVUKONI	15	14
2	G/MTOTO TO BUGURUNI	8	8
3	G/MBOTO TO GEREZANI	32	30
4	G/MBOTO TO MASAKI	29	27
5	G/MBOTO TO MBAGALA	45	40
6	G/MBOTO TO SIMU 2000	38	35
7	G/MBOTO TO MB/RANGI3	43	39
8	G/MBOTO TO M/MMOJA	51	45
9	G/MBOTO TO MASAKI	30	28
10	G/MBOTO TO SIMU 2000	67	57
11	G/MBOTO TO MAKUMBUSHO	13	13
12	G/MBOTO TO MAKUMBUSHO	71	60
13	MB/RANGI3 TO KAWE	100	80
14	MB/RANGI3 TO GREREZANI	62	54
15	MB/RANGI3 TO KIVUKONI	19	18
16	MB/RANGI3 TO STESHENI	42	38
17	POSTA TO MAKUMBUSHO	7	7
18	POSTA TO MAKUMBUSHO	7	7
19	SIMU 2000 TO BUNJU	12	12
20	SIMU 2000 TO T/NYUKI	56	49
21	SIMU 2000 TO BUNJU SOKONI	59	51
22	SIMU 2000 TO M/MMOJA	35	32
23	SIMU 2000 TO T/SEGEREA	33	30
24	SIMU 2000 TO MB/RANGI3	96	77
25	SIMU 2000 TO GEREZANI	13	13
26	SIMU 2000 TO TEMEKE	15	14
27	SIMU 2000 TO BUGURUNI	2	2
28	SIMU 2000 TO T/KIMANGA	23	22
29	SIMU 2000 TO KAWE	15	14
30	T/NYUKI TO BAGAMOYO	74	62
31	T/NYUKI TO BUNJU SOKONI	39	36
32	T/NYUKI TO GEREZANI	11	11
33	VIWANDANI TO GEREZANI	44	40
34	VINGUNGUTI TO GEREZANI	12	12
35	VINUNGUTI TO M/MMOJA	15	14
36	TEMEKE TO KAWE	17	16
37	TEMEKE TO MAKUMBUSHO	74	62
38	TEMEKE TO MAKUMBUSHO	19	18
39	TEMEKE TO MAKUMBUSHO	47	42
40	TEMEKE TO M/MMOJA	18	17

Source: LATRA (2022).

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From Table 3.1, the researcher has employed sampling estimation under 5% of the degree of tolerance error which represents 95% of confidence level. The simple formula used in estimation was as follows:

$$n = \frac{N}{1 + Ne^2}$$ …………………………………………………………………. (3.1)

Where by

$n =$ Drawn sample size (selected number of public transport operators)

$N =$ Total Number of licensed vehicles on a particular route

$e =$ Tolerance error (5%)

Therefore, the total of 304 public transport operators from each route were chosen to be used under this study, The number of chosen operators were based on number of licensed vehicles on a particular route by LATRA as shown on above table 3.1.

3.8 Data Collection Methods

3.8.1 Primary Data

In this study, primary data was collected through in-person by questionnaire. Soliciting road users' willingness to use and pay for improved public bus service trough level seat being the major objective of the contingent valuation survey, other socioeconomic and demographic questions as well as their preferences to the forms of payment for the improved service are also was included in the survey.

3.8.2 Secondary Data

Secondary data means data are already available. They are obtained from literature sources or data collected by other people for some other purposes (Adam and Kamuzora, 2018). Secondary data sources include books, journal articles, newspapers, report and publications of various associations and organization as well :

as other documentary reviews from internet. Thus, apart from the primary data, this study was included also secondary as shown above.

3.9 Data Collection and Techniques

Observation, Questionnaire are common research tools used to collect data and in special way; the primary data. This study will employ questionnaires.

3.9.1 Questionnaire

In this study, the dichotomous choice questionnaires were designed in a single way basing on research questions. Through this tool, the respondents within the areas of the study were in position to answer the questions concerning the study. During the study, the closed-ended questions were administered by the researcher and require respondents to provide answers while a researcher filling their views in respective answer.

3.10 Data Description and Measurement

Table 3.2: Data Measurement

Variable Name	Description	Measurement
Travel distance	Distance traveled in a specific route	In Kilometers
Travel time	Time traveled in a specific route	In Minutes
Type of transport used	Type of transport highly preferred by respondents	1 if use BRT, 0 if use own private car and 2 if use daladala
Education level	Respondents' levels of education	1 if high school, 0 if university and 2 if college.
Monthly Income	Amount of revenue received per month among respondents	In Tanzania Shillings
Employed status	Type of employment of respondents	1 if government employed and 0 if other type and 2 self-employed
Daladala service condition	Travel service condition using daladala	1 if too bad, 0 if bad and 2 if normal
Marital status	Respondents' marital status	1 if married, 0 if single and 2 if divorced
Sex	Sex characteristics of surveyed respondents	1 if male and 0 if female
Age	Age characteristics of respondents	In years

Source: Researcher (2022).

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This gives the detailed information of a particular variable that was used under the study whereby expected signs, means of measurement and description of a particular variable are determined under the study as below follows; The table 3.1 indicates both discrete and binary characteristics of the variables used under the study with their respective expected signs and their standard descriptions

3.11 Data Analysis Plan

The same was done for questions related to objectives of the study, whereby in determining the general consensus and come up with conclusions for the findings, data was collected from questionnaires were calculated through percentages and averages so as to determine the general consensus of the sample. Descriptive statistics was presented in graphically, tabular form or as summary statistics through the use of tables, percentages and chart presentation for easy understanding with the aid of Microsoft excel and Stata.

3.12 Data Reliability and Validity

In this study contingent valuation method were employed whereby road users had to make choices through dichotomous choice questions, respondents (transport road user) was asked if he or she is willing to pay for the proposed bid (amount in TSH). If he or she says'' yes'', to the initial bid, then the corresponding bid greater than the initial bid were asked and if he or she says ''no'' to the initial bid, then the lower bid less than the initial bid to be asked. In designing and conducting the survey, attempt were made to minimize biases that may arise in using Contingent valuation method such as interviewer bias, strategic, hypothetical and compliance biases, and scenario specification.
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Also, different tests patterning with multiple regression models was made in order to make validity of the data were analysed. This was done by Checking for Violation of Ordinary Least Square (OLS) Assumption in which; Multicollinearity was tested, in doing so Variance of Inflation Factor VIF was used for this test. Whereby if a Mean VIF value is greater than 10 means there might the problem of Multicollinearity and when VIF is less than 10 for each variable indicating that there is no Multicollinearity. Furthermore, the tolerance defined by 1/VIF also was used to check the degree of collinearity (Gujarat, 2019).

Another test checking for Violation of Ordinary Least Square (OLS) Assumption in which testing for Heteroscedasticity was undertaken. After regressing Ordinary Least Square (OLS) model. Hettest command was inserted into STATA 13 to check for variation invariance. The results decisions was indicated basing on Probe > chi2 thus means that if Probe > chi2 result is less than 5%, then the problem of heteroscedasticity occurs and if not, then the data have no that problem. Lastly, if either Multicollinearity or Heteroscedasticity occurred in data, then robust command was used to solve both problems.

3.13 Ethical Consideration

Before conducting the study, official permission was sought from The Open University Tanzania and LATRA office in order to meet the official recognition and support for the information included in this study. Respondents was informed on the purpose of the study before the process of data collection start and also, the objectives and potential benefits of this study was communicated to the respondents which make them aware on how the information they provide put to use. To ensure
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maximum confidentiality of the information that was obtained, names or any other indication that may expose the respondents not appeared on the questionnaire papers with the aim of minimizing risk of harm to participants and the researcher. Also, study participants was informed in advance on their freedom to provide information or not, which means that they had the mandate and discretionary power to accept willingly or reject. This allow them to be free to participate in the research in answering questions and the information to be acquired from the respondents used only for the purpose of this study.

