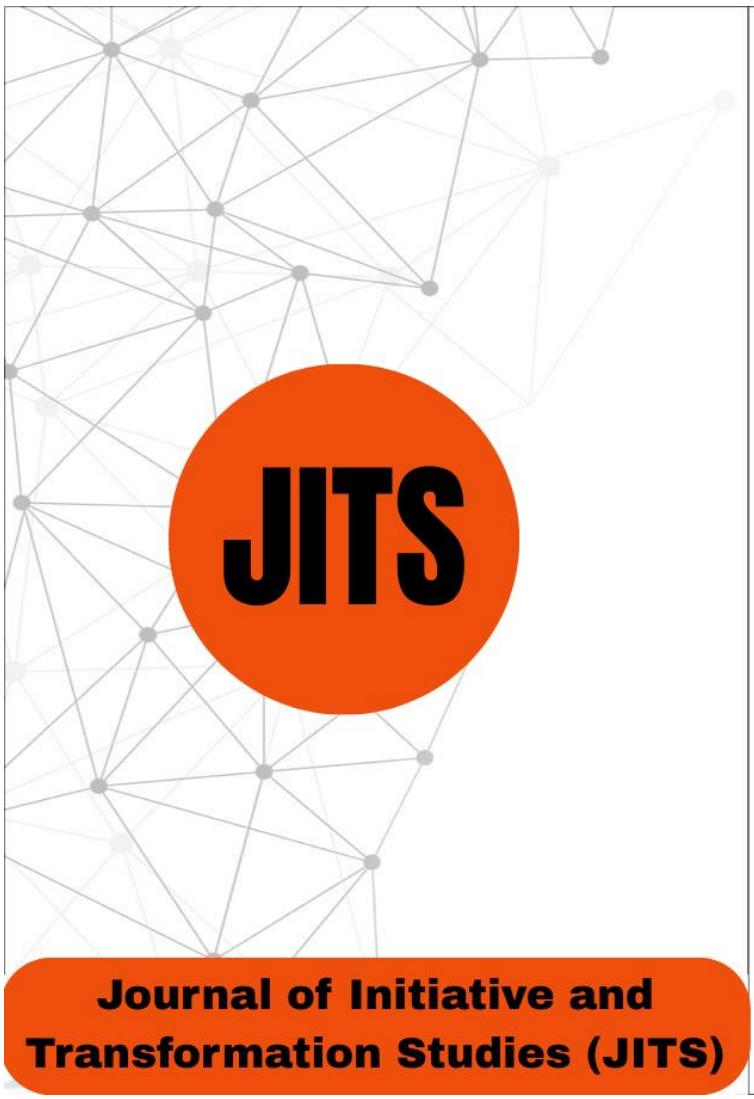


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# The Implications of Fulani herdsmen and farmers Clashes in Nigeria: A Case Study of Iseyin Community in Oyo State

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## Abstract

The Fulani herdsmen and farmers' clashes in Nigeria, particularly in Iseyin Local Government Area of Oyo State, have caused significant disruptions. This study aims to investigate the Criminalities and Implications of Fulani Herdsmen and Farmers Clashes on Criminal Justices System in Nigeria. The population under study includes residents of Iseyin city, encompassing Fulani herdsmen, farmers, police officers, prison officials, and lawyers. A sample size of 400 respondents was determined using the Taro Yamale method. Questionnaires were the primary data collection tool, and Descriptive Statistical Analysis was employed, including percentages, frequency tables, and arithmetic mean calculations. Multiple regression analysis was used to test the study's hypotheses. The results indicate a significant relationship between Fulani herdsmen attacks and farmers' crises in Iseyin, leading to the rejection of hypothesis. Furthermore, there is a significant relationship between the level of awareness among Iseyin residents and Fulani herdsmen and farmers' clashes, rejecting hypothesis. However, there is no significant effect of Fulani herdsmen and farmers' clashes on the criminal justice system in Nigeria, as hypothesis was rejected. To mitigate Fulani herdsmen and farmers' clashes in Iseyin, improved communication through understanding different languages, awareness of climate change, and mutual accommodation could reduce conflicts and enhance farming experiences. The ongoing clashes have deterred Iseyin residents from farming due to safety concerns. The Oyo state government can enact by-laws to establish ranches, define grazing lands, and designate grazing routes. Civil actions against Fulani herdsmen can also be pursued to deter recurrent attacks.

**Keywords:** Herdsmen Farmers' Clashes, Criminalities, Criminal Justices System

## 1. INTRODUCTION

Land in Nigeria as it obtains throughout Africa, is a primary resource for survival and a major source of income and livelihood for the rural population. Land is not only a source of livelihood and valuable economic asset but also carries spiritual values with it. Therefore, access to landed resources is not merely a matter of productive use of the ecological environment; it involves power and symbolic relations[1]. Due to increased population pressure, environmental conditions and diversification of the rural land use patterns in Nigeria, adequate access to pasture and water for livestock has diminished thus prompting herdsmen to migrate to the north central, southern and western part of the country. The squeezing out of herdsmen from their traditional grazing lands has spurred the tension and conflicts with farming communities in the last decades.

Land, crops, livestock, water resources and vegetal resources play key role in the development, maintenance as well as sustainability and projection of the socio-economic strength of a society[2]. Hence, resource ownership and its utilization have resulted in to conflicts involving man since time immemorial. As earlier stated, of all the aforementioned resources, land has remained an overwhelming source of conflict among various user groups as well as individuals. In other words, conflicts between farmers and herdsmen over the control of land that leads to diverse attack is becoming fierce and increasingly widespread in Nigeria largely due to the intensification of production activities that are necessitated by the entrenchment of capitalist relations coupled with an increasing human population[3]. Farmers are indigenous members of the community where they reside, and are found in almost all the rural settings where they cultivate mostly at a subsistent level. Herdsmen, on the other hand, are people who rear livestock and are mostly of the Fulani extraction. The particular group in this study is the transhumant category and not the sedentary type. This is because, the sedentary ones have little record of clashes with their host communities compared to the transhumant category that graze livestock and shifts from one location to another where they can get feeds for their animals.

The vast geographical area of Nigeria has placed farmers in a situation to live with the Fulani herdsmen particularly during the dry season. More so, the Fulani herdsmen still practice the free range system; they move from one place to another in search of pasture and water. This development usually forces them to migrate from the North to the South Valleys, particularly Oyo State, where both pasture and water resources can be found. As a result, this has increased the competition for land between the Fulani herdsmen and farmers resulting in the existing clashes and economic friction among the two groups in the state. .

However, this conflicts between farmers and herdsmen emanated as a result of the increase in population of both the farmers and the herdsmen. This was sequel to the increase in the

need for more farmland. Other causes of the conflict include: change in climate condition leading to drought and dessert encroachment; improvement in technology that brought about irrigation; the need to cultivate and produce more of the cash crops newly introduced. Conflict between farmers and herdsmen is also reinforced by the farmers‟ habit of extending the boundary of their farms to livestock route and the herdsmen's habit of allowing cattle to veer into the farmers‟ farm to eat their plants and drop their dung either on the farm or on the pedestal route [10]. Take for example, the farmers-herdsmen conflict in Riyom Plateau State; Agatu in Benue State, Nimbo in Enugu State and the alleged kidnapping of Chief OluFalae (who is a farmer), by suspected herdsmen in Ondo State, this pose new twist to the incidents of farmers-herdsmen conflicts which affirm the fact that farmers-herdsmen conflict is assuming a national integration threatening dimension in Nigeria [4].

