

## Analysis of Mobility Pattern and Challenges of Transportation Needs of the Elderly in a Fast Growing City in Nigeria

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### Abstract

Unprecedented growth of ageing population may not be of concern as much as unpreparedness of developing countries to recognized the phenomenon and provides for the mobility needs to sustain them. In Nigerian, about 8% of the population are over 65 years and expected to increase 14% next ten years, arising from increase in longevity and declining birth rates, thus increasing challenges of demands on country's transportation systems. Elderly gradual alienation from use of public transport leads researchers to getting more concern about challenges of their mobility. Understanding the pattern of elderly mobility may assist transport planners in providing for their mobility. This paper focuses on pattern elderly mobility in a developing country, using a fast growing city as case study and identifies most important determinant of satisfaction level of elderly use of existing transport services. The study is part of travel survey of a fast growing city in Nigeria, using structured questionnaire as survey instrument. 556 questionnaires administered on 65 years old and over were completed out of 720 respondents were excised for analysis presented in this paper. The main findings show that the frequent mode are by taxi and commercial motorcycles; the latter not only more expensive but also uncomfortable, very unsafe though ubiquitous, readily available and accessible. The multiple regression analysis employed quantitatively ascertained that inconveniences of use of public transportation is the most important determinant of factors influencing level of satisfaction in use of transport services provided. The study notes urban land use planning must integrate functional public transport system towards addressing mobility crisis of the elderly and social system must support elderly to financially cope with increasing cost of transportation with a view to restoring their long loss social independence and brings them to fore front of the realization of their mobility needs.

**Keywords:** Elderly, Mobility, Commercial-motorcycles, Public-transportation.

### INTRODUCTION

In the recent past, the ageing population group is on the rise and it is one of the most distinctive demographic phenomenon in this century is the increase in the ageing population and which is causing a great concern (UN, 2002). UNFPA (2002) noted that in 1950 there were 2005 million older persons and this increased more than three folds in 2000 and is expected to reach 1.2 billion by 2025. The unprecedented growth of the ageing population may not be of concern as much as unpreparedness of developing countries to recognized their phenomenon and provides for the mobility needs to sustain them. This is more so in the recent past, all sorts of non-conventional public transport mode are being introduced into the city imagine would just surface on the road, as long as it is registered with the local government vehicle registration agency. Indeed this was how commercial motorcycle emerged and later followed by three-wheel auto-rickshaw. There are mini-buses of over fifteen different dimensions and types in several cities across the country and this is the pattern in most cities in Africa. The issue here is that there is no specific standard of which vehicle could used for public transport

in the cities; as long as commuters are willing to jump into, in case of four or three wheel vehicle or on it in case of two wheel motorcycle. In a situation where commuters are desperate to get to work and return home by all means, it is a field day for providers of such services in the cities. Before long the providers form association and become pressure group for recognition by the government. Sooner, they are often more or less legitimised (See Ikya, 1993; Oyesiku, 2000).

The emergence of these modes of public transport and their absorption into the transport system in the cities are not unconnected with the pressure created by rapid population growth of the cities on transport infrastructure and services, which are so great that decline in quality and quantity of the provided services, are inevitable and uncertain. A common observation of this scenario is gradual alienation of the elderly on the public transport system. Some recent studies aptly observed decline in the number of the elderly people making use of the cities' public transport system. This is not because of fewer members of the populace are getting older. Indeed the reverse is the case as the life expectancy of the people increase so does the increase in the proportion of the population getting older. What is responsible for this observation is yet to be subjected to detailed study. Are the elderly in the cities just walking away from the public transport services or are they having alternative mobility? What are the challenges this important segment of the city population is having in respect of their mobility? Despite recent improvement in the cities' transport infrastructure, particularly expansion of road and planned injection of light rail services into the transport system in many countries in Africa, is their systemic progress to specially consider this group of city commuters in transport planning schemes? Understanding the pattern of mobility of the elderly, the extent to which the existing transport services provided meet their needs may assist city transport planning in providing for their daily mobility.