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CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents the results and findings of the study carried out to valueing Willingness to Pay for Improved Public Transport: A Case of Commuter Buses in Dar es Salaam. The chapter analyses findings obtained from primary and secondary data. Primary data were collected through questionnaire and interview such that; data collected through questionnaire were analyzed and presented basing on the three research questions providing answers to research objectives. Figures and frequency tables were used to present demographic data and responses to questionnaires respectively.

4.2 Questionnaire Response Rate

This is the rate at which the selected (sampled) population/respondents have answered and revealed the required relevant information in the research questionnaires that had been distributed to them by the researcher to meet the study general and specific objectives. A total number of 304 questionnaires were provided to respondents; out of 304 questionnaires 296 questionnaires were returned filled representing a response rate of 97.4 percent.

The remaining 8 questionnaires could not be filled since some of the patients misplaced the questionnaires in the process of receiving health care services as they moved from one section to another. According to Mugenda (1999) response rate of 50% and above is a good response rate and that it makes it a satisfactory rate for statistical reporting. Hence, 97.4% is materially significant to present the entire

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population. The table 4.1 shows the response rate of the sampled population.

Table 4.1: Response Rate

Response to questionnaires	Frequency	Percentage (%)
Filled in Questionnaires	296	97.4%
Unfilled/Unreturned Questionnaires	08	2.6
Total	304	100%

4.2 Socio-Demographic Characteristics of Respondents

This section considered the gender, level of education and age of the respondents. This information is important for the study as it helped to evaluate the credibility of the respondents in answering the questionnaires or questions posed to them regarding the valuing Willingness to Pay for Improved Public Transport: A Case of Commuter Buses in Dar es Salaam.

4.2.1 Gender

Generally, on the side of road users, the study covered about 296 respondents who participated through questionnaires and interviews. About 44 percent were females, and 56 percent were males as shown on figure 4.1.
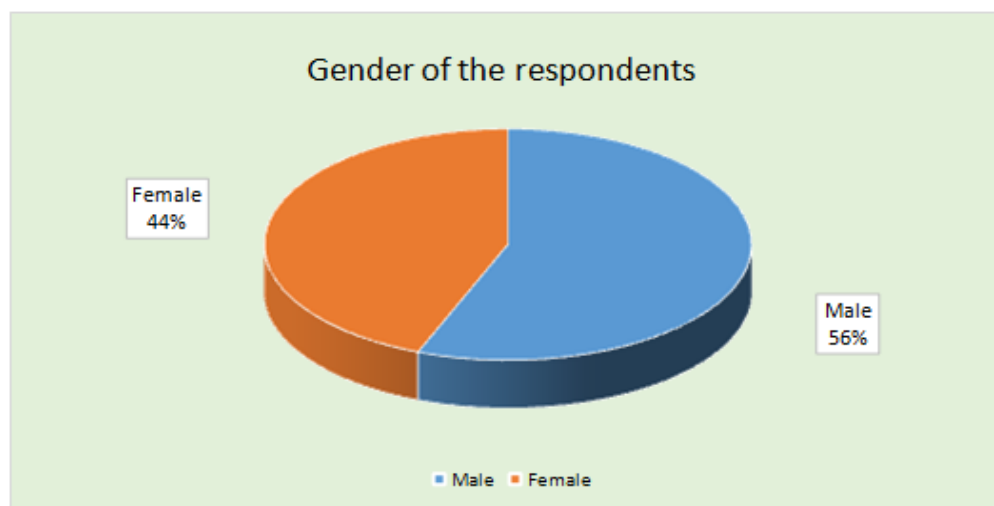
Figure 4.1: Gender Characteristics of Respondents

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4.2.2 Marital Status

From below Figure 4.2, a total of 440 passengers (road users) were surveyed for this study. About 82 percent were married respondents, 15 percent were single, and 3percent were divorced respondents.
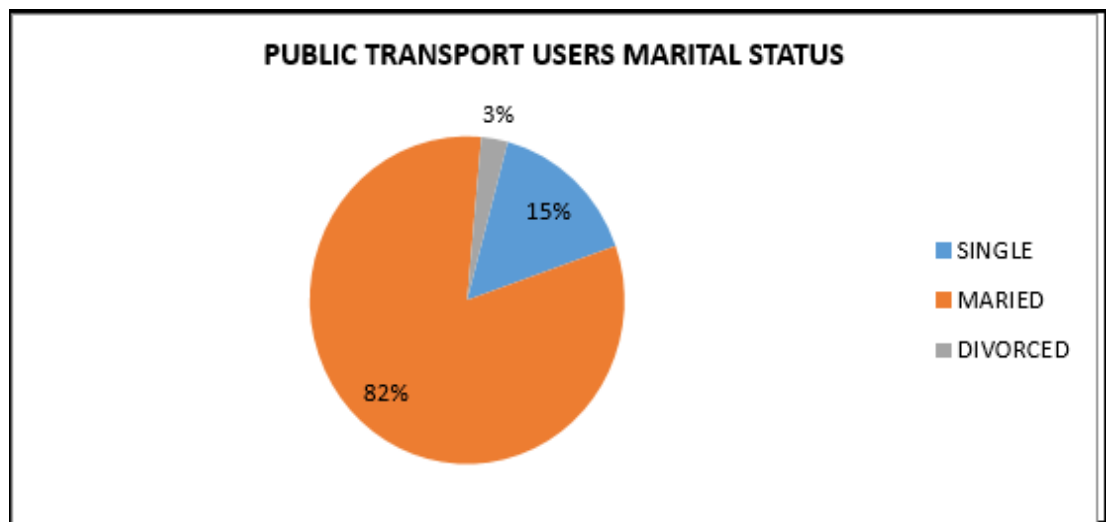
Figure 4.2: Marital Characteristics of Surveyed Public Transport users in DSM City
Source: Researcher, (2022).

4.2.3 Age of the Respondents

	Below 20 years	Between 21 and 25 years	Between 26 and 35 years	Between 36 to 45 years	Over 45 years
■ Percent	15.8	31.6	33.1	15	4.5
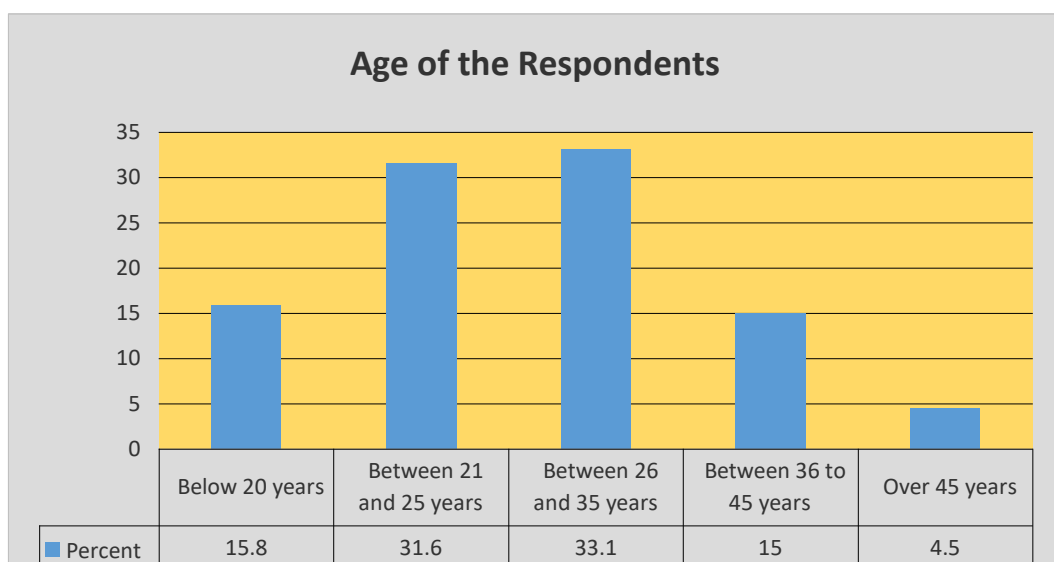
Figure 4.3: Age Characteristics of Surveyed Public Transport users in DSM City
Source: Researcher, (2022).