Nevertheless, the recent farmers-herdsmen attacks in Oke-Ogun area of Oyo State, pose threat to the peaceful co-existence of the different ethnic nationalities in Nigeria. Thus, Nigeria seems to continue to struggle with upholding its laws amid myriad criminality that seem beyond the power of the Criminal Justice System to solve. The principal actors in the Nigeria Criminal Justice System charged with the responsibility of maintaining one aspect of the law or the other including: the Economic and Financial Crime Commission (EFCC), the Federal Road Safety Commission (FRSC), the Police, the judges, the prisons and so on are often said to be enmeshed in ineptitude, corruption, and injustice. However, this study focuses on the criminalities of fulani herdsmen and farmers clashes and its implications on criminal justices system in Nigeria.

Based on the foregoing, this paper examines the criminalities and implications of Fulani herdsmen and farmers clashes on criminal justices system in Nigeria using Iseyin Community in Oyo State as Case Study.

## 2. CONCEPTUAL REVIEW

### *2.1 The Fulani People of Nigeria: A Brief History*

According to historical accounts, the Fulani people constitute a distinct ethnic group in Nigeria and are found in several other African countries, including The Gambia, Mali, Sierra Leone, Benin, Burkina Faso, Cameroon, Côte d'Ivoire (Ivory Coast), Niger, Togo, the Central African Republic, Ghana, Liberia, and The Sudan. In general, they are minorities in the countries they are found. In terms of language, they speak Fule. [5] It should be noted that the popular name Fulani is a corruption of the local name of the people which is 'Fula' (also spelt Foulah or Fulah). Etymologically, the name Fulani was partly borrowed from Hausa language and from Mandingo language. [5]

In modern times the Fulani people may be categorized into two groups, namely, (1) the nomadic/cattle-rearing Fulanis (the Bororoje); and (2) the sedentary/urbanized Fulanis (the Gida). Of these two groups, however, the nomadic/cattle rearing or mobile Fulani are closer to the traditional way of life of the Fulani people than the sedentary Fulani who now dwell in cities and engage more in agriculture, trade and politics than in the traditional Fulani nomadic lifestyle[6].

There are different versions of the origin of the Fulani people and this seems to vary from country to country where they are found. The Fulani people first entered Hausa-land in present day Nigeria in the 15th century and settled in established Hausa city-states such as Kano, Katsina and Zaria; some of them as Islamic clerics. This continued in the 16th and 17th centuries with new arrivals that settled and intermingled with local Hausa people. Through the process of time, most of the nomads became acculturated and increasingly sedentary[7].

The urban culture of the Hausa was attractive to many Fulani. These Town or Settled Fulani became clerics, teachers, settlers, and judges—and in many other ways filled elite positions within the Hausa states. Soon they adopted the Hausa language, many forgetting their own Fulfulde language. Although Hausa customs exerted an influence on the Town Fulani, they did not lose touch with the Cattle or Bush Fulani[7].

It should be noted that this development was to lay foundation for future spread and political domination of the Fulani people in Nigeria. Also 99% of Fulani people are Muslims. In fact, it can be said that a cultural or religious identity of Fulani people is Islam. As time proceeded in the 18th and 19th centuries, the Fulani people began to resent being ruled by their host Kings who were regarded as infidels (imperfect Muslims). In 1804, that resentment snowballed into jihad (religious or so-called holy war) launched and led by a Fulani cleric, Usman Dan Fodio, to overthrow the Hausa Kings. The jihad was successful, as most Hausa states were conquered and a new powerful state called Sokoto Caliphate established. To this day the Caliphate exists as the centre of Islamic leadership in Nigeria under an Emir/Caliph. Anter rightly notes that the ties between the nomadic/cattle rearing Fulani (also called pastoral Fulani) and the sedentary/urban Fulani became helpful during the 19thcentury jihad when the latter joined the jihad. In his words, 'they tied their grievances to those of their pastoral relatives. The cattle Fulani resented what they considered to be an unfair cattle tax, one levied by imperfect Muslims[8]'.

In contemporary times, the Fulani people resent and oppose the anti-grazing laws enacted in Benue State, Taraba State, Plateau State, and some other States in Nigeria to check the frequent clashes between farmers and Fulani herdsmen. As the International Crisis Group (ICG) argues, some of the attacks and mass killings in recent years are traceable to this resentment.

In the political arena, the Fulani people of Nigeria occupy high political offices since the time of their victory in the 19th century jihad. Before the formation of Nigeria, the Caliph of the

Sokoto Caliphate was the highest religious and political leader of the Hausa/Fulani Kingdoms. This pre-eminent leadership position continued after the formation of Nigeria and up to the present day, with Fulani people occupying the highest political office of the land and several other high-ranking political offices. Specifically, at independence on 1 October 1960 Alhaji Tafawa Balewa (a Fulani man) became the first Prime Minister of Nigeria and served till 15 January 1966 when he was killed in a military coup. In more recent years, it is noteworthy that President Umaru Musa Yar'Adua (2007-2010) was a Fulani man, and the sitting President of Nigeria, Mohammad Buhari, is also a Fulani man[9].

To conclude, there are indications to suggest that there is an alliance between the nomadic/cattle rearing Fulanis (herdsmen) and the urban/sedentary Fulanis who control the coercive force of government in the ongoing recurrent killings by the herdsmen. Firstly, President Buhari (urban/sedentary Fulani man) owns cattle which are herded by the herdsmen and he is a patron of *Miyetti Allah* (an association of Fulani herdsmen). Secondly, President Buhari is manifestly unwilling to take any decisive security action against the impunity, massive and recurrent killings of innocent Nigerians perpetrated by Fulani herdsmen. Thirdly, he is unwilling to declare Fulani herdsmen as a terrorist group and rejects any suggestion that Fulani herdsmen attacks are a continuation of the Fulani 19th century jihad. Notably, apart from President Buhari's support, similar support for the Fulani herdsmen abound among other urban/sedentary Fulani people in high political positions and other high offices in Nigeria. Finally, the alliance can also be seen in the fact that the Fulani herdsmen are known to use sophisticated weapons– such as AK47 assault rifles and other weapons of violence and mass destruction–in the various attacks, which they cannot possibly acquire personally given their lack of education and nomadic lifestyle except someone (most likely their sedentary Fulani brothers) helped them to acquire and trained them on the use[10].

Importantly, notwithstanding denials by President Buhari, the Sultan of Sokoto, and some other Muslims historical statement by a Fulani man – Alhaji Ahmadu Bello, who was the Sarduana of Sokoto and Premier of the Northern Region of Nigeria –coupled with recent declarations of the leadership of *Miyetti Allah* as noted above, arguably supports the proposition that the Fulani herdsmen are currently engaged in jihad. In the 1962 historical statement, Ahmadu Bello said: 'When the time comes I will mobilize the people of the region [Northern Nigeria/Muslims/Fulani people] so that they can play their full part in this all-important task which might be likened to a jihad… A jihad is war waged for some sacred interest to protect the faith, life, property, liberty and self-respect [interest]' [11]. Having regards to recurrent mass killings by Fulani herdsmen and the tacit support of President Buhari and other influential and powerful Fulani people, it may be that for the Fulani successors of Ahmadu Bello the time may have come

to mobilize Fulani herdsmen and other Muslims for jihad[12]. In any case, having regards to the foregoing background one needs to consider the possible legal implications of recurrent mass killings in Nigeria by Fulani herdsmen[13].