The literature is replete on sustainable transport development, which refers to provision of the means of transport to all categories of people with a view to saving and promoting healthy life style. Transport sustainability highlights the need to ensure limited proportion of income is spent on transport, high level of accessibility and service quality, transport system diversity, high quality of mobility for people with special needs, lower accident rates, transport system performance, good road quality, and availability of transport user information (Kamata and Shino, 2006; Alsnih and Hensher, 2003). Thus, good transport system is expected to be sustainable to support the livelihood of not only the growing population but that of the people with special needs such as the elderly. With the increasing population of the aged both in developed and developing country, the demand for mobility for this special group of people is becoming an excess, this because of the special needs considering the constraints they have in moving around for their daily activities. Hakameies-Blomqvist (2003), Oyesiku (2002), and Metz (2000) independently noted that the elderly are high risk group within all transport mode environment and susceptible to high rate of severe injuries and deaths. However, compared with the industrialized countries where special provisions are made for the mobility of the elderly, in most developing countries this is not so as the basic transportation system are inadequate for everyday travel needs of most people (OECD, 2001; (Oyesiku and Odufuwa, 2002). Alsnih and Hensher (2003) remarked that given the correlation between age and mobility impairment, catering for mobility needs of the elderly becomes an increasing important challenges for all stakeholders and that for the ageing population in particular transport services must be available, accessible, affordable, acceptable and safer for the elderly and other transport users.

What seem missing, based on the brief review of some works on the subject matter, and are the specific challenges of mobility in developing countries, including the study area. Although, Stahl (1984) highlighted general problem associated with elderly to include distance from homes and residence to bus stops, slippery pavement, lack of shelter and seats, difficulties relating to exiting or entry public transport such as high steps and difficulties in relation to public bus drivers not announcing when bus stops and bus departure from stops before persons are safely seated, the situation in sub-Saharan African countries is not very clear. Though, Odufuwa (2006; 2008; 2010), also attempt to capture the general perspective of the transport system in these countries in relation to the mobility of the elderly by stating that the scenes are awful due to the deplorable state of operations of the public transport service and that the road based transport system are beleaguered with high caring units that are old and poorly designed, inadequately maintained, dangerously overcrowded and highly undependable.

In relative developed countries in Europe, North America and Asia attempts have been made to minimized mobility gap between the younger and older population by ensuring that the transport systems are user friendly by everyone and introduction of development initiative like low floor buses to ease getting on an getting off and provision of specialized transport programs for older citizen such as door-to-door services on request, reduce fares to the elderly and the pensioners and more importantly a free travel scheme for those above 70years (Ekpenyong et. al, 1987; Andrew, 2000; Rosenbloom, 2004). In many developing countries, the development trend of mobility needs of elderly is to yet to ensure provided transport system are reliable, safe and affordable that will enhance mobility of the ageing population in the cities.

This paper focuses more on the pattern of mobility of the elderly in a developing country using a fast growing city as case study. The paper highlights specific problems of the elderly in making use of the transportation system and identifies the most important determinant of level of satisfaction or otherwise of elderly use of the existing transport services provided. The paper is in three sections including this introduction. Second section presents the methodology of the study, while section three presents the pattern of elderly mobility and quantitatively analyse the determinant of their mobility.

### **MATERIALS AND METHODOLOGY**

The city of this study Abeokuta which is the capital of Ogun state, is located in the south-western part of Nigeria with a population of about 450, 000 in 2014, which was an increase about 100,000 from the last census conducted in 2006. The state where the city is located is sandwich between two metropolitan cities in the country which are Lagos with an estimated population of about 15million in 2014 and Ibadan with an estimated population of about six million in the same period. The importance of the state and the selected city of the study is that it accommodates the spill over effect of the growing population from the two metropolitan cities, but unlike the two cities it does not share much of the congested and unplanned pattern of developmental infrastructure. The city under consideration also have the ambient environment to accommodate a significant proportion of those who have worked and retired from active and public services from the two metropolitan cities. Thus, it has increasing population of the elderly. It is important to note that for these reasons, it is much quiet and civil service oriented status and doesn't share much transport challenges of the overall populace to the extent that a significant proportion of those working in those two metropolitan cities are living in Abeokuta.