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The study sought to establish the ages of the respondents. The findings are indicated in figure 4.3. It shows that majority (33.1%) of the respondents were aged between 26 and 35 years, 31.6% between 21 and 25 years, 15.8% aged below 20 years and 4.5% were aged over 45 years. The age of the respondents was important as different age groups have different perception and experience in public transport sector. The age bracket above 25 years, have routine commute pattern and enriched the data collected.

4.2.4 Educational Level

The level of education is important in determining the literacy level of the respondents. A total of 296 transport users surveyed for this study. Research findings indicated that 17 percent of respondents who participated in the study using questionnaire had college education, 30 percent had secondary school education, 41.72 percent had primary education, 9.13 percent had university education and 1.7 percent were illiterate. The majority of respondents had primary education, indicating that the respondents had little knowledge on improving public transport.

Respondent level of education

Percentage	Collegiate	Illeterate	Primary Education	Secondary	Universty
Percentage	17	1.7	41.72	30	9.13
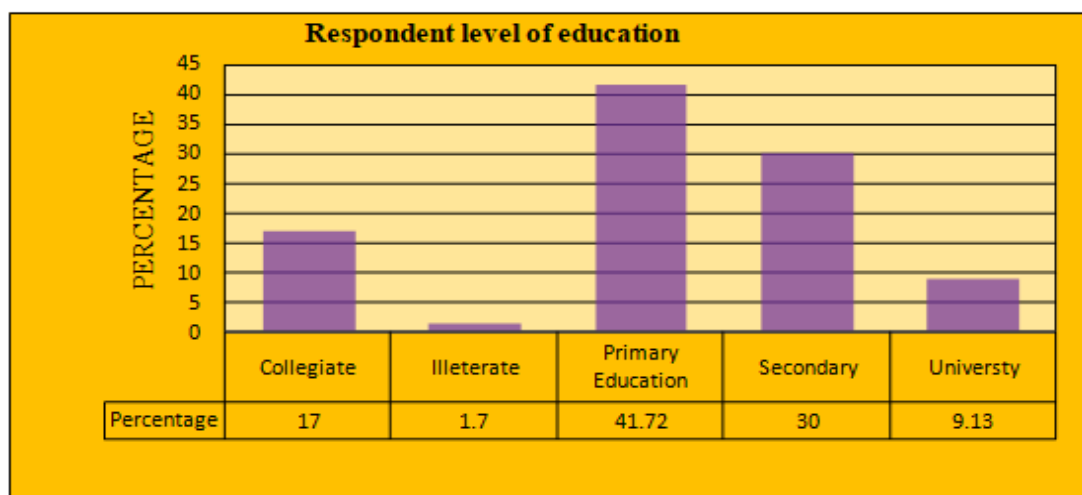
Figure 4.4: Education Level of Surveyed Cattle Livestock Farmers in Mara Region

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4.2.5 Employment Status

A total of 296 passengers (road users) surveyed for this study. Research findings indicated that 2.5 percent of respondents who participated in the study had employed in other type of employment, 3.64 percent had self-employed, and 93.86 percent of respondents have employed in government institutions.
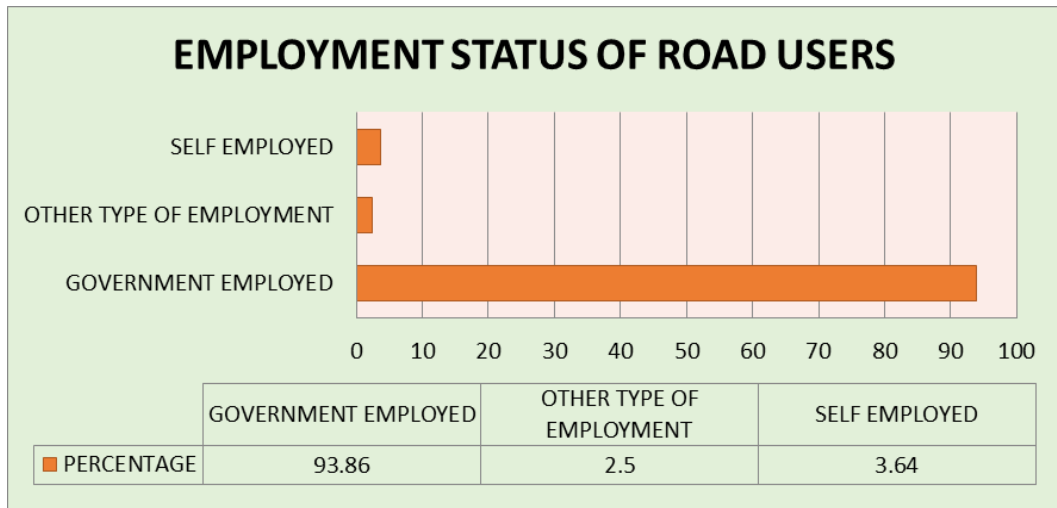
Figure 4.5: Employment Status of Surveyed Public Transport users in DSM city

Source: Researcher, (2022)

4.3 Transportation Characteristics

In order to understand the characteristics of transportation in DSM, some selected indicators are taken into consideration. These include ownership of car, means of transport often used, travel time from residence to work/study place, cost of transportation, perception of quality of public bus transport service and public bus transportation area coverage.

4.3.1 Means of Transport often Used

From 296 surveyed respondents, Sample responses show that about 87 percent of residents own private car. In terms of the type of transport mode, the majority 87

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percent of the respondents often use own private car as a mode of transport, and only 10 percent use public bus (BRT) while a few 3 percent use DALADALA as the mode of transport. At the family level, own private car is the utmost mode of transportation used (about 87 percent).

