World Journal of Innovative Research (WJIR)
ISSN: 2454-8236, Volume-10, Issue-5, May 2021 Pages 47-56

Determinants of Choice of Intercity Bus in South-south, Nigeria

Borlo P.B.L., Ibe C.C, Emenike G.C.

Abstract*— Bus services appear to be the most preferred and highly patronized form of Public Transportation in Nigeria. This is in spite of the inadequacies and deficiency in their operational and management strategies. Choice determinants of public transport modes, carrier, service system or operators are said to be many and vary from place to place, person to person, culture to culture. This imply the likelihood that choice determinants of Intercity Bus Service in South-south, Nigeria, may differ from those of other parts of Nigeria and the world at large. To confirm this fact, a study of 94 selected intercity bus service agencies in six capital cities of the geopolitical zone was carried out. 400 determined sample size of passengers were served questionnaire and interviewed; the researchers made some on-the-spot observation on the operational/management attributes. These and the reconnaissance survey report formed the primary data sources. 364 or 91% of the questionnaire administered were retrieved in useable form. Operational records from head offices and outstations of the Agencies; beside relevant information gotten from texts, journals and internet, constituted the secondary data. Both qualitative and quantitative methods of data analysis were used. Tables, simple percentage, Mean, frequency distribution are examples of the qualitative statistical tools. Multiple Linear Regression (MLR) was the quantitative statistical tool used in testing the Null hypothesis. It was found that fare and safety were the most influential factors in choosing Intercity Bus services in the study Area. Therefore, it was safe to conclude that an increase in safety strategies and reduction in Trip charge/fare payable would normally cause an increase in patronage of bus services; otherwise, there would be decrease. It was recommended that only healthy and suitable modern luxurious Buses; competent, experienced and responsible drivers and technicians, with well-equipped workshops and standard terminals be used.

***Index Terms*— Choice, determinants, buses..**

I. INTRODUCTION

Buses offer the most dominant form of Public Transport Carriers-which are mostly involved in commercial transport services, including the Road-based intercity passenger transportation in Nigeria (Draft National Transport Policy, 2017; Awoyemi, Ita Lawal, Dienne, Onogbeselle, 2013; Jain, 2012; Sumaila: Vandu-chikolo, Ogunsanya and Sumaila, 2004; Armstrong-Wright, 1993). Bus is a motor vehicle or automobile carrier constructed or adapted to carry more than eight seated passengers, including the driver (Lowe, 2002). Buses are of many types, including: Mini-bus (12-18 seaters); Medi-bus (20-30 seaters); single deck (40-60 seaters); Omni-bus (60-80 seaters); Double –deck (70-100 seaters); and Articulated single deck (75-150 seaters). In Nigeria and other developing nations, some of the Buses are adopted, reconfigured or reinforced for arbitrary seating capacity increase. These are done without necessarily altering the engine capacity, and so, adversely affect the lifespan, rate of depreciation and deterioration of the Buses (Vandu-chikolo, Ogunsanya and Sumaila, 2004; Armstrong-Wright, 1993).

The demand for bus service has been on the increase, with predictions that it will remain so, especially in the developing countries, like Nigeria (Awoyemi, Ita, Lawal, Dienne and Onogboselle, 2013; Aderano, 2010; Jong and Riet, 2008; Badejo and Bawa-Allah, 2000). This is moreso, in the urban centres or modern cities of the less developed nations (Yusuf, Gbadamosi and Ojekunle, 2014; Yusuf, Odumosu and Odeleye, 2013; Oni, 2010; Sumaila: Vandu-Chikolo, Ogunsanya and Sumaila, 2004; Ikya, 1993). Modern cities are nerve centres of industry and commerce; socio-cultural and political activities. This is the more reason the cities should be as accessible and motorable as necessary (Yusuf, Gbadamosi, and Ojekunle, 2014; Ndikom, 2008; World Bank, 2002; Ikya, 1993).

Perhaps, the sparse and uneven distribution, endowment and the location of the people, goods and services across geopolitical entities explain in part, the need for intercity travels (Hain, 2019, Jain, 2012, Osoba, 2012; Oni, 2010). In fact, it is believed that for people to obtain or exchange necessary goods and services, they must travel or move from place to place. They must move from where their needs and/or wants could be met or found, perhaps through vehicular carriers in most cases (Osoba, 2012). This movement could be from one city to another; one state or country to another; one state or country to another. This is what is called interstate or intercity movement. If the movement is aided by vehicular means or modes, it is called interstate/intercity transportation. Intercity transport service generates urban-related trips, which terminates in major cities (Bardi, Coyle, Novack, 2006; Onakomaiya: Badejo and Bawa-Allah, 2000). This includes Intercity Bus services. According to the Kansas statewide Intercity Bus study conducted and published by the Kansas department of Transportation (December, 2012), Intercity Bus Services (ICBS) has such distinguish features as follows: the Buses (vehicles) are regularly scheduled, using highways and/or Expressways for the medium/long distance travels; it is a