The instrument of data collection is a structured questionnaire that has three distinct sections. The first section enquires about respondents' socio demographic profile such as age, gender, marital, educational status, employment/occupation and yearly income of respondents. The second section of the questionnaire request from the respondents their mobility characteristics such as vehicle ownership, when they stop driving, reasons for stopping to drive owned vehicle, frequency of travelling for week, purpose of travelling and mode of trips frequency. The third section attempted inquires on the respondents mobility challenge such inquire include but not limited to the general problem encountered when making general trips from home, specific problems of using public transport as alternatives to their personal owned vehicle. In addition, they were requested to evaluate overall quality of transport services provided within the city of their residence. The quality of transport services include availability of transport services, accessibility to the transport services, time taken for transport services, the extent of care by the public transport drivers, comfort in terms of the seats in vehicle and the level of cleanliness and security while using transport services, particularly how safe to ride on the available mode of transport. It is important to note that the overall level of satisfaction of transport services indicators are adapted from various sources, including: Rhoades and Waguespack (2005); Oyesiku, et.al (2009); and Sheeba and Kumuthadevi (2013). Thus, usual five dimension of service quality of reliability, assurance, tangibles, responsiveness, and empathy were modified. However, usual five point Likert scale format ranging from strongly unsatisfactory (dissatisfied) to strongly satisfactory (satisfied).

The study adopted purposive sampling method, a non-probability sampling technique. This method is adopted based on the fact that only particular set of respondents, those who are elderly, were able to respond to the issues highlighted on the questionnaire (Babbie, 1998; Okoko, 2006). For the analysis, the data extracted rely on descriptive statistics to describe the pattern of observation using simple percentage.

### **FINDINGS AND DISCUSSIONS**

The summary of the variables extracted from the questionnaire are in three parts, namely: socio-economic and demographic profile of the respondents; their mobility characteristics; and their mobility challenges. The main findings of the data collected in respect of the first part shows that significant proportion of the respondents is above 70years. Others are between 65 and 70 years. Most of them are female and widowed, while only about 22% are still married (see Table 1). This pattern is expected considering the fact that in the study area environment, the female outlive their male counterparts and given that the life expectancy is 52 years by the latest available records. Though the demand for mobility by the elderly has no gender difference, it is expected that more female will face more mobility challenges.

The other aspect of socio demographic profile is related to economic and educational background. Most of the respondents have formal education with about 70% considered to be literate, who can read and write, with as high as 40% having either Bachelors' or Masters' degree and only 12% had no formal education. In support of relatively educated status of the respondents, about 70% of the respondents are in one form of employment or the other, while others are retired and not engaged in any form of employment (See Table 1e). Indeed, about 40% of the respondents those who are even retired are also engaged, indicating that they require mobility in one form or the other in whatever they are engaged in. In furtherance to this, less than a quarter of the respondents are not in any form of employment or occupation, while as high as 60% are engage in business and consulting services, though the nature of the business are many and varied usually small scale business and because majority of the

respondents are female, it is expected that they are into small scale and petty trading (see Table 1f).

In terms of their income status, it is expected that most of the respondents being elderly would be on their pension. About 40% earn as low as about N200,000 (about two hundred thousand Naira local currency or \$1,200 – one thousand two hundred dollars per year). Others, close to 50% earn about \$2,000 per year. In the study area, as in many developing countries, monthly minimum wage per month is about \$100 (one hundred dollars) or less. However, it is also noticeable that almost 60% of monthly income is spent on transportation across all age groups, and in a situation where there are no subsidies from government or public authorities, this portends to be a significant impairment to mobility for this group of population and therefore may likely contribute to their low demand for transportation.

The second aspect of the study data findings is as presented in Table, which illustrates mobility characteristics of the elderly respondents interviewed. The (a) section shows that at least 90% of them at one point in time or the other owned their personal vehicle but by the same margin no longer drive their once owned vehicle (see Table2(b)). Most of them stopped driving as early as when they were about 66years old or even younger. The reasons given for having to stop driving were that of very poor road infrastructure and associated inability to maintain personal vehicle. Obviously, poor quality road infrastructure, including poor maintenance of existing roads and lack of drainages often lead to high cost of maintenance of vehicles.