The survey indicates, as expected that non-own private car transport modes are less preferred by families than individuals. Public bus are least used. Among the public transport users, a resident, on average, uses public bus transport mode once (trip) per day and spends about an hour and quarter (in round trips) traveling from residence to work/study places using public bus while [s]he spends about 55 minutes using taxi or private car. On the other hand, it takes only about 42 minutes (in round trips) traveling from residence to work/study places using BRT.
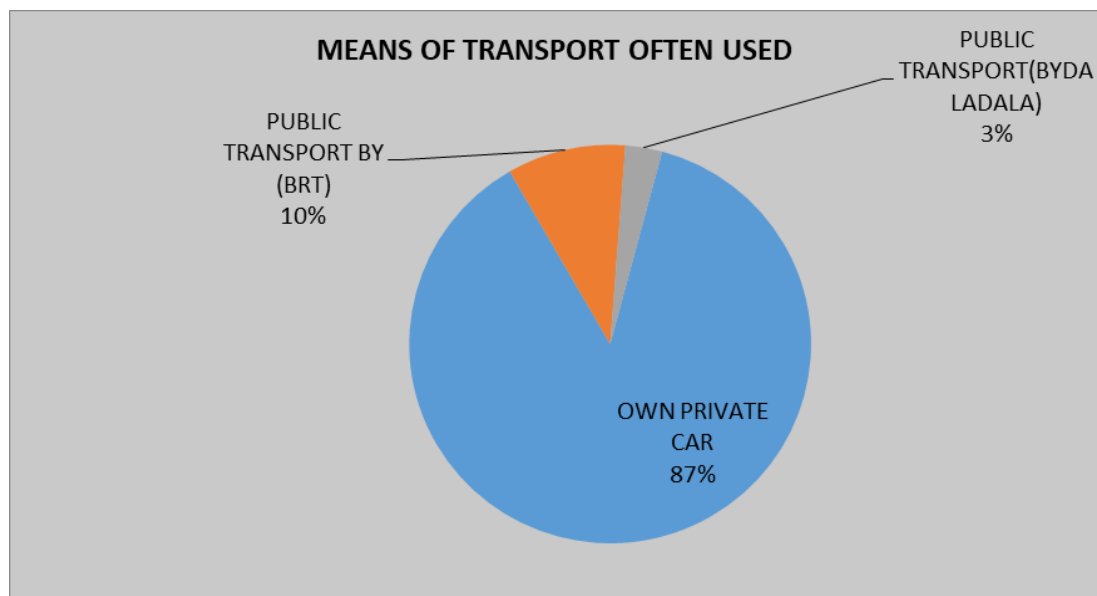
Figure 4.6: Means of Transport often Used in DSM City
Source: Researcher 2022

4.3.2 Daladala Travel Condition

From surveyed 296 respondents, The Sample responses show that there is about

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40.45 percent of respondents who said daladala are overcrowded, 23.64 percent said there is unsafe condition for Disabled, 12.95 percent said no safe condition for children,9.55percent said there is many standees, 7.5 percent said no customer care, 2.05percent said poor cleanliness.

Table 4.2: Represents Travel Condition with Daladala in DSM City

TRAVEL CONDITION IN DALADALA	FREQUENCY	PERCENTAGE
FEW STANDEES	11	3.86
MANY STANDEES	28	9.55
NO CUSTOMER CARE	22	7.5
NOT SAFE FOR DISABLED	70	23.64
NOT SAFE FOR CHILD	35	12.95
OVERCROWDED	118	40.45
POOR CLINELINESS	5	2.05
Total	**296**	**100**

Source: Researcher 2022

4.3.3 Service Condition in Daladala
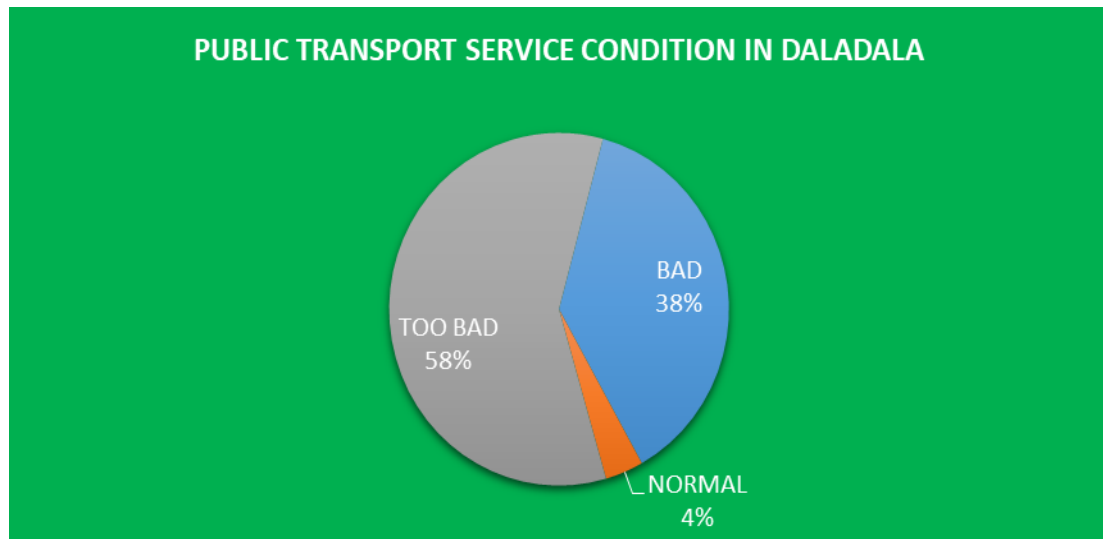
Figure 4.7: Means of Transport often used in DSM City

Source: Researcher 2022

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Public transport service quality in DSM Tanzania, in general, is rated as either Normal, bad or too bad. From figure 4.6, the service is rated as too bad by about 58 percent, rated as bad by 38 percent of the respondents and rated normal by 4 percent of the respondents. In terms of specific indicators of quality service attributes, BRT service is rated superior than public bus by all indicators of service delivery. Except for safety and comfort, waiting stations, waiting time, travel time and noise/crowdedness/smell are rated the least.

4.3.4 Transport Condition with BRT (Magari ya Mwendokasi)

Public transport service quality in BRT buses, in general, is rated as either Good, Normal or bad. From figure 4.7 below, the service is rated as good by about 54 percent, rated as Normal by 34 percent of the respondents and rated bad by 12 percent of the respondents. In terms of specific indicators of quality service attributes, BRT service is rated superior than Daladala by all indicators of service delivery. Except for safety and comfort, waiting stations, waiting time, and noise/crowdedness/smell are rated the least
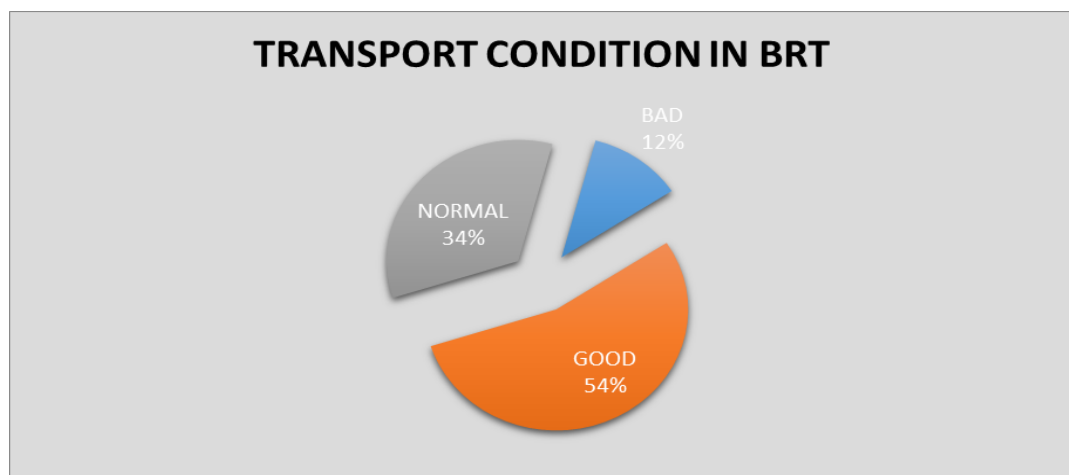
Figure 4.8: Means of Transport often Used in DSM City
Source: Researcher 2022

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4.4 Mean WTP on Routes Operating

In this part the set bids basing on operators as a benchmark are now described according to the surveyed respondents' responses on particular route operating under LATRA transport fare as below follows; From Table 4.3. The mean WTP obtained is an indicator of what people are willing to pay, on average, for improved public transport through level seat per trip in the city. The mean willingness to pay were obtained according to the grouped route operating under different transport fare set by LATRA as follows;

Table 4.3: Mean Willingness to Pay on Routes Operating under TSH.750, 500, 450 and 400

Variables	Routes Operating Undertsh.750	Routes Operating Undertsh.500	Routes Operating Undertsh.450	Routes Operating Undertsh.400
Mean Wtp In Tsh	1104.545	882.7273	784.0909	752.7273
Number Of Observation	296	296	296	296
Minimum Bid in Tsh	1000	800	750	700
Maximum Bid in Tsh	1500	1300	1000	1000
Standard Deviation	155.8559	150.1431	64.93886	96.45942

Source: Researcher (2022)

For the routes operating under TSH.750, transport users are willing to pay average amount of TSH.1100 per trip, Routes operating under TSH.500, transport users are willing to pay average amount of TSH.880 per trip, Routes operating under TSH.450, transport users are willing to pay average amount ofTSH.780 per trip, and the routes operating under TSH.400, transport users are willing to pay average amount of TSH.750 per trip.