Borlo P.B.L., Centre for Logistics and Transport Studies, Faculty of Social Sciences, University of Port Harcourt, Nigeria
Ibe C.C, Centre for Logistics and Transport Studies, Faculty of Social Sciences, University of Port Harcourt, Nigeria
Department of Transport Management Technology, Federal University of Technology, Owerri, Nigeria.
Emenike G.C., Centre for Logistics and Transport Studies, Faculty of Social Sciences, University of Port Harcourt, Nigeria
Department of Geography and Environmental Management, University of Port Harcourt, Port Harcourt, Nigeria

through/non-stop movement (may stop only at gas/fuel station(s), eateries and/or shopping malls/commercial centres; dedicated points of interchange, Roadside public rest rooms etc, where extremely necessary). Vehicles are with luggage bays-or facilities which are checked before departure; it is a fixed-route-park-to-park-service; tickets are sold Online or behind canter; no seat reservation; terminals are located more at the "Periphery" or outskirt of the city-to avoid noise pollution, road traffic crashes and other externalities or for safety precautions (Badejo and Bawa-Allah, 2000). In modern times, buses used for intercity services are built with such features and facilities as internet Wi-Fi; charging points for ICT devise; comfortable and adjustable seats; leg space for relaxation; spacious with head/arm rest fittings; overhead baggage/luggage or load carriage compartments; on-board convenience/restroom; devices for fuel economy and air pollution control; others are Television, radio; security devices (CCTV footage); Air-conditioners and heating devices; store for wheel chairs and other aiding tools/equipment for the physically challenged passengers; Emergency Exit-points etc. (Busbud, 2017). These buses are mostly in use in developed countries.

Studies have shown that the choice determinants for Public Transport Carriers or modes/operators are many and vary from place to place; person(s) to person(s), culture to culture or belief system including religion (Ashraft and Newmann, 2017; Akpan, 2016; Soltanzedeh and Masump, 2014; Polat, 2012). This suggests possible peculiarity or variety in the travelling behaviour of different people with different disposition and backgrounds. Some literature classify the mode/carrier choice determining factors into internal and external; objective and subjective; controllable and uncontrollable. The internal factors which are akin to the objective factors are seemingly controllable while the external/subjective factors are uncontrollable. The controllable factors are the attributes, systems, concerns, interests and expectations or output of the operator(s) while the uncontrollable factors are largely the expectations of the customers/travelers, government/host communities or the public (Basorum and Rotowa, 2012; Grosso, 2011; Holz-Rau and Scheiner, 2010; Eboliard and Mazzulla, 2001). Service characteristics and/or quality of service factors (like, comfort, safety, security, availability of buses, crew behavior, speed, bus capacity, convenience, cleanliness, trip charge/fare, schedule reliability, travel time, flexibility, on-and-off board services; routing, fleet size and types, terminal location/accessibility, booking/ticketing system etc.) are some examples of internal/objective factors while travelers' background and trip/environment related factors (like, Gender, Age, Occupation, Income, Marital status, Family size, Educational level, Social status, Car ownership; Residency; Ethnicity; Trip purpose; Distance etc.) are examples of the external/subjective or uncontrollable factors. (Liu, Gao, Ni and Yeloro, Amamilo and Agbor, 2018; Ashraft and Newmann, 2017; Akpan, 2016; Oseromo and Ibadin, 2016; Handy, Mokhtarian, 2015; Saau, 2015; Rajapakse, Janaka, Dnarmawansa, Normura, 2015; Soltanzedeh and Masump, 2014; Ibe and Ejem, 2009; Ibe, Ejem and Onwuegbuchunam, 2007).

In Transportation planning and forecasting, choice determinants play prominent and strategic roles(Boijelbene and Derbel, 2015; Onatere, Nwagboso, Georgakis 2014). Given that choice determinants of carriers/modes differ from place to place as earlier stated, this suggest that the travelling behavior or travel decisions will also vary amongst the people of different geo-political entities including the South South, Nigeria. Also, no comprehensive study has been conducted in South South, Nigeria on the choice determinants of Intercity Bus services. More so, given the fact that Bus services appear to be the most preferred and patronized, in spite of the poor standard which characterized their operational management strategies in Nigeria (Draft National Transport policy, 2017; Yusuf, Gbadamosi and Ojekunle, 2014; Awoyemi, Ita, Lawal, Dienne and Onogbeselle, 2013; Aderamo, 2010; Aworemi, Abdull-Azeez and Alaogun, 2009; Ogunbodede, 2008; Sumaila: Vandu-Chikolo, Ogunsanya and Sumaila, 2004). Therefore, it is against this background that this study became necessary.

Theoretical Foundation

This study was guided by consumer behaviour theory espoused by early economists (like, Nicholas Bernoulli, John Von Neumann and Oskar Morgenstein, but modified by Polat, C: 2012); Revealed Preference Theory (RPT) by Anthony Samuelson (1938); and the concept of choice from literature seaerch. From these theories and concept, human beings choose from alternatives more rationally than by impulse. Their rationality is based on individual differences, in terms of personal background, tastes, desires, interests, preferences, lifestyle, discipline; exposure, environment and the economy.The Consumer Behaviour theories emphasize the rationality of consumers/customers or human-beings towards the utility usefulness or satisfaction expected in product(s)/service(s)as the basis for their choice decision making in a business setting. The works of Oseyemo and Ibadin, 2016; Polat (2012) looked at the dimensions of consumer behavior from the economic main perspective; psychodynamic perspective; behaviorist perspective; cognitive perspective and humanistic perspective. The Revealed Preference Theory holds that consumer perspective(s) or taste priority can be revealed or determined by what the consumer constantly/consistently choose to buy at different levels of price and income or maintaining a particular buying behavior or choice pattern at different price and income levels, simply put, Revealed Preference Theory (RPT) holds the fact a consumer may continuously buy same particular set or combination of products either because he/she likes it more than the alternative(s) or because they are more affordable. Generally, RPT explain consumer behavior beyond the understanding or assumption that consumers are rational and can make choices that can efficiently serve their purposes. It provides adequate conditions that can be tested empirically-for an observed consumer choice(s) tended towards utility maximization. However, some critics holds that consumer preferences may not often be static/unchanged or stable. Also, they frown at many assumptions of the theory, and the undermining of possible alternative choice options that exist in the supply chain.