2.2 **5 Some Recorded Incidents of Mass Killings by Fulani Herdsmen in Nigeria**

Isolated incidents of mass killings by Boko Haram are still occurring in Nigeria, especially in the north-eastern states of Nigeria. However, as already noted, the most worrisome, nation-wide and recurrent source of mass killings in Nigeria in recent years is the violent campaign of armed/militant Fulani herdsmen[14]. This point was well-made by Gadzama, a former Director-General of State Security Service, thus:

Attacks by herdsmen without doubt have become the most potent threat to national security in the last couple of years. What makes the attacks by herdsmen very disturbing are, the frequency, the level of destruction and sheer brutality. The development in almost all cases is characterized by high casualty rate and massive displacement of communities. One can say with certainty that never has the country experienced this level of destruction and social dislocation. What however is so disturbing with the development is how the attacks in almost all cases took place under the eyes of security agencies.

Similarly, in a report published on 26 July 2018 the International Crisis Group (ICG) notes that the Fulani herdsmen have killed more people in recent times than Boko Haram. In its words: The conflict between herders and farmers in Nigeria, centred in the Middle Belt [also known as north central states, consisting of Benue, Kwara, Kogi, Niger, Nasarawa, and Plateau States and the Federal Capital Territory Abuja] but spreading southward has escalated sharply. Since September 2017, at least 1,500 people have been killed, over 1,300 of them from January to June 2018, roughly six times the number of civilians killed by Boko Haram over the same period. The first half of 2018 has seen more than 100 incidents of violence and more fatalities than any previous six-month period since the conflict started worsening in 2014. The surge of violence is concentrated in Plateau, Benue and Nasarawa states in the North Central geopolitical zone and in the adjoining Adamawa and Taraba States in the North-East zone. [In the North-West zone, Zamfara State is also a major victim of the violence] [15].

For purposes of this study, it is sufficient to outline some incidents and criminality offences of mass killing perpetrated by the Fulani herdsmen in order to illustrate the gory picture of the problem. Noteworthy, the killings are mostly targeted at people of non-Fulani ethnic group and Christians. In May 2013 Over 200 herdsmen surrounded Ekwo-Okpanchenyi, Agatu LGA of Benue State and killed 40 indigenes. Also in July 2013 20 people were killed in a clash between Tiv farmers and Fulani herdsmen at Nzorov, Guma local government area of Benue state. In July 2013 Fulani herdsmen invade 2 villages in Agatu local government area of Benue State and killed

8 villagers[16]. They claimed this to be in retaliation for the killing of 112 cows. By January 2014 In Gbajimsba, Guma local government are of Benue State, Fulani herdsmen killed 25 persons and injured over 50, using sophisticated weapons. In March 2014 Fulani herdsmen attacked 4 villages in Agatu local government area of Benue State; killed 19 persons and abducted 15 others.

January 2015 17 persons killed in attacks by Fulani herdsmen on Abugbe, Okoklo, Ogwule and Ocholoyan in Agatu local government area of Benue State. In January 2015 Over 100 attackers stormed 5 villages in Logo local government area of Benue State, killing 9 persons in the attack. March 2015 Egba village in Agatu local government area of Benue State was sacked by herdsmen and over 90 local people, including women and children, were killed. April 2015 28 persons were killed by Fulani herdsmen in attack on 3 villages at Mbadwem, Guma local government area of Benue State; additionally, houses and farmlands were razed. May 2015 Ikyoawen community in Turan Kwande local government area of Benue State invaded by Fulani herdsmen; 5 persons were killed and 8 others wounded. May 2015 100 persons were killed in an attack by Fulani herdsmen in villages and refugee camps at Ukura, Gafa, Per and Tse-Gusa, Logo local government area of Benue State[17].

July 2015 1 person was killed and several others injured following an attack on mourners in Imande Bebeshi in Kwande local government area of Benue State. November 2015 12 persons were killed and 25 others injured in Buruku local government area of Benue State following an attack by Fulani herdsmen. February 2016 10 persons were killed and over 300 persons displaced in clash between herdsmen and farmers at Tor-Anyiin and Tor-Ataan in Buruku local government area of Benue State. 24 February 2016 Over 500 locals were killed and 7000 displaced in an attack on Agatu local government area of Benue State by Fulani herdsmen. Moreover, over 7 villages were razed during the attack. February 2016 11 persons were killed in Edugbeho Agatu local government area of Benue State, including a police inspector. March 2016 Houses burnt in Agatu local government area of Benue State[18].

March 2016 8 residents killed by Fulani herdsmen in attacks on Ngorukgan, Tse Chia, Deghkia and Nhumbe in Logo local government area of Benue State. 10 March 2016.. Two persons were killed in attack on Obagaji Agatu local government area of Benue State. 13 March 2016 6 people were killed by Fulani herdsmen in an attack on Tarka local government area of Benue State. 24 January 2017 15 persons were killed by rampaging Fulani herdsmen, who attacked farmers in Ipiga village in Ohimini local government area of Benue State. 2 March 2017 About 10 persons were killed in a renewed hostility between Fulani herdsmen and farmers in Mbahimin community, Gwer-East local government area of Benue State[19]. 8 May 2017 Three persons were confirmed killed by Fulani herdsmen in Tse-Akaa village, Ugondo Mbamar District of Logo local government area of Benue State. 11 March 2017 7 persons were killed when Fulani

herdsmen attacked a Tiv community, Mkgovur village, in Buruku local government area of Benue State. 13 May 2017 Less than one week after many persons were killed by Fulani herdsmen in three communities of Logo local government area of Benue State, armed Fulani herdsmen struck again on 13 May 2017 killing eight more people. 24 December 2017 A farmer identified simply as Atuanya was killed by Fulani herdsmen in Anaku in Ayamelum local government area of Anambra State.. 8 March 2018 Armed Fulani herdsmen killed five persons in Miango District of Plateau State and another six in Ganda Village in Bokkos local government area of Plateau State[19].

12 March 2018 Fulani terrorists killed 25 persons, including three children and two women in Dundu Village of Kwall District in Bassa local government area of Plateau State. An injured girl later died in the hospital. This incident occurred about 7pm on a day several persons who were earlier killed in Bassa local government area of Plateau State were given mass burial. 16 March 2018 5 persons, including a University undergraduate, were killed about 7.30pm by Fulani herdsmen who attacked Ugboha, Esan South-East local government area and Odiguete Ovia North-East local government area of Edo State. Besides the dead, 12 persons sustained various injuries during the attack[20].

14-15 April 2018 Suspected Fulani herdsmen killed 32 persons of Tiv ethnic group in various communities in Nasarawa State.18 April 2018 Fulani herdsmen killed four persons while they were collecting sand for construction at Jebbu-Miango Village, Bassa local government area of Plateau State, but were repelled by troops while they were moving to attack Taraba State on the same day. 2 May 2018 Fifteen persons were killed and four communities completely burnt down by Fulani herdsmen who attacked Numan local government area of Adamawa State[20].

23 June 2018 Over 150 persons were killed in the night and within 48 hours in about 5 villages of Gashish District of Barkin-Ladi local government area of Plateau State. 9 July 2018 Herdsmen attacked communities in Rabah local government area of Sokoto State, killing over 30 persons. 2 October 2018 At least 14 persons were killed by Fulani herdsmen in the night of Tuesday 2 October 2018 in an attack in Jol village, Rivom local government area of Plateau State. 3 October 2018 19 persons were confirmed killed in yet another fresh attack by Fulani herdsmen on 3 October 2018 in Ariri village of Bassa local government area of Plateau State[21].

In fact, one of the key electoral promises of President Buhari was ending Nigeria. However, few months to the end of his 4-year tenure insecurity in Nigeria is increasing instead of ending. The reality is that Boko Haram insurgency has not ended and Fulani herdsmen attacks have escalated under his watch. Also the administration by President Bola Ahemed Tinubu also promised to stop insecurity in which as taking a new dimension and become a household business. The people of Nigeria are currently insecure and have no peace.