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4.4.1 Multiple Regression Results

Generally the regression results from table 4.4 represent factors affecting or influencing WTP for improved public transport on routes operating under LATRA Transport fare in DSM Tanzania. The Table 4.4 presents the econometric results of multiple linear regressions model for factors affecting willingness to pay for improved public transport on a routes fare set by LATRA in DSM Tanzania.

Table 4.4: Multiple Regression Results

Willingness to Pay in Tsh	Coefficient	Standard Error	t- value	P>t
Constant	1301.264	94.43687	13.78	0
Sex	15.58028	10.43816	1.49	0.139
Marital Status	-119.3955	14.58801	-8.18	0
Daladala Service Condition	-18.41177	7.23104	-2.55	0.012
Monthly Income	-0.0000501	0.0000199	-2.52	0.013
Education Level	-155.5886	26.18667	-5.94	0
Travell Time In Minutes	0.2552508	0.2114587	1.21	0.23
Travel Distance In Km	-33.04254	10.96917	-3.01	0.003
Number Of Observation		296		
F(7, 189)		94.6		
Prob> F		0		
R-squared		0.8665		
Adj R-squared		0.8574		

Source: Researcher (2022).

The Table 4.4 presents the econometric results of multiple linear regressions model for factors affecting willingness to pay for improved public transport on a operating route fare set by LATRA in DSM Tanzania. From the results below a level of significance is set at 5% (0.05) and R-Square 86.65%. As the results above from the table, factors such as such as marital status (p = 0.000), daladala travel condition (p = 0.012), monthly income (p = 0.013), education level (p = 0.000), and travel distance (p = 0.003).

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4.3.2 Checking for Violation of Assumption of Ordinary Least Square (OLS)

4.4.2.1 Testing For Multicollinearity

Checking for Violation of Ordinary Least Square (OLS) Assumption, Multicollinearity was tested, in doing so Variance of Inflation Factor VIF was used for this test. The result shows that there was no severe multicollinearity problem. This was indicated by the results of VIF whereby if a Mean VIF value is greater than 10 means there might the problem of Multicollinearity and when VIF is less than 10 for each variable indicating that there is no Multicollinearity. Furthermore, the tolerance defined by 1/VIF also was used to check the degree of collinearity (Gujarat, 2008). And this is clearly shown on Table 4.5

Table 4.5: Results on Testing for Multicollinearity

Variable	VIF	1/VIF
Education level	5.92	0.168818
Marital status	3.99	0.250718
Travel distance	3.57	0.279807
Time spend with Daladala	3.09	0.323879
Monthly income	2.68	0.373696
daladDaladala service condition	2.34	0.427151
Sex	1.93	0.518506
Mean VIF	3.36	

Source: Researcher (2022).

4.4.2.2 Testing For Heteroscedasticity

After regressing Ordinary Least Square (OLS) model, hettest command was inserted into STATA 13 to check for variation invariance. The results show that there was no constant variance which means that there was a problem of heteroscedasticity. This was indicated by hettest results on the basis of Probe > chi2 results in which if the result is less than 5% then the problem of heteroscedasticity occurs and if not

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otherwise. And this is well shown on Table 4.6.

Table 4.6: Results on Testing for Heteroscedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of wtpinTSH
chi2(1)   =   25.92
Prob>chi2 = 0.0000

Source: Researcher (2022).

4.4.2.3 Solving the Problem of Heteroscedasticity

From the above Table 4.6, the regression results show that there is a problem of Heteroscedasticity, the solution of the problem is to run Robust for the results from Table 4.6 above have shown in Table 4.7 as follows.

4.4.3 Multiple Regression Results after Robust

The table 4.7 represents the econometric results of multiple linear regressions model for factors affecting willingness to pay for improved public transport after running robust.

Table 4.7 Multiple Regression Results after Robust

Willingness To Pay In Tsh	Coefficient	Robust Standard Error	t-value	P>t
Constat	1301.264	111.0828	11.71	0
Sex	15.58028	8.428437	1.85	0.067
Marital Status	-119.3955	16.51006	-7.23	0
Daladala Service Condition	-18.41177	8.943605	-2.06	0.042
Monthly Income	-0.0000501	0.0000215	-2.33	0.022
Education Level	-155.5886	29.03893	-5.36	0
Travell Time In Minutes	0.2552508	0.1644295	1.55	0.124
Travel Distance In Km	-33.04254	12.08362	-2.73	0.007

Number Of Observation	110
F(7, 102)	123.72
Prob> F	0
R-squared	0.8665

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The Table 4.7 represents the econometric results of multiple linear regressions model for factors affecting willingness to pay for improved public transport after running robust. From the results, a level of significance is set at 5% (0.05) and R-Square 86.65%. As the results above from the (Table 4.7), sex (p=0.000), education level (p=0.000), monthly income (p =0.022), marital status (p =0.000), travel distance (p=0.007), and daladala travel condition (p =0.042). But other explanatory variables with p- value greater than 5percent (p=0.05) are statistically insignificance.

From the robust regression results above, education level was negative and significantly influences WTP for improved public transport. The coefficient was 155.59 and p= 0.000, which means that WTP for improved public transport is more likely to decrease byTSH.155.59 as users' education level rise (high-level level of education) on routes operating under LATRA fare keeping other factors constant. Sex was another variable seems to have positive relationships with WTP for improved public transport. From the above regression table, the coefficient of sex was 15.58 and p= 0.067which means that WTP for improved public transport is more likely to increase byTSH.15.58 due to responses of sex status among respondents on routes operating under LATRA fare keeping other factors constant.

Marital status was another variable seems to have negative relationships with WTP for improved public transport. From the above regression table, the coefficient of marital status was 119.39, and p= 0.000which means that WTP for improved public transport is more likely to decrease byTSH.119.39 due to responses of Marital status among respondents on routes operating under LATRA fare keeping other factors constant. As robust regression results above shown, monthly income level was :

negative and significantly influences WTP for improved public transport.

The coefficient was 0.00005 and p= 0.022, which means that one unit increase in income of respondent will lead toTSH.0.001 decrease on WTP for improved public transport on routes operating under LATRA fare keeping other factors constant. Also, from robust regression results above shown, travel distance was negative and significantly influences WTP for improved public transport. The coefficient was 33.04 and p= 0.007, which means that one unit increase in distance (km) will lead toTSH.33.04 decrease on WTP for improved public transport on routes operating under LATRA fare keeping other factors constant. From regression results above, daladala condition was negative and significantly influences WTP for improved public transport. The coefficient was 18.41 and p= 0.042, which means that WTP for improved public transport is more likely to decrease byTSH.18.41 as daladala travel condition will not be improved on routes operating under SUMATRA fare keeping other factors constant

Measure for Overall Goodness of Fit Test (R^2)

The overall fitness of the model was indicated by R^2 values. The explanatory variables explain dependent variable (WTP) by 86.65%. Also, R^2 is used to show the total variation of dependent variable that can be explained by independent variables (Gujarati, 2008). The $R^2 = 0.8665$, this means that 86.65% of the WTP for improved public transport on routes operating under LATRA fare. Was determined by Travel distance, travel time, type of transport used, education level, employment status, daladala condition, income, marital status and age, whereby the remained percent 13.35% is determined by error term or other factors non-significant. By and large, :

the above regression results from tables represent factors affecting or influencing WTP for improved public transport on routes operating under LATRA Transport fare in DSM Tanzania.