Table 2 also show telecommunication accessibility, represented by telephone ownership, which is considered is vital as an indicator of alternative means of communication for interaction. With increasing in age and at old age and diminishing income, it is often difficult to maintain personal vehicles and therefore access to telecommunication enhances personal interaction. In this study, at least over 80% of the respondents owned a telephone line which can serve as alternative to physical contacts.

The three other mobility characteristics examined are frequency of travel, mode and purpose. The pattern of these as shown in Table 2 is to the extent that most of the respondents, 74% made between 1-5 trips per week from home to other destinations for one purpose or the other. It is not surprising that most of the trips made were for family visits (34%) and medicals (32%). Next to these were for religious purposes either going to churches or mosques either going for one activity or the other. What is interestingly clear from the study as shown in Table 2(g) is that work trips is the least, indicating that most of the sampled respondents, the majority, are at home being actually retired but engaged and run one form of business or the other doing so from home. By implications, they hardly go out from home other than for tangible medical services and visit members of the family. It is important to note that family visit usually ensured that returned trip back home is guaranteed by a member of the family, who often usually oblige to take the visitor back home. The study also shows that the frequent mode is by taxi and commercial motorcycle. The taxi is not only more expensive but comfortable and safer, in contrast to commercial motorcycle that is very unsafe though ubiquitous, readily available and accessible. However, those who often made their trip by commercial motorcycles, more often, do not have alternative choice as the available taxis do not ply most routes. More importantly, because of nature of the poor road infrastructure and the taxis mode of transport do not also provide door-to-door services.

The third aspect of the findings is as presented in Table 3, showing the general challenges of the mobility of the sampled elderly respondents and specific problems encountered in making trips. The pattern shows the widely known problems of making trips by the elderly, which is waiting for too long for public transport either for the taxi or the commercial motorcycle mode. However, what is more interesting is that a significant proportion of the respondents (28%) indicated recklessness of the public transport drivers, which is not unconnected with observed lack of quality and good roads or road infrastructure. Obviously, with old age, there is great inconvenience in making trips in vehicles that manoeuvre or avoid potholes or stagnant water or avoid broken down vehicles in the middle of the road. The taxis and commercial motorcycles drivers also often move too fast as possible and imagine this on an un-surfaced and uneven earth surfaced roads. Of note are the two other problems identified: long distance to public transport bus stops or locations (18%); and general inconvenience in the use of public transport (12%). This latter identified group of problems are also specifically highlighted as more or less the same affecting elderly daily mobility in the study area.

The study also seeks out from the respondents the overall evaluation of level of contemporary transportation services available to the elderly. Going by the earlier responses to the general challenges the respondents revealed with respect to the use of public transport in the study area, expectedly about 80% indicated that they are either strongly unsatisfied or unsatisfied with transport services in general (see Table 3 section (c.)). Their evaluation is not surprising considering the fact that availability and reliability of transport services is poor, thus not meeting their specific mobility needs. Moreover, the waiting time and long distance to public transport location are highly inconvenience resulting to unhealthy well being of the elderly, which is a reflection of poor supply of both conversional and para-transit public transport services. Odufuwa (2006) aptly noted that poor state of public transport provisions particularly the non-motorized vehicles that often exposed the elderly to different transport externalities are indicators of poor accessibility and significant constraints of the mobility needs of the elderly.

### **QUANTITATIVE ANALYSIS**

In addition to the descriptive pattern of the socio-economic profile of the respondents, their mobility characteristics and mobility challenges, it is important to quantitatively analyse which among the variables selected account for the variation in the level of evaluation of the quality service of transport services provided for the elderly in the study area. To this end, fifteen variables were selected from the array of responses extracted from the questionnaire for the multiple regress analysis. The variables source, label code and operational definition for basic socio-economic and demographic characteristics of respondents and the determinants of quality level of satisfaction of transport services relationship analysis are shown in Table 4. The former group of variables are the independent variables, while the latter is the dependent variable.