### *2.3 Perceived Causes of Fulani Herdsmen Criminal Activities*

Various Scholars have tried to explain the reasons, genesis and causes propelling farmer-Fulani herdsmen conflict cum violent crimes across the country[22,23, 24].[24] found in their studies that poor resource governance was a key cause in the conflict between farmers and Fulasni herdsmen. They also found that "the role of government has not been very encouraging" in tackling the problem. This poor resource governance for them is a grave "threat to both natural resources and human security" and also "detrimental to rural livelihood, food security and social co-existence". This problem is exacerbated further when there is no institution to contain or control the situation[25]. It is important to understand that the Fulani herdsmen "hardly request any permission to move or stay around any community, and are thus regarded as invaders by the host communities"[26]. This on its own is an affront on the authority of the host community and enough to generate serious conflict, if not carefully handled. It is no gainsaying that the Fulani herdsmen use their cows to chase people away from their farms and thereafter take possession.

The cause to contamination of rivers by cattle, spraying of farms with pesticide and insecticides which the Fulani herdsmen see as an action which is done to prevent them from grazing and also to kill their cows through water poisoning. They also identified raping of women, burning of bushes especially grass area, communication barrier, cultivation of crops along cattle routes, cattle rustling and killing as other factors responsible for farmer-Fulani herdsmen conflict[27,28]. The reasons are very plausible but insufficient to explain the level of violent crimes committed against host communities. It does not explain the relationship between raping of women and use of grazing land. It does not explain the rights of Fulani herdsmen to determine when or not farmers should burn their farm or bush. Every citizen has a place of birth, inheritance and possession; and when you migrate to another area, you do not use force to demand for a portion of land to build your house or keep your animals. You do not rape their wives or kidnap their children to ask for land space. You do not burn Churches or destroy communities to seek permission to use another man's land. You do not walk in the dark of the night to attack and kill your host in the name of asking for his land to breed your cows.

Naturally, those who operate under the cover and protection of the night are evil men who engage in acts of wickedness and destruction of lives. They are common criminals and should be treated as such instead of glorifying and glamorizing their heinous crimes. These are criminal activities that are punishable under the laws of our land but nobody has ever discussed about this in like manner or even seen their criminal activity as a security threat to national development and peace. Government only sees their criminal activity as mere conflict of interests instead of viewing it as an act, chargeable and punishable under the laws of the land.

*Violent conflict between farmer and Fulani herdsmen had be attributed to environmental factors,*

*climate change and exploitation of scarce resources. They believe that global climate change and desertification has reduced green grass areas thereby compelling pastoralists to move southward in search of pastures for their cattle. In addition, capitalist tendency in acquiring land for farming has also reduced the land space available for cattle grazing[29,30]. This is worsened by government indiscriminate allocation of grazing lands for government layouts or reserve areas without alternative provision of grazing lands for pastoralists. The cause may also be attributed to redistribution of land resources which are the moment some persons are using violent and criminal means to acquire.*

## 3. THEORITICAL FRAME-WORK

The study adopted the modernization theory. The modernization theory is a good testing ground to address land use clashes between the Fulani herdsmen and local farmers, because from the colonialists' point of view, the traditional land use and tenure systems practices among the Fulani herdsmen and local farmers were considered primitive, unproductive and needed to be transformed and "modernized". It is from this perspective that colonial and post-colonial governments introduced a number of interventions including resettlement programs, destocking, new land tenure systems and land policies, strengthened by the present state governments in the form of the open grazing law, which in turn has triggered incessant bloody clashes between Fulani herdsmen and local farmers. The modernization theory as attributed to anti-colonial campaign on land alienation favors the settlement, re-settlement and open grazing of Fulani herdsmen on any land as well as the attendant impacts.

## 3. METHODOLOGY

The Descriptive Survey Design is used to carry out the study. Population for this study are the people living in Iseyin city which also comprises of Fulani herdsmen, farmers, police officers, prison officials and lawyers in Iseyin city of Oyo state. The Fulani herdsmen, farmers, police officers, prison officials and lawyers are those accessible for this research. From the data base of United Nation with re-estimation in 2011 which was confirmed that the population of Iseyin a city in Oyo is 302,990[1]. The Iseyin people, Fulani herdsmen, farmers, police officers, prison officials and lawyers to be selected will be chosen from the three districts Ado-Awaye, Iseyin and Osogun because the clashes affect all the districts in Iseyin Local government.

The population of the study is 302,990 while Taro Yamane formula was used to determine the sample size as shown below[1]:

$$S = {}^{N}/_{1+N\,(e)^{2}}$$

Where S= the sample size

N= Population of the study

e = error margin

$S = 302,990/ _{1 +} 302,990_{(0.05)^2}$

S = 400

The method of data collection is both primary and secondary sources. The primary sources employed the use of questionnaires. The questionnaires were personally administered to the people in their various districts and locations. An explanation was given to them on what they are expected to do and collection of data made on the spot to avert loss of questionnaires since most respondents are itinerant.

## 4. DATA ANALYSIS AND PRESENTATION

The Fulani headsmen and farmers clashes in Iseyin local government area has no effect on the Criminal Justice System in Nigeria.

***Table 1: Chi Square summary on statement regarding the significant effect of Fulani herdsmen and farmers clashes on criminal justices system in Nigeria***

| **Items** | | | | **Response** | | |
|---|---|---|---|---|---|---|
| | **SA** | **A** | **U** | **D** | **SD** | **Total** |
| There is significant effect of Fulani herdsmen and farmers clashes on criminal justices system in Nigeria | | | | | | |
| F | 100 | 104 | 58 | 43 | 25 | 330 |
| % | 30.4 | 31.4 | 17.7 | 13.1 | 7.4 | 100.0 |
| **Chi Square** | **X2** | | | **152.110** | | |
| | **df** | | | **3** | | |
| | **p** | | | **< .05** | | |

It was observed that 61.8% of the respondents confirmed that there is significant effect of Fulani herdsmen and farmers' clashes on criminal justices system in Nigeria, 20.5% felt otherwise while 17.7% are indecisive. The $X^2$ value of 152.110, df of 3 revealed a p value that was less than 0.05 level of significant. This implied that the observed variation in responses were valid for conclusion. It could therefore be summated that there is significant effect of Fulani herdsmen and farmers' clashes on Criminal Justices System in Nigeria. This negates the formulated hypothesis 4 and it was rejected.

**There are no criminalities in the Fulani herdsmen and farmers clashes in Iseyin Local**

**government area in Oyo state**

***Table 2: Chi Square summary on asserting criminalities between Fulani herdsmen and farmers during clashes in Iseyin Local government area in Oyo state***

| **Items** | | | | **Response** | | |
|---|---|---|---|---|---|---|
| | **SA** | **A** | **U** | **D** | **SD** | **Total** |
| There are no criminalities between Fulani herdsmen and farmers during clashes in Iseyin Local government area in Oyo state | | | | | | |
| F | 84 | 74 | 80 | 52 | 40 | 330 |
| % | 25.4 | 22.6 | 24.3 | 15.8 | 12.0 | 100.0 |
| **Chi Square** | **X2** | | | **148.204** | | |
| | **df** | | | **3** | | |
| | **p** | | | **< .05** | | |

It was observed that 48.0% of the respondents confirmed that there are criminalities between Fulani herdsmen and farmers' during clashes in Iseyin Local government area in Oyo state, 27.8% felt disagree while 24.3% are indecisive. The $X^2$ value of 148.204, df of 3 revealed a p value that was less than 0.05 level of significant. This implied that the observed variation in responses were valid for conclusion. It could therefore be assumed that there are criminalities between Fulani herdsmen and farmers' during clashes in Iseyin Local government area in Oyo state. This negates the formulated hypothesis 3 and it was rejected.