4.5 Discussion of the Research Findings

The aim of the research was to come up with the document that presents willingness to pay value, for improving public transport and identifying factors that hinders willingness to pay capacity, among the respondents within the region. Furthermore, the study aimed at investigating, if improving public transport through level seat can be one among the strategies that can alleviate the problem of road traffic congestion in DSM region. Most of the data presented in this chapter are from respondents' attitudes, views, and perceptions in relation to willingness to pay for improved public transport in DSM region.

4.5.1 Mean Willingness to Pay for Improved Public Transport

Under this study, a total of 296 respondents surveyed were all willing to pay for improved public transport through level seat were by (their WTP >0). The main reasons given by the respondents who were willing to pay were as follows: they could afford to pay for improved public transport because the patterning transport condition is worse whereby 58%of respondents said it is too bad, 38 %of respondents said that transport condition is bad and 4%of respondents said it is normal. They also said that they are WTP for improved public transport because even BRT services are not conducive whereby 54% of respondents of respondents said services are good, 34%of respondents said services are normal, and 12% of respondent's services are bad.

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Another reason is because of travel condition of Daladala which said to be insufficient and uncomfortable whereby 40.45% of respondents said that public transport vehicles are overcrowded, 23.64% of respondents said that public transport vehicles are not safe for disabled people, 12.95% of respondents said that public transport vehicles are not safe for their children, 9.55% respondents said that public transport vehicles have many standees, 9% of respondents said public transport vehicles have poor cleanliness, 7.5% of respondents said public transport vehicles have no customer care and 3.86% of respondents said that public transport vehicles have few standees.

Many studies have been conducted and proved that there is importance improving public transport through ensuring bus comfort. For instance, Vovsha et al. (2017) conducted a survey on the importance of passenger load in determining bus comfort and showed that when a probability of getting a seat by a passenger is less than 40 %, he or she feels uncomfortable. Kumar et al. (2014) evaluated the comfort perception of rural bus passengers under three travel conditions seating, standing comfortably, and standing in a crowd he came up with emphasizes that comfort perception significantly affected the generalized cost of passengers. He also found that the effects of Crowding do not only affect physical comfort but also psychological issues, such as nervousness, pressure, stress, and feelings of one's confidentiality being invaded.

Li and Hensher (2017) suggested that, in addition to using objective measures (e.g. passenger load), bus operators and authorities should conduct perception surveys to obtain information on passengers' subjective evaluation of bus services (e.g. bus
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comfort).Thus, precisely evaluating passengers' willingness to pay perceptions on improving public transport through commuter buses comfort service is necessary.

4.5.2 Travel Distance in Kilometers

From regression results Travel distance, constants have positive sign, positive sign for routes operating under LATRA transport fare of TSH; 750, 500,450 and 400 respectively. This implies that; for all routes with postive constants, One unit increase in travel distance in kilometers increase WTP amount in TSH among respondents (reduce amount in TSH, respondents are willing to pay (WTP) for improving public transport) in the city. This is because in these routes there is high level of road traffic congestion. Hence respondents consider much on travel time that they always spend on road rather than traveled distance thus why increase in travel distance reduces WTP. This means that transport users are less willing to pay for improved public transport as travel distance in kilometers increases. For those routes with positive constants, one unit increase of travel distance in Kilometers lead to the rise of WTP amounts in TSH for improved public transport among the respondents. Thus means that respondent's WTP for improved public transport increases as travel distance in kilometers rise.

Several studies on urban public transport in DSM have been undertaken by different researchers each addressing specific objectives. And these studies have been overviewed below as follows; the study titled as comprehensive overview of the state of urban transport across major cities of Africa, DSM being one among them conducted by Kumar et al. (2018).This study aimed at investigating main distance as a main challenges facing urban transport sector and the solutions to address them. :

The study focused on commercial buses, taxis, and motorcycles as means of public transport.

Another study by Kanyama et al. (2014) which attempted to investigate issues related impact to route distance to public transport in Dar es Salaam city. The study comprised of four objectives which are investigating existing public transport planning approaches in Dar es Salaam, examining the extent of vehicle emissions and occurrences of accidents, examining constraints and potentials for the development of public participation in public transport, and identifying factors that inhibit institutional co-ordination.

4.5.3 Travel Time in Minutes

From regression results Travel time, constants have; negative sign, for routes operating under LATRA transport fare of TSH; 750, 500,450 and 500 respectively. This implies that; for all routes with negative constant, one unit increase in travel time in minutes reduce WTP amount in TSH among respondents for improved public transport in the city. This is because in these routes there is low level of daladala overcrowding hence respondents consider much on travel distance rather than time they spent on daladala. This means that transport users are less willing to pay for improved public transport as travel time increases in minutes.

For those routes with positive constants, one unit increase of travel time in minutes lead to the rise of WTP amounts in TSH for improved public transport among the respondents. Thus means that respondent's WTP for improved public transport increases as travel time in minutes rise. This is because most of these routes have :

high commuter bus overcrowding level Example G/mboto to M/moja were respondents spend long time standing in commuter buses hence travel time they spend standing attract them to pay for improved public transport through level seat. Chengula and Kombe (2017) acknowledge the findings that the introduction of BRT in the city has greatly contributed to travel time savings for commuters. The authors conducted a study on the effectiveness of Dar es Salaam Bus Rapid Transit (DBRT). The findings of their study indicated that there is a decrease in delays in journeys of about 50% on average.

Also, a study entitled to assess passenger load and vehicle time (Eboli and Mazzulla 2017; Shek and Chan 2018). The study focused on the impact of passenger load on luxury levels. In particular, the research attention given to vehicle timing, which may also contribute to the perception of passenger comfort, is limited, especially in the context of quantity ratings. Where passenger decisions regarding specific service attributes can be considered as our own estimate of service quality, then operator-based performance standards may serve as standard service quality standards.

Another study by Eboli and Mazzella (2019) who studied the effects of passenger load on choosing travel mode using measurement and selection options; however, they consider only two levels of bus congestion: congestion and congestion. Litman (2018) suggested that if the bus provides a comfortable ride, the travel time considered by passengers is less than the actual travel time. However, the author did not consider whether the actual time of the passengers' journey affected the idea of luxury.

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Another study conducted by Transport Corporation to Wilbur Smith Associates Inc in 1990 is a study called Urban Passenger services in Dar es Salaam. The objectives of the study were to initiate a program to improve the efficiency, quality, and efficiency of bus services and to balance the need for bus services and to compare existing and potential provision. A study by Cup et al. (2017) investigated the links between public transport and the lives of the urban poor in Dar es Salaam. This study has developed a way to gather information on travel times, bus conditions including overcrowding and living conditions, hygiene conditions, working conditions for drivers, etc.

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CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

In this chapter major findings, conclusion and recommendations have been discussed in summary. Also, this chapter gives suggestions on areas for further studies. The provision of comfort and quality public transport service in Tanzania specifically DSM is the biggest challenge. Due to the increased demand for transport then public transport service requires understanding of people's willingness to use and pay for improved public transport services.