In all, the implication/application of the theories on our

study suggest the followings:

(i) That the intercity bus passengers or travellers are rational, thoughtful and expectant-so they would take meaningful, purposeful and satisfying choice decisions. More of socio-economic characteristics background of Travellers/passengers and quality of service offered, guide choice decision making here. This is more relevant to the Consumer Behaviour Theories.

(ii) That the passengers/travellers's preference for Intercity Bus Services may be based on their rational economic background (economic rationality, sensibility/sensitivity and discipline) this imply that travellers/passengers of low means (poor) would always choose and patronize the relatively cheap, available and affordable mode/means of public transportation. Also, the Rich/wealthy travellers/passengers who is economically and socially disciplined/frugal and responsible may not stop patronising public transport service-that is cheap and available. Here, economic rationality/sensibility and discipline or wisdom is brought to bear on choice decision making. The bottom line here is personal interest, taste or preference, irrespective of the economic status of the traveller/passenger. Economic sanity or prudence and upbringing would not allow a Rich traveller to prefer Aeroplane to bus service. This is part of the understanding of Revealed Preference Theory.

II. Material and Methods

A cross sectional Research design was used. By this, the process and procedure of the research was guided by the general or scientific rules-in terms of population of study, method of data collection and analysis, all synchronized with the aim and specific objectives of the study.

Study Area

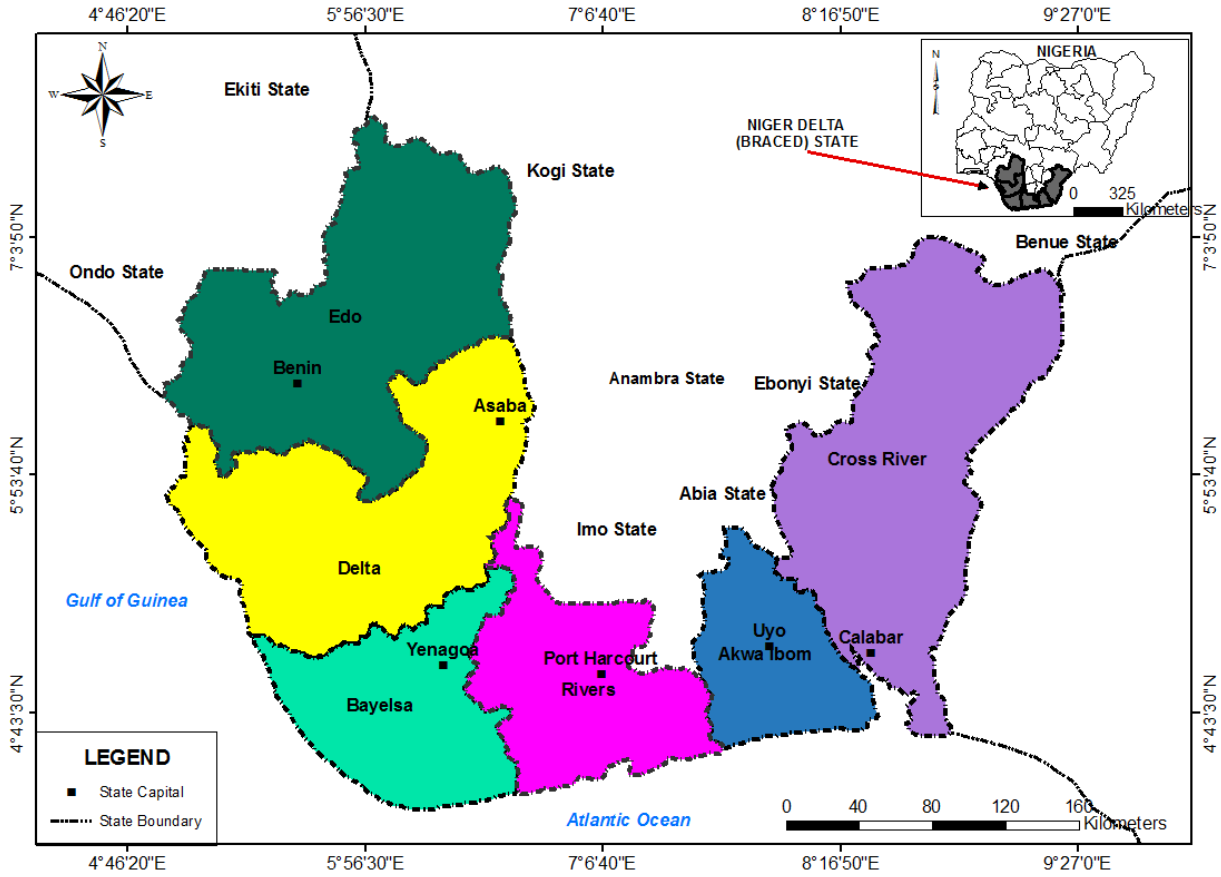

Figure 2. Map of South – South, Nigeria.

The study area comprised of six of the oil-rich Niger Delta states, namely: Akwa-Ibom, Cross River, Delta, Edo and Rivers (otherwise known as the BRACED states of Niger Delta region).

Geography of the Study Area

The area is located in the Niger Delta region of Nigeria. The South-South zone of Nigeria stretches within latitude 4^{o} $12^{'}30.892^{''}$ and $4^{o}50^{'}10.7^{''}$ N through longitude $4^{o}56^{'}$ 15''E and $9^{o}40^{'}2.654^{''}$E. It has a total area of 84,643km^{2}. The federal government records (FGN, 2007) describe it to be located in the Southern part of Nigeria, bounded on the South by the Atlantic Ocean, East by the Republic of Cameroun, and to the North and West are other federating states of Nigeria.