For the purpose of reliability and validity estimation of the variables before the multivariate analysis, correlation coefficient analysis was undertaken based on the pilot survey from the study. The results showed very limited multi-collinearity, a violation of which would normally have informed a further reliability and validity test buy computing Cronbach's Alpha coefficient test, and in particular factor analysis. As reflected in the actual results of the eventual correlation analysis based on the questionnaire survey, only few variables were having very high correlation coefficients (See Table 5) implying a confirmation of the validity test. On the basis of this observation, the data extracted were subjected to main statistical analysis of multiple regression to determine the combine and relative importance of the

predictors in explaining the criterion (i.e. evaluation of level of satisfaction of the transport services by the respondents).

The zero order correlation analysis results is as presented in Table 2 in respect of both the dependent and independent variables. The correlation analysis result shows that only very few variables have very high correlation coefficients' between and among them. For instance, the highest correlation coefficient of about 0.60 obtained is between the dependent variable and problems of using public transport. Against this backdrop of the relatively few very high correlation coefficient among the variables as shown in Table 5, it is safe to go ahead with the multiple regression analysis model application.

The results of the major output of multiple regression that include the model summary, the analysis of variance table of test of significant of the model, and more importantly, the unstandardized coefficient as well as the T-values and their significance are all combined as presented in Table 6. The multiple regression coefficient, particularly the R<sup>2</sup> is 0.62, reflecting that about 66% of the variation in the level of satisfaction in the quality of transport services used by the respondents is explained by the independent variables combined, i.e. the predictors. This level of explanation has an analysis of variance of the model of F ratio value of 17.96, which is statistically significant at 0.001 (see Table 6). In other words the predictors combined explain significantly the level of satisfaction in the quality of transport services used by the respondents. However, in terms of the relative importance of the individual predictors in the model, only two of the variables are statistically significant, namely: income status of the respondents and the inconveniences or the problems encountered in the use of public transport service. Perhaps the most important of the statistically significant predictors is the latter. Those with higher income possibly are those who have access to their owned vehicles or do not make much use of public transport and therefore negatively correlated with high level of satisfaction in the use of transport services. That the problems of the use of public transport service is the most important factor of the determinant of the level of satisfaction in the quality of transport services use may not be too surprising. The explanations have the earlier advanced, ranging from distance to public transport bus or taxi stops to waiting for too long for the available public transport and poor state of the roads and their infrastructure. It is just surprising that the often adduced reason militating mobility among the elderly such as visual or sight impairment and physical disability are so statistically significant in this study.

## CONCLUSIONS

The study has shown declining capacity of the elderly in the study area to drive as a result of poor transport infrastructure and the state of the public transport services. Their challenges are further compounded by lack of access to basic transport services arisen from the poor road infrastructure, poor transport road design and inadequate road infrastructure and services. The available road based commercial motorcycles and auto-rickshaw are not only unsafe but also uncomfortable that continuously had to mobility stress of the ageing population (we must not however be mindful of ubiquity of these modes of public transport, mostly used as taxis, which officially take two or three passengers, but often accommodate four to five in an uncomfortable ride. One more benefit, these modes of taxis are available in remote places and villages that even in the smallest villages there is someone familiar with the vehicle's uncomplicated mechanics). The road based transport, which is the only mode of transport in the city under consideration, is also not suitably designed for the elderly as the signage and lighting signals could not match their state of physical and mental health.

Furthermore, public transportation motor parks do not have wheel chair or any other mobility ramp access facilities for physically challenged. The lack of coordination among transportation service providers, even for the younger segment of the population, led to incessant increase in transportation fares and inability of the elderly to pay for the available mode of transportation. Indeed, most sampled elderly are virtual prisoners in their homes and communities and because of their loss of social independence; they are relatively depressed due to increasing realization of their need for mobility.