Based on the research question two which inquired on the level of criminalities as a result of Fulani herdsmen and farmers clashes in Iseyin Local government area in Oyo state, the findings of the study revealed that farms are invaded by Fulani herdsmen. During these invasion rape cases, kidnapping, killing and burning of churches and houses of farmers, threat to take ownership of the community by the Fulani herdsmen in Iseyin Local government area in Oyo state. In line with this contribution Oluwole and Nathaniel (2015), assert that the criminal activities of Fulani herdsmen include violent acts which most cases have no direct bearing to their illegal occupation of land for grazing but solely for criminal purposes such as armed robbery, murder, looting, kidnapping, kidnap for ransom, rape, arson, destruction of communities and Churches. These criminal acts are subsumed under the guise of land struggle for cow grazing. However, no government security agency in Nigeria has taken punitive action aimed at apprehending, investigating and prosecuting these criminals.

Finally, based on the implications of Fulani herdsmen and farmers clashes as it affects Criminal Justices System in Nigeria, the findings of the study revealed that criminal procedure of the Criminal Justice System has not been altered till this day. They are not deficient in necessary policies and legislation, so they can facilitates fair trial of suspects, the society institutions of

social control in the community has been effective, they have been responsive in discharging their duties. In line with this, Onimajesin (2009), asserts that design of each country's Criminal Justice System should reflect its social and cultural orientation as an instrument of social control that situate within the cultural milieu in which it operates. An effective Criminal Justice policy regime requires every society to create its own institutions of social control that reflects popular societal mores and values. Criminal law legislation should holistically mirror government's policies as it relate to the control of conducts that threaten law and order in a territory.

## 6. CONCLUSION AND RECOMMENDATIONS

Based on the findings of the study, it can be concluded that the causes of Fulani herdsmen and farmers' clashes in Iseyin could be averted if the people would understand each other's language other than their mother tongue for easy communication. Also, clashes would be minimal if they understand climate change and be accommodating which may result to a better farming experience for both farmers and Fulani herdsmen. The Iseyin people as a result of the clashes in the community prefer to stay away from farming to be safe from being killed. Criminalities during these incessant clashes between the Fulani herdsmen and farmers include invading of farms, rapping, kidnapping, and burning of properties perpetrated by the herdsmen. Also, effect of Fulani herdsmen and farmers' clashes on criminal justice system in Nigeria has strengthened the arms of the system to support the steps flagged up to curb the clashes. Lastly, it was concluded that there is no implication of Fulani herdsmen and farmers clashes on effectiveness of the criminal justice system in Nigeria.

### *5.3 Recommendations*

Based on the findings of the study, the following recommendations are made:

1. Federal government should adopt both short-term and long-term measures towards tackling the incessant farmers and Fulani herdsmen crisis.
2. Federal government should discharge her primary constitutional responsibility to the people by arresting and prosecuting the Fulani herdsmen who perpetrate the attacks for the various possible crimes.
3. Federal government should take the lead and ensure that grazing laws are enacted for the entire country.
4. Federal government should develop the legal structure and framework for restorative justice, to complement the extant criminal justice system in Nigeria and encourage farmers and herdsmen to bring their misgivings to the constituted authority.

5. Federal government should adopt critical policy decision (s) in collaboration with all the states of the federation and criminal justice system that could end the recurrent killings and other criminalities.
6. The criminal justice system should ensure to put in undiluted efforts in discharging their duties and ensure the enforcement of law and punishment giving by the government
7. The Oyo state government can also make complementary by-laws. These laws should clearly provide for ranches and define grazing lands, and should mark out grazing routes across the state and country.
8. The Oyo states government should follow possible civil actions against the Fulani herdsmen because it would help to curb the recurrent Fulani herdsmen attacks.

## 2. INTRODUCTION

Land in Nigeria as it obtains throughout Africa, is a primary resource for survival and a major source of income and livelihood for the rural population. Land is not only a source of livelihood and valuable economic asset but also carries spiritual values with it. Therefore, access to landed resources is not merely a matter of productive use of the ecological environment; it involves power and symbolic relations[1]. Due to increased population pressure, environmental conditions and diversification of the rural land use patterns in Nigeria, adequate access to pasture and water for livestock has diminished thus prompting herdsmen to migrate to the north central, southern and western part of the country. The squeezing out of herdsmen from their traditional grazing lands has spurred the tension and conflicts with farming communities in the last decades.

Land, crops, livestock, water resources and vegetal resources play key role in the development, maintenance as well as sustainability and projection of the socio-economic strength of a society[2]. Hence, resource ownership and its utilization have resulted in to conflicts involving man since time immemorial. As earlier stated, of all the aforementioned resources, land has remained an overwhelming source of conflict among various user groups as well as individuals. In other words, conflicts between farmers and herdsmen over the control of land that leads to diverse attack is becoming fierce and increasingly widespread in Nigeria largely due to the intensification of production activities that are necessitated by the entrenchment of capitalist relations coupled with an increasing human population[3]. Farmers are indigenous members of the community where they reside, and are found in almost all the rural settings where they cultivate

mostly at a subsistent level. Herdsmen, on the other hand, are people who rear livestock and are mostly of the Fulani extraction. The particular group in this study is the transhumant category and not the sedentary type. This is because, the sedentary ones have little record of clashes with their host communities compared to the transhumant category that graze livestock and shifts from one location to another where they can get feeds for their animals.

The vast geographical area of Nigeria has placed farmers in a situation to live with the Fulani herdsmen particularly during the dry season. More so, the Fulani herdsmen still practice the free range system; they move from one place to another in search of pasture and water. This development usually forces them to migrate from the North to the South Valleys, particularly Oyo State, where both pasture and water resources can be found. As a result, this has increased the competition for land between the Fulani herdsmen and farmers resulting in the existing clashes and economic friction among the two groups in the state. .

However, this conflicts between farmers and herdsmen emanated as a result of the increase in population of both the farmers and the herdsmen. This was sequel to the increase in the need for more farmland. Other causes of the conflict include: change in climate condition leading to drought and dessert encroachment; improvement in technology that brought about irrigation; the need to cultivate and produce more of the cash crops newly introduced. Conflict between farmers and herdsmen is also reinforced by the farmers‟ habit of extending the boundary of their farms to livestock route and the herdsmen's habit of allowing cattle to veer into the farmers‟ farm to eat their plants and drop their dung either on the farm or on the pedestal route [10]. Take for example, the farmers-herdsmen conflict in Riyom Plateau State; Agatu in Benue State, Nimbo in Enugu State and the alleged kidnapping of Chief OluFalae (who is a farmer), by suspected herdsmen in Ondo State, this pose new twist to the incidents of farmers-herdsmen conflicts which affirm the fact that farmers-herdsmen conflict is assuming a national integration threatening dimension in Nigeria [4].

Nevertheless, the recent farmers-herdsmen attacks in Oke-Ogun area of Oyo State, pose threat to the peaceful co-existence of the different ethnic nationalities in Nigeria. Thus, Nigeria seems to continue to struggle with upholding its laws amid myriad criminality that seem beyond the power of the Criminal Justice System to solve. The principal actors in the Nigeria Criminal Justice System charged with the responsibility of maintaining one aspect of the law or the other including: the Economic and Financial Crime Commission (EFCC), the Federal Road Safety Commission (FRSC), the Police, the judges, the prisons and so on are often said to be enmeshed in ineptitude, corruption, and injustice. However, this study focuses on the criminalities of fulani herdsmen and farmers clashes and its implications on criminal justices system in Nigeria.