Demography

By the last population census of 2006, the numerical strength of South-south, Nigeria stood at 21,044,081. However, the population as at 2016 (from the National population commission data) became 28,829,400. The population breakdown is as follows: Akwa Ibom (5,482,200), Bayelsa (2,278,000), Cross River (3,866,300), Delta (5,663,400), Edo (4,235,600), and Rivers (7,303,900). From

the population figures, Rivers state is the most thickly populated, while Bayelsa State is the least.

Economic Activities of the Study Area

The traditional economic activities of the communities can be categorized into two: Land-based and water-based. The occupation includes farming, fishing, collecting and processing of palm fruits, trading and hunting. The water based occupation includes fishing and gathering of sea foods. It has a diversified local economy. Aside of the Agro-allied occupation, they do some service related business including fashion design, hear dressing and transportation/logistics services. Others are farming, livestock production on small scale; pottery; canoe carving; cloth weaving net making; mat making; thatch making; local gin distillation and sales. All these economic activities has implication on the demand of Public Transportation in the zone.

Transportation in the Study Area

Mobility services in the South – South, Nigeria is achieve majorly through water transportation (inland waterways), road transport and air transportation. However, the region suffers from almost lack of transport infrastructure, which directly affects the efficient distribution of goods and services and, sometimes renders the poor majority immobile across the zone. This has been an issue to the people in the area (Ehiorobo and Henry, 2007).

Population for the Study

The population of the study consisted of operators of intercity bus transport services across the South – South states capitals. The recognized operators were ninety-four (94) which generated over 970,770 passengers traffic for a period of 30 days. The passengers consulted were those who had paid their correct fare and waiting for departure from the terminal(s) in the capital cities of South South, Nigeria. So, the Total Population used for the study stood at 970, 913.

Table 1. Selected Intercty Bus Operators in the Capital Cities of South-south, Nigeria

	NAME OF OPPRATORS	NO. ROUTES COVER \	FORM OF OWNERSHIP
1	ABC TRANSPORT	7	Private sector
2	ABC TRANS	4	Private sector
3	ADAMS & MOTORS	6	Private sector
4	AGBOR INFO LINE	3	Private sector
5	AIGBOVBIOSA MOTORS	2	Private sector
6	AKWA IBOM TRANSPORT CO. LTD(NSIK MOTORS)	14	Private sector (concessioned)
7	AKWA IBOM STAKEHOLDERS TRANSPORT	8	Private sector
8	AKWI IBOM	5	Private sector
9	AMEOSA MOTORS	3	Private sector
10	ANOINTED MOTORS	4	Private sector
11	AROJ MASS TRANSIT CO LTD	10	Private sector
12	ARU MOTORS	3	Private sector
13	BADEN EXPRESS	4	Private sector
14	BENUE LINK	7	Government
15	BIG JOE TRANSPORT SERVICE	4	Private sector
16	BISCOOP MOTORS	2	Private sector
17	BOB IZUA MOTERS	10	Private sector
18	CACULUX	5	Private sector
19	CHASE TRANSPORT & TOURS	5	Private sector
20	CHISCO	4	Private sector
21	CORNEL TRAVELS	4	Private sector
22	CROSS COUNTRY	7	Private sector
23	CROSS LINE	4	Government
24	CLIFFOSA MOTORS	5	Private sector
25	DELKINGS EXPRESS	7	Private sector
26	DE-MODERN BUS SERVICE	2	Private sector
27	DE- PRICE MOTORS	2	Private sector
28	DOMINION EXPRESS	2	Private sector
29	EAGLE LINE	4	Private sector
30	EBOR TRANSPORT	4	Private sector
31	ECOBUS SERVICE	3	Private sector

32	EDEGBE MOTORS	4	Private sector
33	EDIOWEI LINE	3	Private sector
34	EFFEX EXCLUSIVE MOTORS	5	Private sector
35	EKENE DILI CHUKWU	5	Private sector
36	EKESON AMBASSADORS EXPRESS	3	Private sector
37	EMECO	4	Private sector
38	ENTRACO	6	Private sector
39	FAITH MOTORS	6	Private sector
40	FAITH TRAVELS & TOURS	8	Private sector
41	F. G. ONYENWE	3	Private sector
42	G.AGOFURE MOTORS	9	Private sector
43	GENARO EXECUTIVE TRANSPORT SERVICE	3	Private sector
44	GOD IS GOOD MOTORS	10	Private sector
45	GOD BLESS EZENWATA	6	Private sector
46	GOD CARES MOTORS	3	Private sector
47	GOBISON TRANSPORT	4	Private sector
48	GODDYEDOSA MOTORS	4	Private sector
49	GOLD TRANSPORT COMPANY	5	Private sector
50	GOSHEN VOYAGE NIG LTD	7	Private sector
51	GOODNESS & MERCY MOTOR	3	Private sector
52	GREAT DAY MOTORS	3	Private sector
53	GREENER LINE	8	Private sector
54	G. U. O MOTORS	4	Private sector
55	IBOM GLOBAL TRANSPORT & LOGISTIC SERVICE	5	Private sector
56	IBOM TRABELS LTD	5	Private sector
57	IMO MASS TRAVELLER LTD	5	Private sector
58	IMO TRANSPORT COMPANY (ITC)	4	Private sector
59	IYARE MOTORS	2	Private sector
60	IWINOSA MOTORS	2	Private sector
61	JULGLAD TRAVEL & TOUR	4	Private sector
62	KANTA CRUISE TRANSPORT SERVICE	3	Private sector
63	KING KOKO TRANSPORT	3	Private sector
64	LAMB OF GOD SERVICE	4	Private sector
65	LIBRA SUPER EXECUTIVE MOTORS	5	Private sector
66	MIRACLE MASS TRANSIT	4	Private sector
67	MUYI LINE	10	Private sector
68	NEW NYANYAA	6	Private sector
69	NDDC MASS TRANSIT	5	Private sector
70	OBEY GOD MOTORS 4	4	Private sector
71	OHONDA MOTORS	2	Private sector
72	O.J TRANSPORT SERVICE	3	Private sector
73	ONI LINE	3	Private sector
74	ONITSHA SOUTH L.G. TRAMSIT	10	Private sector
75	OSARODION MOTORS	3	Private sector
76	OVID NOTH EAST LINE	2	Private sector
77	OVIE MOTORS	3	Private sector
78	PEACE MASS TRANSI	17	Private sector
79	POWER BELONG TO GOD	4	Private sector
80	PRETEX	3	Private sector
81	RAHONNY TRAVELS	5	Private sector
82	RIVERS TRANSPORT CO LTD (RTC)	10	Government
83	RIVMASS TRANSPORT COMPANY	3	Private sector
84	SUNNY ERU MOTORS	2	Private sector
85	SUNSHINE EXPRESS	3	Government
86	TAIWO EXPRESS	6	Private sector