5.2 Summary of the Findings

The main aim of this study was to asses the the influencing factors on willingness to pay for improved public transport. Specifically, the study aimed at answering questions such as what is the average willingness to pay for improved public transport. What is the effect of traveler distance on willingness to pay for improved public transport? What is the contribution of traveler time on willingness to pay for improved public transport?

To better understand the subject matter, the researcher reviewed the other studies related to the study both in Tanzania and foreign countries and further show the justification of the research gap that the study is trying to solve. Also, the study has applied theories that relate to public transport performance. The researcher also used questionnaire technique in obtaining the primary data. The results from data collections were analyzed by using descriptive analysis and inferential analysis and

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later discussed in relation to reviewed empirical studies.

The study uses survey conducted on 296 public transport users as a representative sample of a cross section of DSM residents. Multiple regression model (OLS) is used to evaluate the surveyed data. Accordingly, the estimation result indicates that there is the highest average of DSM residents who are willing to use and pay for the improved public transport service. The residents' willingness to use and pay is determined by such factors as Travel Distance, Travel time, Daladala service condition, employment status, monthly income, Education status or level, Type of transport mostly used, car ownership, and children's safety for using public transport service.

The mean willingness to pay were obtained according to the grouped route operating under different transport fare set by LATRA as follows; For the routes operating under TSH.750, transport users are willing to pay average amount of TSH.1100 per trip, Routes operating under TSH.500 , transport users are willing to pay average amount of TSH.880 per trip, Routes operating under TSH.450, transport users are willing to pay average amount ofTSH.780 per trip, and the routes operating under TSH.400, transport users are willing to pay average amount of TSH.750 per trip.

Lastly, the study concluded by indicating areas for further studies in the future that inthe opinion of the researcher, they must be studies to further fill gaps observed. The conclusion part centers on the reasoning drawn from the literature review and research findings. The last part is recommendations, which give suggestions based on the results obtained.

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5.3 Conclusion

This study aimed at evaluating willingness to pay for improved public transport. Planners and policy makers in most developing countries hardly take population preferences into account, which is why it is more difficult to fulfill the desires of a given society. The above contingent valuation method through the dichotomous selection question approach and the multiple regression model used in this study can be used to integrate the company's views into planning, especially in evaluating WTP for improved public transport and what affects WTP for improved public transport.

The results generally revealed that road users are willing to pay the highest price for traveling in a more comfortable public transport trough level seat, followed by lower travel times and conducive daladala travel service condition. Higher preference is indicated for improved daladal services through comfort level seat by both road users who own private type of transport and those who use private transport; these respondents appeared to have high willingness to pay for comfort daladala services.

Mostly, several factors influence willingness to pay for improved public bus service in DSM. Passengers are more likely to pay a higher fee above that set by LATRA if travel time used on road will be reduced, if travel distance will be covered in few times period by public transport bus speed, if the bus station is near to their home and workplace, if they believe that bus is safe for children, and if they are comfortable with public transport travel condition. These findings are in line with the statement that people value the characteristics of goods, not the good themselves (Joewono 2019; Walton, et al.; 2014).
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A working conclusion is that the contingent valuation through questions use great assure. The method made survey approach easier since the expected advantages of the approach was fully realized also this survey instrument contributed in obtaining superior responses and a higher response rate than if other approach could have been used. The survey approach is found to be most appropriate and effective to use in cases of hypothetical alternatives, particularly a in the context of a developing country with a moderate proportional of literate population.

5.4 Recommendation

Based on the findings and conclusion made by the study, the following recommendations have been made by the researcher so as to improve transportation services in DSM City.In order the government of Tanzania to increase the use of public bus transport, the Government must reduce transport by private vehicles through addressing strong efforts on continuing improving the public bus service quality. In doing marketing of such improved service, the residents' socioeconomic and demographic as well as some travel attributes must be considered.

The government through improved improving bus will now solve many transport problems in DSM such problems are road traffic congestion since improved public transport will shift private vehicle users to public bus transport hence roads will remain with few vehicles. Public bus overcrowding will also be eliminated, public bus overloading, road infrastructure damages caused by bus overloading and extra.

The government should ensure that BRT and other project relating with public transport in most famous places in the city are of level seat operation this will reduce
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the increase of road traffic congestion because the more the use of public transport the less the use of private transport. Therefore UDA-RT that operate BRT in DSM under Surface and Marine Transport Regulatory Authority (LATRA) should make sure that in some famous places of the city center are set with dragon buses operating under level seat or reasonable holding capacity of passengers that create comfort ground to the public transport users.

The findings show that in general, the DART system has helped to improve the quality of life for the people along the current corridor (Phase I). This is through the reduction in travel times, congestion, and accidents. However, the current routes are not enough, the government through DART Agency should implement the remaining phases soon so that all people in the city enjoy improved public transport service since other people in some areas are still relying on daladala transport system. BRT also assures the improved quality of air, thus spreading the network across the city will stimulate the improvement of living standards to all residents in the city.

 The government should plan to have public transport vehicles that are special for children, elders and disabled people's or public transport vehicles with conducive environment in supporting these groups. This will change the attitude of road users on daladala and public transport operation condition in general. In doing so, public transport in Tanzania mainly in DSM will be of international standards. Findings shows there are poor fare payment and verification systems, this might probably cause the loss of revenue and raise the threat of fraudulent at the system. The government must rethink to involve automated fare payment and ticket verification system to avoid risks of loss of revenue but also to improve passengers traveling :

time by saving wasted time at fare verification. The use of the smart card or paperless fares is recommended by the study.

5.5 Policy Implications

The significance of factors that affecting WTP for improved public transport in modal choice decision making of commuter buses suggests that the LATRA would pay more attention and consider these attributes important when provid¬ing guidance in supervising public transport service in DSM and other cities in Tanzania. However, when implementing improved public transport, priority and particular attention should be given to the order of importance of the attributes for effective delivery of high-quality public transport service.

The results of the study indicate that when respondents were asked if they were willing to pay for better public transport, they all accepted and considered the importance of some variables related to the future improvement of daladala service through level seating. In such a case, such variables are placed as a premium on comfort (passengers per seat), followed by faster travel times, reasonable transport prices, daladala safety for the disabled and children. There were some variances based on willingness to pay amounts with regard to public transport improvements.

Respondents who own a private car are willing to pay a higher fare for an improved daladala transport service if the service provided is suitable for the disabled and their children, while other respondents who do not own their private transport are willing to pay a moderate fare for better transport. Such understanding can be incorporated into the planning process to help planners make better recommendations and

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operators to make appropriate investment decisions to provide a daladala service that is more attractive to the public.

Generally, planners and decision makers should handle travel time, daladala comfort travel services through level seat and moderate transport fare, carefully given their high significance on affecting WTP among respondents. Also, planners must consider that Dar-es-Salaam's population is dominated by low-, moderate- and higher-income earners. Only through providing transport services characterized by better comfort, lower travel times, and lower travel fares will the proposed improved public transport through level seat be sustainable and attractive to its prospective users.

5.6 Limitation of the Study

In undertaking this study, the researcher faced with the following challenges; The first challenge was the time bound, as we know time is also a scarce resource hence brought challenges on carrying out intensive and extensive study thus because some of the information were not easily and quickly available. Also, another limitation was methodology employed; hence the change of this methodology would affect the overall results of the study. Also, the methodology involved setting of amounts (Bids) that requires standard basement hence diversification of respondent's,

5.7 Areas for further Research

According to the findings from this study, the following areas need further researches. By considering to the nature of the findings, further research can be carried out on valuing willingness to pay for improved public transport through full :

air-conditioned commuter buses in DSM. This is because since DSM is the fast-growing city in Tanzania then as people improve the requirement of more luxury commuter buses increases.