In the fast growing city that has potentials for effective urban land use physical planning which can integrate functional public transport system addressing mobility crisis of the elderly must include establishing effect public transport system. More so, that majority of the elderly are not driving their own vehicles. It is not out of place to support the elderly financially to cope with the increasing cost of transportation as it is done in industrialized society; this is with a view to restoring their long loss of social independence and brings them to the four front of the realization of their needs for mobility. In addition, developing safer transport infrastructure along with well coordinated transport mode may promote greater mobility and safety for the elderly.

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**Table 1. Socio-Economic and Demographic Profile of Respondents**

<b>(a) Age Structure</b>		<b>(e) Employment Status</b>	
<b>Age Group</b>	<b>%</b>	<b>Employment category</b>	<b>%</b>
65 -70 years	30.0	Full- Time Work	12.0
71 years and Above	70.0	Part-time Work	18.0
Total	100.0	Retired but engaged	40.0
<b>(b) Gender Structure</b>		Retired not Engaged	30.0
<b>Gender</b>	<b>%</b>	Total	100.0
Male	35.0	<b>(f) Occupational Status</b>	
Female	65.0	<b>Occupational Category</b>	
Total	100.0	<b>%</b>	
<b>(c.) Marital Structure</b>		Not in any Employment	23.0
<b>Current Marital Status</b>	<b>%</b>	Government Contract Worker	6.6
Married	22.0	Business	57.1
Divorce	10.0	Consultant `	3.3
Widow	56.7	Politician	6.6
Single	11.3	Religious leader	3.3
Total	100.0	Total	100.0
<b>(d) Education Status</b>		<b>(g) Yearly Income status</b>	
<b>Educational Structure</b>	<b>%</b>	<b>Income Group</b>	
No formal Education	12.3	<b>%</b>	
Primary School Certificate	15.2	Below 200,000	<b>40.0</b>
Quranic Education	3.3	201,000-250,000	<b>23.3</b>
Ordinary Level certificate	30.2	251,000-300,000	<b>16.6</b>
Bachelors Degree	33.8	351,000-400,000	<b>13.3</b>
Masters' Degree and above	5.2	Above 400,000	<b>6.4</b>
Total	100.0	Total	<b>100.00</b>

**Source: Authors' Survey Extract, 2014.**

**Table 2. Mobility Characteristics of the Respondents**

<b>(a) Ever Owned and Driven Personal Vehicle</b>		<b>(e) Telephone Ownership and Networks in Use</b>	
<b>Ownership status</b>	<b>%</b>	<b>No of Phone lines in Use</b>	<b>%</b>
Yes	90.3	1	83.3
No	9.7	2 or more	16.7
Total	100.0	Total	100.0
<b>(b) Currently Driving Owned Vehicle</b>		<b>(f) Frequency of Trips per week</b>	
<b>Driving Status</b>	<b>%</b>	<b>Frequency</b>	<b>%</b>
Yes	9.6	1 – 5	73.5
No	90.4	6-10	23.3
Total	100.0	More than 10	3.2
<b>(c.) Period When Stopped Driving</b>		Total	100.0
<b>Period</b>	<b>%</b>	<b>(g) Purpose of Trips</b>	
Less than 1year	3.8	<b>Purpose</b>	<b>%</b>
1-3years	11.5	Religious (visit to Church/Mosque)	19.5
4-7years	34.7	Recreation	6.6
8 years or more	50.0	Medical	30.7
Total	100.0	Family visit	33.3
<b>(d) Reason for Stopping to Drive Owned Vehicle</b>		Social	6.6
<b>Reason</b>	<b>%</b>	Work and Others	3.3
Lack of good road or road infrastructure	30.6	Total	100.0
Lack of funds to maintain personal vehicle	26.8	<b>(h) Mode of Frequent Trips</b>	
Visual or sight disability	20.1	<b>Mode</b>	<b>%</b>
Old age or physical disability	22.5	Taxi	63.7
Total	100.0	Commercial Motorcycle	24.6
		Mini-Bus	8.7
		Trekking or Walking	3.0
		Total	100.0