87	THE YOUNG SHALL GROW	5	Private sector
88	TO & FRO TRANSPORT SERVICE	3	Private sector
89	TRACAS	9	Private sector
90	TRANSIT FAVOUR	5	Private sector
91	TRANSIT PRO INTEGRATED SERVICE	7	Private sector
92	TURNING POINT	3	Private sector
93	UNITY MOTORS	4	Private sector
94	WINNERS LINE	4	Private sector

Source: Reconnaissance survey, 2018.

Data Collection

The nature of data used in this study was primary and secondary. Primary data were gathered through questionnaire administration, oral interview and Researchers observation. The questionnaire and interview were centred on the socio-economic characteristics of the passengers and other choice determinants of the Intercity Bus Services. To ease the data collection, 30 Research Assistants (6 in each city of study) were inducted on the Research topic, aim and objective, beside their previous experience on research undertaking. Out of 400copies of the questionnaire administered, 364 (representing 91%) were retrieved reasonably completed. The interview was conducted simultaneously with the administration of the questionnaire on the endogenous sample of passengers. The secondary data were gathered from the operational records/documentation at the head offices and substations of theintercity bus operators in Asaba, Benin city, Calabar, Port Harcourt, Uyo and Yenagoa. Also, some relevant information were gotten through literature search-in academic texts, journals etc. The operators were equally consulted on some issues relating to their operational strategies.

III. DATA ANALYSIS

The data collected were sorted and orderly arranged according to the subjects or issues. Both qualitative and quantitative analytical tools were employed. The qualitative or descriptive tools used were mainly Tables, simple percentages, Mean, and frequency distribution. The quantitative technique of Multiple Linear Regression (MLR) was used to test a Null hypothesis which sought to ascertain if the choice of Intercity Bus Service was not a function of such factors as comfort, safety, security, availability of functional/deployable buses, crew behavior, speed, bus capacity, convenience, fare, schedule reliability, residency, travel time, travellers' background.

In testing the Null hypothesis, MLR formula used was:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + \cdots + b_jX_j + e$$

Where:

Y = the dependent variable (i.e. choice of Intercity Bus Service)

a = the base intercepts or constant.

$X_1; X_2; X_3 \ \ldots, X_j$ = the independent variables (i.e. determining factors)

$b_1, b_2, b_3 \ \ldots, b_j$= regression coefficients

e= error term

Substituting the variables in the formula for MRL

Y = choice of Intercity Bus Service

X_1 = Comfort

X_2 = Safety

X_3 = Security

X_4 = Availability of functional Buses

X_5 = Crew behaviour

X_6 = Speed

X_7 =Bus capacity

X_8 = Convenience

X_9 = Trip charge/fare

X_{10} = Schedule reliability/timeliness

X_{11} = Residency

X_{12} = Travel time

X_{13} = Personal background.

IV. RESULT AND DISCUSSIONS

Determinants of choice of bus service in the study area

From Table 2, ordinary data analysis (descriptive statistics) shows that apart from crew behaviour, all the enumerated choice determining factors reasonably influenced the choice of Intercity Bus Services in the study Area. By the mean criterion or decision rule (Reject if mean is < 3.00) the dominant factors in ranking include: Trip charge/fare payable; Travellers' background (or socioeconomic characteristics of travellers); Residency; Safety; Schedule reliability or Timeliness; Comfort; Convenience; Security; Travel time; Speed, Availability of functional buses and Bus capacity. However, these factors were subjected to a quantitative test as required by Hypothesis One (first Null hypothesis in the study).

Table 2. Determinants of choice of bus service in the study area

S/N	Choice determinants	SA (5)	A (4)	SD (3)	D (2)	UND (1)	Mean (%)	Rank
1.	Comfort	156	126	21	42	19	3.98 (79.6)	5th
2.	Safety	178	113	51	22	0	4.23(84.6)	3rd
3.	Security	103	194	5	22	40	3.82(76.4)	7th
4.	Availability of	152	111	6	30	65	3.70(74.0)	10th

	functional buses							
5	Crew behaviour	48	52	144	90	30	2.99(59.8)	12th
6	Speed	97	188	19	15	45	3.76(75.2)	9th
7	Seating capacity/leg space of Bus	92	147	15	38	72	3.41(68.2)	11th
8	Convenience	158	129	15	17	45	3.92(78.4)	6th
9	Trip charge/fare	227	102	17	10	8	4.46(89.2)	1st
10	Schedule Reliability	164	112	50	30	8	4.04(80.8)	4th
11	Residency	205	137	10	5	7	4.45(89.0)	2nd
12	Travel time	123	167	4	20	50	3.80(76.0)	8th
13	Background of travellers	211	128	5	20	0	4.46(89.2)	1st

Mean criterion: Reject if mean is < 3.00

Hypothesis One (1)

Ho_1: The determinants of choice for bus service is not a function of comfort, safety, security, availability of functional buses, crew behaviour, speed, seating capacity/leg space, convenience, trip charge/fare, schedule reliability, residency, travel time and traveller's background.

Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Safety	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
2	Trip charge/fare	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

a. Dependent Variable: Choice determinants

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.975[a]	.950	.933	.409
2	.998[b]	.995	.990	.154

a. Predictors: (Constant), Safety
b. Predictors: (Constant), Safety, Trip charge/fare

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.497	1	9.497	56.662	.005[b]
	Residual	.503	3	.168		
	Total	10.000	4			
2	Regression	9.952	2	4.976	209.118	.005[c]
	Residual	.048	2	.024		
	Total	10.000	4			

a. Dependent Variable: Choice determinants
b. Predictors: (Constant), Safety
c. Predictors: (Constant), Safety, Trip charge/fare

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.453	.275		5.280	.013
	Safety	.021	.003	.975	7.527	.005
2	(Constant)	1.195	.119		10.017	.010
	Safety	.038	.004	1.761	9.450	.011
	Trip charge/fare	-.014	.003	-.815	-4.374	.049

a. Dependent Variable: Choice determinants

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	Comfort	-.325[b]	-.755	.529	-.471	.106
	Security	-.035[b]	-.170	.880	-.120	.581
	Availability of functional buses	-.351[b]	-2.983	.096	-.904	.332
	Crew behaviour	.206[b]	2.886	.102	.898	.956
	Speed	-.021[b]	-.104	.927	-.073	.596
	Seating capacity/leg space	-.101[b]	-.575	.623	-.377	.702
	Convenience	-.381[b]	-1.562	.259	-.741	.190
	Trip charge/fare	-.815[b]	-4.374	.049	-.951	.068
	Schedule Reliability	-.372[b]	-.106	.925	-.075	.002
	Residency	-.733[b]	-1.947	.191	-.809	.061
	Time of Journey	-.118[b]	-.539	.644	-.356	.456
	Personal background	-.739[b]	-2.030	.179	-.821	.062
2	Comfort	-.136[c]	-.768	.583	-.609	.096
	Security	-.084[c]	-2.338	.257	-.919	.565
	Availability of functional buses	-.171[c]	-3.302	.187	-.957	.149
	Crew behaviour	.099[c]	3.052	.202	.950	.439
	Speed	-.088[c]	-3.460	.179	-.961	.566
	Seating capacity/leg space	-.078[c]	-2.804	.218	-.942	.696
	Convenience	-.180[c]	-4.922	.128	-.980	.141
	Schedule Reliability	-.819[c]	-.634	.640	-.536	.002
	Residency	-.328[c]	-2.504	.242	-.929	.038
	Time of Journey	-.096[c]	-2.793	.219	-.941	.454
	Personal background	-.239[c]	-.721	.602	-.585	.029

a. Dependent Variable: Choice determinants
b. Predictors in the Model: (Constant), Safety
c. Predictors in the Model: (Constant), Safety, Trip charge/fare

From the statistics result, the regression model should be

$y = \alpha + \beta_1 x_1 - \beta_5 x_5$

That is, Choice of bus services = 1.195 + 1.761Safety – 0.851 Trip charge/fare

The regression model explains that for every unit increase in safety, we expect a 1.761unit increase in the choice of bus services whereas an increase on trip charge/fare will result to a decrease in choice of bus services by 0.815units.

Conclusion

The null hypothesis which states that the determinants of choice for bus service is not a function of comfort, safety, security, availability of functional buses, crew behaviour, speed, seating capacity/leg space, convenience, trip charge/fare, schedule reliability, residency, travel time, and travelers' background is rejected.

The stepwise regression further revealed that safety and trip charge/fare are the most significant determinants which influences the choice of bus services as they were the only

significant variable (p-value < 0.05) when compared to other choice determinants. Their coefficient of determination revealed that Safety accounted for 95.0% of variation in the choice of bus services while trip charge/fare accounted for 99.5% of variation amongst other choice determinants.

The concern for safety and trip charge/fare in trip making decision and public transport planning are more notable in developing countries (Jemirin, 2014, Joewono and Kubota, 2006).

V. Recommendations

As a way of constantly improving and maintaining the safety standard of intercity bus operations in South South, Nigeria, the following are imperative:

(a) Only certified "healthy"/roadworthy Buses should be deployed for intercity services;

(b) Only drivers that are certified technically skilful, experienced, healthy and disciplined should be used for Intercity Bus Service;

(c) Only mechanics/technicians with the right knowledge, skills/expertise and disciplined should be used for repairs and Servicing works. For long distance travel buses, maintenance services (i.e. Repairs, servicing and check-ups) should be regular/routine-not corrective. Owned workshops should be clean and stocked with the right tools and equipment including spare parts. As part of the Bus maintenance policy, when the cost of maintaining a particular bus or buses outstrip the earning/income from it/them, auction/sell and REPLACE with new ones. The New buses should be shop/brand new, not old and ill-refurbished ("Tokunbo").