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APPENDICES

APPENDIX 1: QUESTIONNAIRE FOR ROAD TRANSPORT USERS IN DAR ES SALAAM

Dear Respondents,

My name is **KASSIM KASHINDYE DACHI**, a student at Open University of Tanzania pursuing Master's Degree of Businesses Administration in Transport and Logistics Management (MBA T-LM). I am conducting this study as one of the basic requirements for an award of Master's Degree of Businesses Administration in Transport and Logistics Management (MBA T-LM) of The Open University of Tanzania. Below is a list of questions intended to collect information only for academic purposes on the study entitled, *"Valuing Willingness to Pay for Improved Public Transport. A case of Dar es Salaam Tanzania"*. You are kindly requested to take your time to fill this questionnaire according to the level of your experience and skills. I guarantee maximum privacy of the information you provide and I would like to acknowledge and appreciate your involvement on this regard towards the success of this study

Instructions:

➢ Please complete the attached questionnaire and return it accordingly.

➢ Do not write your name anywhere in this paper.

➢ For multiple-choice questions tick only the chosen item(s) and for explanations questions, the space to fill in is given below where you are required to write.

➢ Tick **(√)** the appropriate answer in the box opposite to the correct answer OR explain briefly as per instruction of the respective question.

Thank you in advance for your cooperation.

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TRANSPORT USER'S BACKGROUND INFORMATION

(Fill the required answers in provided boxes)

AGE (YEARS)

SEX

MARITAL STATUS ☐ SINGLE ☐ MARRIED ☐ DIVORCED ☐

TRANSPORT USER'S JOB DESCRIPTION

(Put a tick in a box with your respective answer)

EMPLOYED IN GOVERNMENT ☐ SELF EMPLOYED ☐

OTHER TYPE OF EMPLOYMENT ☐

TRANSPORT USER'S EDUCATION LEVEL

(Put a tick in a box with your respective answer)

PRIMARY EDUCATION LEVEL

SECONDARY EDUCATION   O, LEVER ☐

HIGH SCHOOL ☐

COLLEGE

UNIVERSITY

TRANSPORT USER'S   VEHICLE OWNERSHIP DESCRIPTION

S/No	ITEM	TOTAL NUMBER AVAILABLE
1.	PUBLIC VEHICLE	
2.	PRIVATE VEHICLE	
3.	TRUCKS/ OTHERS	
4.	NON OF THE ABOVE	

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USER'S MOST PREFERABLE TYPE OF TRANSPORT IN THE CITY

TYPE OF TRANSPORT	PUT A TICK IN THIS BOX
PUBLIC TRANSPORT (DALADALA)	
PRIVATE TRANSPORT	

Qn. Why do you prefer that type of transport you have mentioned above?

i)

ii)

iii)

Qn. If you don't prefer any of the above tell us why?

i)

ii)

iii)

DICHOTOMOUS CHOICE QUESTIONS

1)   In the daily basis of your activities (example going to working place) what transport type you always prefer? (*Put a tick in a box with your respective answer*).

Daladala ☐   BRT (mwendo kasi) ☐   Own private car ☐

2) Did you ever use Daladala   in one among days when going to your working place? (*Put a tick in a box with your respective answer*).   Yes ☐   No ☐

3) How much time in minutes did you spend using that type you have selected?

4) How many kilometers did you covered when using that type you have selected?

5) If yes how much did you paid as transport fare per trip? (*Put a tick in a box with your respective answer*).TSH 750 ☐   TSH 500 ☐   TSH 450 ☐   TSH 400 ☐

6) If you traveled with daladala what was the travel condition did you faced? Few standees ☐   Many standees ☐   No customer care ☐   Not safe for children ☐ Overcrowded ☐   poor cleanliness ☐

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7)   If you traveled with daladala what was the service condition did you faced?

Too bad ☐ Bad ☐ Normal ☐

8)   If you traveled with BRT (Magari ya Mwendokasi) what was the service condition did you faced? Bad ☐ normal ☐

9)   Are you willing to pay for improving that travel condition you faced in daladala through introduction of level seat? Yes ☐   No ☐

10)   How much are you willing to pay for improving public transport through level seat (here routes have grouped according to the transport fare set by LATRA)

If you traveled with daladala and paid transport fare of TSH 750, then how much amount in TSH are you willing to pay for improving travel condition you faced in daladala through introducing level seat? .(choose a letter with a correct answer).

A.   I am willing to pay TSH 1000

B.   I am willing to pay TSH 1200

C.   I am willing to pay TSH 1400

D.   I am willing to pay TSH 1500

If you traveled with daladala and paid transport fare of TSH 500, then how much amount in TSH are you willing to pay for improving travel condition you faced in daladala, through introducing level seat? .(choose a letter with a correct answer).

A.   I am willing to pay TSH 800

B.   I am willing to pay TSH 1000

C.   I am willing to pay TSH 1200

D.   I am willing to pay TSH 1300

If you traveled with daladala and paid transport fare of TSH 450, then how much amount in TSH are you willing to pay for improving travel condition you faced in

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daladala, through introducing level seat? .(choose a letter with a correct answer).

A.   I am willing to pay TSH 750

B.   I am willing to pay TSH 800

C.   I am willing to pay TSH 900

D.   I am willing to pay TSH 1000

If you traveled with daladala and paid transport fare of TSH 400, then how much amount in TSH are you willing to pay for improving travel condition you faced in daladala, through introducing level seat? .(choose a letter with a correct answer).

A.   I am willing to pay TSH 700

B.   I am willing to pay TSH 800

C.   I am willing to pay TSH 900

D.   I am willing to pay TSH 1000

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APPENDIX II: RESEARCH CLEARANCE LETTER

THE OPEN UNIVERSITY OF TANZANIA

DIRECTORATE OF POSTGRADUATE STUDIES

P.O. Box 23409
Dar es Salaam, Tanzania
http://www.out.ac.tz

Tel: 255-22-2668992/2668445
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E-mail: dpgs@out.ac.tz

REF: PG 202000582

2nd July, 2022

Managing Director,
Land Transport Regulatory Authority,
P. O. Box 3093,
DAR ES SALAAM.

RE: RESEARCH CLEARANCE

The Open University of Tanzania was established by an Act of Parliament No. 17 of 1992, which became operational on the 1st March 1993 by public notice No.55 in the official Gazette. The Act was however replaced by the Open University of Tanzania Charter of 2005, which became operational on 1st January 2007. In line with the Charter, the Open University mission is to generate and apply knowledge through research.

To facilitate and to simplify research process therefore, the act empowers the Vice Chancellor of the Open University of Tanzania to issue research clearance, on behalf of the Government of Tanzania and Tanzania Commission for Science and Technology, to both its staff and students who are doing research in Tanzania. With this brief background, the purpose of this letter is to introduce to you **Mr. Kassim Kashindye Dachi, No: PG202000582** pursuing **Master of Business Administration in Transport and logistics Management.** We here by grant this clearance to conduct a research titled "**Valuing Willingness to Pay for Improved Public Transport: A Case of Commuter Buses in Dar es salaam.**" He will collect his data in your office between 4th July to 4th August 2022.

In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) of the Open University of Tanzania, P.O. Box 23409, Dar es Salaam. Tel: 022-2-2668820. We lastly, thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours Sincerely,

Prof. Magreth S. Bushesha
For: VICE CHANCELLOR
THE OPEN UNIVERSITY OF TANZANIA

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