Based on the foregoing, this paper examines the criminalities and implications of Fulani

herdsmen and farmers clashes on criminal justices system in Nigeria using Iseyin Community in Oyo State as Case Study.

## 2. CONCEPTUAL REVIEW

### *2.1 The Fulani People of Nigeria: A Brief History*

According to historical accounts, the Fulani people constitute a distinct ethnic group in Nigeria and are found in several other African countries, including The Gambia, Mali, Sierra Leone, Benin, Burkina Faso, Cameroon, Côte d'Ivoire (Ivory Coast), Niger, Togo, the Central African Republic, Ghana, Liberia, and The Sudan. In general, they are minorities in the countries they are found. In terms of language, they speak Fule. [5] It should be noted that the popular name Fulani is a corruption of the local name of the people which is 'Fula' (also spelt Foulah or Fulah). Etymologically, the name Fulani was partly borrowed from Hausa language and from Mandingo language. [5]

In modern times the Fulani people may be categorized into two groups, namely, (1) the nomadic/cattle-rearing Fulanis (the Bororoje); and (2) the sedentary/urbanized Fulanis (the Gida). Of these two groups, however, the nomadic/cattle rearing or mobile Fulani are closer to the traditional way of life of the Fulani people than the sedentary Fulani who now dwell in cities and engage more in agriculture, trade and politics than in the traditional Fulani nomadic lifestyle[6].

There are different versions of the origin of the Fulani people and this seems to vary from country to country where they are found. The Fulani people first entered Hausa-land in present day Nigeria in the 15th century and settled in established Hausa city-states such as Kano, Katsina and Zaria; some of them as Islamic clerics. This continued in the 16th and 17th centuries with new arrivals that settled and intermingled with local Hausa people. Through the process of time, most of the nomads became acculturated and increasingly sedentary[7].

The urban culture of the Hausa was attractive to many Fulani. These Town or Settled Fulani became clerics, teachers, settlers, and judges—and in many other ways filled elite positions within the Hausa states. Soon they adopted the Hausa language, many forgetting their own Fulfulde language. Although Hausa customs exerted an influence on the Town Fulani, they did not lose touch with the Cattle or Bush Fulani[7].

It should be noted that this development was to lay foundation for future spread and political domination of the Fulani people in Nigeria. Also 99% of Fulani people are Muslims. In fact, it can be said that a cultural or religious identity of Fulani people is Islam. As time proceeded in the 18th and 19th centuries, the Fulani people began to resent being ruled by their host Kings who were regarded as infidels (imperfect Muslims). In 1804, that resentment snowballed into jihad (religious or so-called holy war) launched and led by a Fulani cleric, Usman Dan Fodio, to

overthrow the Hausa Kings. The jihad was successful, as most Hausa states were conquered and a new powerful state called Sokoto Caliphate established. To this day the Caliphate exists as the centre of Islamic leadership in Nigeria under an Emir/Caliph. Anter rightly notes that the ties between the nomadic/cattle rearing Fulani (also called pastoral Fulani) and the sedentary/urban Fulani became helpful during the 19thcentury jihad when the latter joined the jihad. In his words, 'they tied their grievances to those of their pastoral relatives. The cattle Fulani resented what they considered to be an unfair cattle tax, one levied by imperfect Muslims[8]'.

In contemporary times, the Fulani people resent and oppose the anti-grazing laws enacted in Benue State, Taraba State, Plateau State, and some other States in Nigeria to check the frequent clashes between farmers and Fulani herdsmen. As the International Crisis Group (ICG) argues, some of the attacks and mass killings in recent years are traceable to this resentment.

In the political arena, the Fulani people of Nigeria occupy high political offices since the time of their victory in the 19th century jihad. Before the formation of Nigeria, the Caliph of the Sokoto Caliphate was the highest religious and political leader of the Hausa/Fulani Kingdoms. This pre-eminent leadership position continued after the formation of Nigeria and up to the present day, with Fulani people occupying the highest political office of the land and several other high-ranking political offices. Specifically, at independence on 1 October 1960 Alhaji Tafawa Balewa (a Fulani man) became the first Prime Minister of Nigeria and served till 15 January 1966 when he was killed in a military coup. In more recent years, it is noteworthy that President Umaru Musa Yar'Adua (2007-2010) was a Fulani man, and the sitting President of Nigeria, Mohammad Buhari, is also a Fulani man[9].

To conclude, there are indications to suggest that there is an alliance between the nomadic/cattle rearing Fulanis (herdsmen) and the urban/sedentary Fulanis who control the coercive force of government in the ongoing recurrent killings by the herdsmen. Firstly, President Buhari (urban/sedentary Fulani man) owns cattle which are herded by the herdsmen and he is a patron of *Miyetti Allah* (an association of Fulani herdsmen). Secondly, President Buhari is manifestly unwilling to take any decisive security action against the impunity, massive and recurrent killings of innocent Nigerians perpetrated by Fulani herdsmen. Thirdly, he is unwilling to declare Fulani herdsmen as a terrorist group and rejects any suggestion that Fulani herdsmen attacks are a continuation of the Fulani 19th century jihad. Notably, apart from President Buhari's support, similar support for the Fulani herdsmen abound among other urban/sedentary Fulani people in high political positions and other high offices in Nigeria. Finally, the alliance can also be seen in the fact that the Fulani herdsmen are known to use sophisticated weapons– such as AK47 assault rifles and other weapons of violence and mass destruction–in the various attacks, which they cannot possibly acquire personally given their lack of education and nomadic lifestyle except

someone (most likely their sedentary Fulani brothers) helped them to acquire and trained them on the use[10].

Importantly, notwithstanding denials by President Buhari, the Sultan of Sokoto, and some other Muslims historical statement by a Fulani man – Alhaji Ahmadu Bello, who was the Sarduana of Sokoto and Premier of the Northern Region of Nigeria –coupled with recent declarations of the leadership of *Miyetti Allah* as noted above, arguably supports the proposition that the Fulani herdsmen are currently engaged in jihad. In the 1962 historical statement, Ahmadu Bello said: 'When the time comes I will mobilize the people of the region [Northern Nigeria/Muslims/Fulani people] so that they can play their full part in this all-important task which might be likened to a jihad… A jihad is war waged for some sacred interest to protect the faith, life, property, liberty and self-respect [interest]' [11]. Having regards to recurrent mass killings by Fulani herdsmen and the tacit support of President Buhari and other influential and powerful Fulani people, it may be that for the Fulani successors of Ahmadu Bello the time may have come to mobilize Fulani herdsmen and other Muslims for jihad[12]. In any case, having regards to the foregoing background one needs to consider the possible legal implications of recurrent mass killings in Nigeria by Fulani herdsmen[13].

2.2 **5 Some Recorded Incidents of Mass Killings by Fulani Herdsmen in Nigeria**

Isolated incidents of mass killings by Boko Haram are still occurring in Nigeria, especially in the north-eastern states of Nigeria. However, as already noted, the most worrisome, nation-wide and recurrent source of mass killings in Nigeria in recent years is the violent campaign of armed/militant Fulani herdsmen[14]. This point was well-made by Gadzama, a former Director-General of State Security Service, thus:

Attacks by herdsmen without doubt have become the most potent threat to national security in the last couple of years. What makes the attacks by herdsmen very disturbing are, the frequency, the level of destruction and sheer brutality. The development in almost all cases is characterized by high casualty rate and massive displacement of communities. One can say with certainty that never has the country experienced this level of destruction and social dislocation. What however is so disturbing with the development is how the attacks in almost all cases took place under the eyes of security agencies.