(d) Drivers with similar driving habit and attitude be assigned to a particular or set of Buses on particular route. Drivers must be familiar with the route(s) and /or the geography of the place(s). A policy of "one-day-on and two-day-off" (or three round trips per week) should guide the deployment of long distance Intercity Bus drivers. A Safe and Accident free drivers' Bonus scheme be enshrined in the personnel policy or terms and condition of service (as part of the reward system). Other Awards and praises for meritorious service should be given to drivers/staff for discipline and productivity.

A quarterly training and recertification programme for the drivers should be organised from time to time. Drivers should undergo regular medical check-ups and obtain a Monthly fit-for-work certificate from a recognised hospital or medical practitioner(s). In fact, the drivers should be physically, mentally, optically and psychologically/socially fit and proper for Intercity Bus Operation.

(e) The terminals/loading bays should be kept clean always and well lit with floodlight in the dark and/or at night. This is beside the On-and-Off Board Security Services; provision of Safety Equipment (like fire extinguishers); policy statement against smoking and non-use of seat belt to create a sense of safety in the minds of operators and travellers.

(f) High capacity luxurious buses should form at least 30% of the fleet. These would ease the movement of greater numbers of passengers on a trip, during peak periods/season; reduce crowding and sometimes long waiting time or delay at the terminals, with the attendant safety and security issues. It would engender service affordability (everything being equal); boost revenue generation, and effectively contribute to cost recovery and profit making. The rest of the Buses should be those of 8 to 22 seating capacities-for faster movement and possible trip frequency/turnover.

(g) Federal Government through constitutional amendments should harmonize road transport taxes and other statutory levies; regulate levies charged by unions and communities, which influences fare hike. The incessant increase in the pump price(s) of petroleum products and the issue of the availability of the products at controlled pump price should be permanently addressed as not to give room for fare increase. Government should also consider to delist public transport services from the payment of Value Added Tax (VAT) in Nigeria. These would help to keep the trip charge/fare structure at affordable level to the greater number of the people, everything being equal.

In addition, given the advent of "COVID 19 pandemic with its adverse effects on public transportation, it is advisable that intercity bus operation should be "COVID-19 compliant" for purposes of safety and operational efficiency. The COVID-19 public transportation guidelinesshould include physical /social distancing (to be achieved partly by online booking and general discipline); 50% of full capacity carriage (sustainable with government subsidies or palliatives for idle capacity); cleanliness of the terminals and the carriers (use of sanitizers, water with soap face masks etc); test of temperature and other diagnostic measures before boarding and/or disembarking from the carriers; decontamination/fumigation of terminals, offices and the buses. Constant research on ways of handling travellers with such infectious diseases as Corona Virus; Tuberculosis; Lassar fever; Ebola etc. (including provision for a clinic or mini-health care delivery centres at the terminals).

References

[1] Aderamo, S. J (2010). Transport in Nigeria: The case of Kwara State". African Economic and business Review, Vol. 8 No 1 spring the African Education and Business Research Institute Inc, pp. 19-40.

[2] Akpan, S. J. (2016) "The Influence of Cultural Factors on Consumer buying behaviour": A case study of Pork. British Journal of Marketing studies, Vol.1, No. 6, Pp. 44-56.

[3] Amamilo, C. A., and Agbor, E., (2018): Competition and Choice among Intercity Bus Operators in Nigeria*International Journal of New Technology and Research* (IJNTR) Volume-4, Issue-10, Pages 35-42.

[4] Armstrong-Wright, A., (1993). Public Transport in third world cities, London: HMSO. Pp. 1-20.

[5] Ashraft, S. R, Newmann, H. M., (2017). Determinants of Transport mode choice in Australian province of vorar/berg*" real corp 2017 PANTA RHEL*, pp. 121-130.

[6] Aworemi, J. R., Abdulazeez, & Olaogun (2009). A Study of the Performance of Public Transport Company in Niger State, Nigeria. *International Journal of Business and Management*, Vol. 4 No. 11 (November 2009) pp. 5-7.

[7] Awoyemi, O.K; Ita, A.E., Lawal, M.O. Dienne, C.E., and Onogbosele, C.I. (2013). "An assessment of intra-Urban, Mass Transit Operators in Ibadan metropolis, Nigeria". *International Journal of Open Scientific Research Kindi publications*, Vol. 1, No. 5, pp 80-89.

[8] Badejo D, and Bawa-Allah, T.O (2000). *Public Transportation in Nigeria; Gbenaga Gbesan and Associates*, Abeokuta, Nigeria. pp. 20-31.

[9] Bardi, E. J; Cole, J. J and Novack, R. A (2006). Management of Transportation (Thompson, South-Western, Austraha *et al*, pp. 40-44.

[10] Basorun, J.O. and Rotowa, O (2012). Regional assessment of the public transport operations in Nigeria cities: the case of Lagos Island. *International Journals of Developing Societies*, Vol. 1 No. 2 (2012) pp 82-85.

[11] Boijelbene Y, and Derbel, A. (2015). The performance analysis of Public Transport operators in Tunisia, using AHP method.*Elsevier* B.V. Licensed by CCBY-ND (https://creative commons.org/licenses/by-nc-nd/4.01). Online: www.science direct.com, pp.498-508.

[12] Busbud (2017) "The most important Bus features: what are they and what would you pary?" February 23, 2017. (Online)

[13] Draft National Transport Policy (2017) Unpublished pp. 38-40.

[14] Eboli, L. and Mazzulla, G (2001). *A Methodology for evaluating transit service quality based on subjective and objective measures from the passenger's points of View*". Transport Policy 18 (1), pp. 174-181.