Source: Authors' Survey Extract, 2014

**Table 3. Challenges of Mobility**

<b>(a) General Problems Encountered When Making any Trip</b>	
<b>Problem Category</b>	<b>%</b>
Drivers' Recklessness	20.8
Distance to public transport bus stop/station	18.3
Inconveniences using public transport	12.5
Waiting for too long for public transport	31.7
Total	100.0
<b>(b) Specific Problems of Using Public Transport</b>	
<b>Problem Category</b>	<b>%</b>
Reckless driving by Drivers	17.8
Too many incompetent drivers	5.4
Bad Roads	39.7
Too many road unworthy vehicles	4.5
Waiting for too long at motor packs or bus stops	13.8
General lack of transport facilities	5.4
High transport fares	3.6
Congestion	9.7
Total	100.0

<b>(c.) Evaluation of Overall Quality Level of Satisfaction of Transport Services</b>	
<b>Level</b>	<b>%</b>
Strongly Unsatisfied	62.1
Unsatisfied	15.4
Satisfied	18.0
Strongly Satisfied	4.5
Total	100.0

**Source: Authors' Survey Extract, 2014.**

**Table 4: Variables Source, Label Code and Operational Definition for Basic Socio-Economic and Demographic Characteristics of Respondents Determinants of Quality Level of Satisfaction of Transport Services Relationship Analysis**

<b>S/N</b>	<b>VARIABLE (DATA SOURCE) DESCRIPTION</b>	<b>VARIABLE LABEL CODE</b>	<b>VARIABLE DEFINITION</b>	<b>OPERATIONAL</b>
1.	Gender	GDR	Dichotomous (dummy): 0 = Male 1= Female	
2.	Marital Status	MRT	Dichotomous (dummy): 0 = Widowed; 1 = others - Married or living with a partner	
3.	Educational Background	EDB	Continuous (no of years in formal learning)	
4.	Employment status	EMP	Dichotomous (dummy): 0 = Engaged in Fulltime/part time Employment even at retirement; 1 = others	
5.	Occupational Status	OCP	Dichotomous (dummy): 0 = Government or civil or public servant; 1 = others	
6.	Income	INC	Continuous	
7.	Ownership of Vehicle	OWN	Dichotomous (dummy): 0 = Yes; 1 = No	
8.	Driving Status of Owned Vehicle	DWV	Dichotomous (dummy): 0 = Yes; 1 = No	
9.	Period since when stopped driving	PSD	Continuous	
10.	Telecommunication accessibility	TEL	Continuous	
11.	Purpose of Trip	PTP	Dichotomous (dummy): 0 = Work or recreation; 1 = others	
12.	Mode of trip making	MOD	Dichotomous (dummy): 0 = Conventional taxi or mini-buses; 1 = others	
13.	Physical Disability	PDY	Dichotomous (dummy): 0 = Loss of Eye sight and physical immobility; 1 = others	
14.	Inconveniences or Problems of Using Public Transport	PUT	Dichotomous (dummy): 0 = Waiting too long for public transport service, Bad roads and Reckless driving by drivers; 1 =others	
15.	Level of satisfaction	LSF	Dichotomous (dummy): 0 = Strongly or just satisfied; 1 = Strongly not satisfied or just not satisfied	

**Table 5: Results of Correlation Analysis of Zero-Order Matrix of Basic Socio-Economic and Demographic Characteristics of Respondents and Determinants of Quality Level of Satisfaction of Transport Services Relationship Analysis**