Similarly, in a report published on 26 July 2018 the International Crisis Group (ICG) notes that the Fulani herdsmen have killed more people in recent times than Boko Haram. In its words: The conflict between herders and farmers in Nigeria, centred in the Middle Belt [also known as north central states, consisting of Benue, Kwara, Kogi, Niger, Nasarawa, and Plateau States and the Federal Capital Territory Abuja] but spreading southward has escalated sharply. Since September 2017, at least 1,500 people have been killed, over 1,300 of them from January to June

2018, roughly six times the number of civilians killed by Boko Haram over the same period. The first half of 2018 has seen more than 100 incidents of violence and more fatalities than any previous six-month period since the conflict started worsening in 2014. The surge of violence is concentrated in Plateau, Benue and Nasarawa states in the North Central geopolitical zone and in the adjoining Adamawa and Taraba States in the North-East zone. [In the North-West zone, Zamfara State is also a major victim of the violence] [15].

For purposes of this study, it is sufficient to outline some incidents and criminality offences of mass killing perpetrated by the Fulani herdsmen in order to illustrate the gory picture of the problem. Noteworthy, the killings are mostly targeted at people of non-Fulani ethnic group and Christians. In May 2013 Over 200 herdsmen surrounded Ekwo-Okpanchenyi, Agatu LGA of Benue State and killed 40 indigenes. Also in July 2013 20 people were killed in a clash between Tiv farmers and Fulani herdsmen at Nzorov, Guma local government area of Benue state. In July 2013 Fulani herdsmen invade 2 villages in Agatu local government area of Benue State and killed 8 villagers[16]. They claimed this to be in retaliation for the killing of 112 cows. By January 2014 In Gbajimsba, Guma local government are of Benue State, Fulani herdsmen killed 25 persons and injured over 50, using sophisticated weapons. In March 2014 Fulani herdsmen attacked 4 villages in Agatu local government area of Benue State; killed 19 persons and abducted 15 others.

January 2015 17 persons killed in attacks by Fulani herdsmen on Abugbe, Okoklo, Ogwule and Ocholoyan in Agatu local government area of Benue State. In January 2015 Over 100 attackers stormed 5 villages in Logo local government area of Benue State, killing 9 persons in the attack. March 2015 Egba village in Agatu local government area of Benue State was sacked by herdsmen and over 90 local people, including women and children, were killed. April 2015 28 persons were killed by Fulani herdsmen in attack on 3 villages at Mbadwem, Guma local government area of Benue State; additionally, houses and farmlands were razed. May 2015 Ikyoawen community in Turan Kwande local government area of Benue State invaded by Fulani herdsmen; 5 persons were killed and 8 others wounded. May 2015 100 persons were killed in an attack by Fulani herdsmen in villages and refugee camps at Ukura, Gafa, Per and Tse-Gusa, Logo local government area of Benue State[17].

July 2015 1 person was killed and several others injured following an attack on mourners in Imande Bebeshi in Kwande local government area of Benue State. November 2015 12 persons were killed and 25 others injured in Buruku local government area of Benue State following an attack by Fulani herdsmen. February 2016 10 persons were killed and over 300 persons displaced in clash between herdsmen and farmers at Tor-Anyiin and Tor-Ataan in Buruku local government area of Benue State. 24 February 2016 Over 500 locals were killed and 7000 displaced in an attack on Agatu local government area of Benue State by Fulani herdsmen. Moreover, over 7 villages

were razed during the attack. February 2016 11 persons were killed in Edugbeho Agatu local government area of Benue State, including a police inspector. March 2016 Houses burnt in Agatu local government area of Benue State[18].

March 2016 8 residents killed by Fulani herdsmen in attacks on Ngorukgan, Tse Chia, Deghkia and Nhumbe in Logo local government area of Benue State. 10 March 2016.. Two persons were killed in attack on Obagaji Agatu local government area of Benue State. 13 March 2016 6 people were killed by Fulani herdsmen in an attack on Tarka local government area of Benue State. 24 January 2017 15 persons were killed by rampaging Fulani herdsmen, who attacked farmers in Ipiga village in Ohimini local government area of Benue State. 2 March 2017 About 10 persons were killed in a renewed hostility between Fulani herdsmen and farmers in Mbahimin community, Gwer-East local government area of Benue State[19]. 8 May 2017 Three persons were confirmed killed by Fulani herdsmen in Tse-Akaa village, Ugondo Mbamar District of Logo local government area of Benue State. 11 March 2017 7 persons were killed when Fulani herdsmen attacked a Tiv community, Mkgovur village, in Buruku local government area of Benue State. 13 May 2017 Less than one week after many persons were killed by Fulani herdsmen in three communities of Logo local government area of Benue State, armed Fulani herdsmen struck again on 13 May 2017 killing eight more people. 24 December 2017 A farmer identified simply as Atuanya was killed by Fulani herdsmen in Anaku in Ayamelum local government area of Anambra State.. 8 March 2018 Armed Fulani herdsmen killed five persons in Miango District of Plateau State and another six in Ganda Village in Bokkos local government area of Plateau State[19].

12 March 2018 Fulani terrorists killed 25 persons, including three children and two women in Dundu Village of Kwall District in Bassa local government area of Plateau State. An injured girl later died in the hospital. This incident occurred about 7pm on a day several persons who were earlier killed in Bassa local government area of Plateau State were given mass burial. 16 March 2018 5 persons, including a University undergraduate, were killed about 7.30pm by Fulani herdsmen who attacked Ugboha, Esan South-East local government area and Odiguete Ovia North-East local government area of Edo State. Besides the dead, 12 persons sustained various injuries during the attack[20].

14-15 April 2018 Suspected Fulani herdsmen killed 32 persons of Tiv ethnic group in various communities in Nasarawa State.18 April 2018 Fulani herdsmen killed four persons while they were collecting sand for construction at Jebbu-Miango Village, Bassa local government area of Plateau State, but were repelled by troops while they were moving to attack Taraba State on the same day. 2 May 2018 Fifteen persons were killed and four communities completely burnt down by Fulani herdsmen who attacked Numan local government area of Adamawa State[20].

23 June 2018 Over 150 persons were killed in the night and within 48 hours in about 5 villages of Gashish District of Barkin-Ladi local government area of Plateau State. 9 July 2018 Herdsmen attacked communities in Rabah local government area of Sokoto State, killing over 30 persons. 2 October 2018 At least 14 persons were killed by Fulani herdsmen in the night of Tuesday 2 October 2018 in an attack in Jol village, Rivom local government area of Plateau State. 3 October 2018 19 persons were confirmed killed in yet another fresh attack by Fulani herdsmen on 3 October 2018 in Ariri village of Bassa local government area of Plateau State[21].

In fact, one of the key electoral promises of President Buhari was ending Nigeria. However, few months to the end of his 4-year tenure insecurity in Nigeria is increasing instead of ending. The reality is that Boko Haram insurgency has not ended and Fulani herdsmen attacks have escalated under his watch. Also the administration by President Bola Ahemed Tinubu also promised to stop insecurity in which as taking a new dimension and become a household business. The people of Nigeria are currently insecure and have no peace.