[15] Ehiorobo and Henry (2007) "Developing the Niger Delta Transport System-Using Adequate Geo-spatial Information". *Journal of Advanced Materials Research Vol.18-18, Transtech publications, Switzerland.*

[16] Grosso, M (2011). "*Variables Influencing Transportation Mode Choice: A generalized Trip charge/fares approach.* Societa lataliana di Economia dei transporti e della logistics xiii-Rivnone scientifica-Messian, 16-17 guigno, pp.1-21.

[17] Holz-Rau, C. and Scheiner, J. (2010). Travel Mode: Affected by objective or subjective determinants? Transportation 34(4), pp. 487-511.

[18] https://www.greyhound.com/en/discover-greyhound/bus-features-and-virtual-tour: "All Bus Features and Facilities".

[19] Ibe, C.C., Ejem, E.A. and Onwuegbuchunam, D.E (2007). Passengers Preference to public transport companies: A multi-nominal choice analysis. Ikogho, *A multi-disciplinary Journal, last quarter*, 2007. Pp. 57-65.

[20] Ikya, S.G. (1993). Urban passenger Transportation in Nigeria Heinnemann Educational bookshop books (Nigeria) PLC, Ibadan/Pp. 48-50, 137-164.

[21] Jain, A.K. (2012). *Planning, Design and Engineering of sustainable urban transport and systems*. Khanna publishers, New Delhi, India pp. 1, 5, 107-115.

[22] Jong, G.C de and Riet, O.V. de (2008). The driving factors of passenger transport: https://www.researchgate.net/publication/27353715, Issue 8(3). Pp. 227-250. ISSN. 1567-7141,www.ejtir.tbm.tudelft.ni.

[23] Liu, x; Gao, L; Ni, A; and Ye, N (2020) "Understanding better the influential factors of commuters' multi-Day Travel Behaviour; Evidence from Shanghai, China". Sustainability 2020, 12, 376; doi: 10.3390/Su 12010376 www.mdpi.com/Journal/sustainability.

[24] Lowe, D. (2002).The dictionary of Transport and Logistics, Institute of Logistics and Transport, Kogan page, London P. 29.

[25] Madhuwanthi, R.A.M., Marasinghe, A., Rajapakse, R. P. C., Janaka, Duarmawansa, A. D. and Manura, S (2015). Factors influencing travel behaviour on transport mode choice. A case of Colombo metropolitan Area in Sri-Lanka: *International Journal of Affective*, J. Stage Advance publication. Pp. 1-8.67.

[26] Ndikom, O.B.C (2008). *Elements of Transport Management*. Lagos: Nigeria Bunmico Publishers. Pp. 343-346; 362-367, 544.

[27] Ogunbodede, E.F (2008). Urban Road Transportation in Nigeria from 1960 to 2006: Problems, Prospects and challenges, *Ethiopia Journal of Environmental Studies and Management*. Vol. 1 No.1, March, 2008. Pp. 1, 10-13.

[28] Onatere, J.O, Nwagboso, C, Georgakis, P (2014). *Performance indicators for Urban Transport development in Nigeria. WIJ Transactions on Built Environment*, vol. 138 ©2014 WIJ Press www.witpress.com. ISSN 1743- 3509 (online).

[29] Oni, S.I (2010). "Issues in and future of Urban Transportation and Traffic management system in Nigeria". *Sixth International Conference on Competition and Ownership in Hand Passenger Transport*. Pp.1-14.

[30] Osoba, S. B. (2012). An analysis of Intracity patterns of residents in Lagos metropolis. *International Journal of development and sustainability*. Online ISSN:2168-8662-www.isdsnet.com/jds.vol.1No.2, pp.563-580.

[31] Polat, C. (2012). The demand determinants for urban public transport service: A review of the literature. *Journal of Applied Sciences*. Pp. 1211-1231.

[32] Remenyi, P. Vegh, A. and Pap, N. (2016). "*The influence of ethnic policies on regional development and transport issues in Bosnia and Herzeggovina*"; Belgeo (En Ligne). 1/2016. Misen https//belgeo.revues.org/18991.

[33] Salau, T. (2015). Public Transportation in metropolitan Lagos, Nigeria: Analysis of Public Transport Users' socio economic characteristics: *Urban planning and transport Research – An open access Journal*, vol.3 (2015) Issue 1, pp. 132-139.

[34] Soltanzadeh, H and Masump, H.E. (2014). The Determinants of Transportation Mode choice in the middle Eastern cities: The Kerman case, Iran. *Journal of Land use, Mobility and Environment (TEMA).* Pp. 201202.

[35] Taro Yamane (1967). Determining of Sample Size; https//Mathhelpforum.com/advanced-statistics/181149-prove-formula-taro-yamane.html.

[36] The Kansas Department of Transportation (2012) "Kansas statewide Intercity Bus Study", HDR Engineering Inc. Kansas city Mo 64111. Pp. 1-6.

[37] Vandu-Chikolo, I., Ade Ogun Sanya, A, and Sumaila, A.G (2004). *Perspectives on Urban Transportation in Nigeria*. NITT, Zaria pp. 121-150.

[38] World Bank (2002). *Cities on the Move: A World Bank urban transport strategy review –Washington DC.*, United States of America.www.worldbank.org. Pp93-124.

[39] Yusuf, A.M. Odumosu, A. O. Odeleye, J. A (2013). Contemporary issues in Transport development in Nigeria, NItt, Zaria-Nigeria. pp 282-284.

[40] Yusuf A.M, Gbadamosi, K.T. & Ojekunle, J.A. (2014). *Perspectives of Urban Transportation policy and planning (Thoughts of Professor Robert Ogunsanya,* 1950-2009) pp. 6-16; 61-70.