S/N		LSF	GD	MR	ED	EM	OC	INC	OW	D	PS	TE	PT	MO	PD	PU
			R	T	B	P	P		N	WV	D	L	P	D	Y	T
1	LS F	0.0 00	- 0.3 22	- 0.2 13	- 0.2 52	0.4 21	0.3 41	0.5 90	- 0.2 17	- 0.2 36	- 0.1 18	0.5 23	0.3 30	0.1 02	0.2 21	0.5 83
2	GD R		0.0 00	0.5 44	0.3 42	0.4 18	0.3 10	0.5 22	0.1 14	0.3 02	0.3 46	0.1 32	0.4 10	0.3 12	- 0.1 15	- 0.2 21
3	MR T			0.0 00	0.5 34	0.3 30	0.2 26	0.3 17	0.4 21	0.2 45	0.4 15	0.1 57	0.5 54	0.2 20	0.1 43	0.3 01
4	ED B				0.0 00	0.6 74	0.4 31	0.7 43	0.5 41	0.1 11	0.2 07	0.3 35	0.2 14	0.3 08	0.2 32	0.4 12
5	EM P					0.0 00	0.3 29	0.1 21	0.2 91	- 0.3 12	0.4 41	0.4 22	0.3 10	- 0.4 00	0.2 55	0.3 47
6	OC P						0.0 00	0.4 07	- 0.3 31	0.2 22	0.3 97	0.5 11	- 0.2 71	0.3 38	- 0.3 34	0.2 81
7	IN C							0.0 00	0.6 51	0.3 41	0.2 49	0.6 11	0.2 31	0.5 51	- 0.2 21	- 0.4 91
8	O W N								0.0 00	0.2 27	0.3 44	0.3 19	0.2 77	0.3 60	- 0.3 41	- 0.3 82
9	D W V									0.0 00	0.2 18	0.3 14	0.3 37	0.2 88	- 0.2 10	0.1 17
10	PS D										0.0 00	0.4 33	0.0 71	0.2 10	0.2 41	0.0 13
11	TE L											0.0 00	0.3 32	0.2 64	0.3 61	- 0.1 55
12	PT P												0.0 00	0.3 39	0.1 19	0.2 44
13	MO D													0.0 00	- 0.2 17	0.3 10
14	PD Y														0.0 00	0.1 41
15	PU T															0.0 00

**Table 6: Regression Analysis Results of Basic Socio-Economic and Demographic Characteristics of Respondents and Determinants of Quality Level of Satisfaction of Transport Services Relationship Analysis**

MODEL SUMMARY						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.784	0.615	0.673	1.908		
Predictors: (Constant), Gender; Marital Status; Educational Background; Employment status; Occupational Status; Income Presently; Ownership of Vehicle; Driving Status of Owned Vehicle; Period since when stopped driving; Telecommunication accessibility; Purpose of Trip; Mode of trip making; Physical disability; Problems of using public transport.						
ANOVA <sup>b</sup>						
Model	Sum of Squares	Df	Mean Square	F	Sig.	
Regression	582.966	14	41.640	17.964	0.000 <sup>a</sup>	
Residual	1254.302	541	2.318			
Total	1261.607	555				
<sup>a</sup> . Predictors : (Constant), Gender; Marital Status; Educational Background; Employment status; Occupational Status; Income Presently; Ownership of Vehicle; Driving Status of Owned Vehicle; Period since when stopped driving; Telecommunication accessibility; Purpose of Trip; Mode of trip making; Physical disability; Problems of using public transport.						
<sup>b</sup> . Dependent Variable: Level of Satisfaction in the Quality of Transport Services Use						
Coefficients <sup>a</sup>						
S/N	Variables	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	(Constant)	5.434	0.781	-	4.834	0.000
1	Gender	0.122	0.712	0.127	0.666	0.571
2	Marital Status	0.411	0.201	0.562	0.781	0.620
3	Educational Background	1.912	0.431	0.455	0.711	0.443
4	Employment status	1.830	0.780	0.223	0.712	0.000
5	Occupational Status	1.120	0.815	0.481	0.544	0.467
6	Income	3.144	0.745	0.311	5.677	0.000
7	Ownership of Vehicle	0.190	0.121	0.231	0.266	0.172
8	Driving Status of Owned Vehicle	-0.341	0.105	-0.672	-0.819	0.816
9	Period since when stopped driving	-0.213	0.141	-0.452	-0.823	0.655
10	Telecommunication accessibility	0.114	0.151	0.710	0.6446	0.596
11	Purpose of Trip	0.180	0.825	0.717	0.453	0.392

12	Mode of trip making	1.570	0.788	0.426	0.901	0.417
13	Physical Disability	-1.237	0.785	0.341	-0.770	0.800
14	Problems of using public transport.	2.228	0.816	0.429	9.451	0.000
a. Dependent Variable: Level of Satisfaction in the Quality of Transport Services Use						