### *2.3 **Perceived Causes of Fulani Herdsmen Criminal Activities***

Various Scholars have tried to explain the reasons, genesis and causes propelling farmer-Fulani herdsmen conflict cum violent crimes across the country[22,23, 24].[24] found in their studies that poor resource governance was a key cause in the conflict between farmers and Fulasni herdsmen. They also found that "the role of government has not been very encouraging" in tackling the problem. This poor resource governance for them is a grave "threat to both natural resources and human security" and also "detrimental to rural livelihood, food security and social co-existence". This problem is exacerbated further when there is no institution to contain or control the situation[25]. It is important to understand that the Fulani herdsmen "hardly request any permission to move or stay around any community, and are thus regarded as invaders by the host communities"[26]. This on its own is an affront on the authority of the host community and enough to generate serious conflict, if not carefully handled. It is no gainsaying that the Fulani herdsmen use their cows to chase people away from their farms and thereafter take possession.

The cause to contamination of rivers by cattle, spraying of farms with pesticide and insecticides which the Fulani herdsmen see as an action which is done to prevent them from grazing and also to kill their cows through water poisoning. They also identified raping of women, burning of bushes especially grass area, communication barrier, cultivation of crops along cattle routes, cattle rustling and killing as other factors responsible for farmer-Fulani herdsmen conflict[27,28]. The reasons are very plausible but insufficient to explain the level of violent crimes committed against host communities. It does not explain the relationship between raping of women and use of grazing land. It does not explain the rights of Fulani herdsmen to determine when or not farmers should burn their farm or bush. Every citizen has a place of birth, inheritance

and possession; and when you migrate to another area, you do not use force to demand for a portion of land to build your house or keep your animals. You do not rape their wives or kidnap their children to ask for land space. You do not burn Churches or destroy communities to seek permission to use another man's land. You do not walk in the dark of the night to attack and kill your host in the name of asking for his land to breed your cows.

Naturally, those who operate under the cover and protection of the night are evil men who engage in acts of wickedness and destruction of lives. They are common criminals and should be treated as such instead of glorifying and glamorizing their heinous crimes. These are criminal activities that are punishable under the laws of our land but nobody has ever discussed about this in like manner or even seen their criminal activity as a security threat to national development and peace. Government only sees their criminal activity as mere conflict of interests instead of viewing it as an act, chargeable and punishable under the laws of the land.

*Violent conflict between farmer and Fulani herdsmen had be attributed to environmental factors, climate change and exploitation of scarce resources. They believe that global climate change and desertification has reduced green grass areas thereby compelling pastoralists to move southward in search of pastures for their cattle. In addition, capitalist tendency in acquiring land for farming has also reduced the land space available for cattle grazing*[29,30]*. This is worsened by government indiscriminate allocation of grazing lands for government layouts or reserve areas without alternative provision of grazing lands for pastoralists. The cause may also be attributed to redistribution of land resources which are the moment some persons are using violent and criminal means to acquire.*

## 3. THEORITICAL FRAME-WORK

The study adopted the modernization theory. The modernization theory is a good testing ground to address land use clashes between the Fulani herdsmen and local farmers, because from the colonialists' point of view, the traditional land use and tenure systems practices among the Fulani herdsmen and local farmers were considered primitive, unproductive and needed to be transformed and "modernized". It is from this perspective that colonial and post-colonial governments introduced a number of interventions including resettlement programs, destocking, new land tenure systems and land policies, strengthened by the present state governments in the form of the open grazing law, which in turn has triggered incessant bloody clashes between Fulani herdsmen and local farmers. The modernization theory as attributed to anti-colonial campaign on land alienation favors the settlement, re-settlement and open grazing of Fulani herdsmen on any land as well as the attendant impacts.

## 3. METHODOLOGY

The Descriptive Survey Design is used to carry out the study. Population for this study are the people living in Iseyin city which also comprises of Fulani herdsmen, farmers, police officers, prison officials and lawyers in Iseyin city of Oyo state. The Fulani herdsmen, farmers, police officers, prison officials and lawyers are those accessible for this research. From the data base of United Nation with re-estimation in 2011 which was confirmed that the population of Iseyin a city in Oyo is 302,990[1]. The Iseyin people, Fulani herdsmen, farmers, police officers, prison officials and lawyers to be selected will be chosen from the three districts Ado-Awaye, Iseyin and Osogun because the clashes affect all the districts in Iseyin Local government.

The population of the study is 302,990 while Taro Yamane formula was used to determine the sample size as shown below[1]:

$$S = {}^{N}/_{1+N(e)^2}$$

Where S= the sample size

N= Population of the study

e = error margin

$$S = 302{,}990/_{1+302{,}990_{(0.05)^2}}$$

S = 400

The method of data collection is both primary and secondary sources. The primary sources employed the use of questionnaires. The questionnaires were personally administered to the people in their various districts and locations. An explanation was given to them on what they are expected to do and collection of data made on the spot to avert loss of questionnaires since most respondents are itinerant.

## 4. DATA ANALYSIS AND PRESENTATION

The Fulani headsmen and farmers clashes in Iseyin local government area has no effect on the Criminal Justice System in Nigeria.

***Table 1: Chi Square summary on statement regarding the significant effect of Fulani herdsmen and farmers clashes on criminal justices system in Nigeria***

| Items | Response | | | | | |
|---|---|---|---|---|---|---|
| | SA | A | U | D | SD | Total |

There is significant effect of Fulani herdsmen and farmers clashes on criminal justices system in Nigeria

| | | | | | | |
|---|---|---|---|---|---|---|
| | F | 100 | 104 | 58 | 43 | 25 | 330 |
| | % | 30.4 | 31.4 | 17.7 | 13.1 | 7.4 | 100.0 |
| **Chi Square** | **X2** | | | | **152.110** | | |
| | **df** | | | | **3** | | |
| | **p** | | | | **< .05** | | |

It was observed that 61.8% of the respondents confirmed that there is significant effect of Fulani herdsmen and farmers' clashes on criminal justices system in Nigeria, 20.5% felt otherwise while 17.7% are indecisive. The $X^2$ value of 152.110, df of 3 revealed a p value that was less than 0.05 level of significant. This implied that the observed variation in responses were valid for conclusion. It could therefore be summated that there is significant effect of Fulani herdsmen and farmers' clashes on Criminal Justices System in Nigeria. This negates the formulated hypothesis 4 and it was rejected.

**There are no criminalities in the Fulani herdsmen and farmers clashes in Iseyin Local government area in Oyo state**

***Table 2: Chi Square summary on asserting criminalities between Fulani herdsmen and farmers during clashes in Iseyin Local government area in Oyo state***

| **Items** | | | | **Response** | | |
|---|---|---|---|---|---|---|
| | **SA** | **A** | **U** | **D** | **SD** | **Total** |
| There are no criminalities between Fulani herdsmen and farmers during clashes in Iseyin Local government area in Oyo state | | | | | | |
| F | 84 | 74 | 80 | 52 | 40 | 330 |
| % | 25.4 | 22.6 | 24.3 | 15.8 | 12.0 | 100.0 |

| | | |
|---|---|---|
| **Chi Square** | **X2** | **148.204** |
| | **df** | **3** |
| | **p** | **< .05** |

It was observed that 48.0% of the respondents confirmed that there are criminalities between Fulani herdsmen and farmers' during clashes in Iseyin Local government area in Oyo state, 27.8% felt disagree while 24.3% are indecisive. The $X^2$ value of 148.204, df of 3 revealed a p value that was less than 0.05 level of significant. This implied that the observed variation in responses were valid for conclusion. It could therefore be assumed that there are criminalities between Fulani herdsmen and farmers' during clashes in Iseyin Local government area in Oyo state. This negates the formulated hypothesis 3 and it was rejected.

Based on the research question two which inquired on the level of criminalities as a result of Fulani herdsmen and farmers clashes in Iseyin Local government area in Oyo state, the findings of the study revealed that farms are invaded by Fulani herdsmen. During these invasion rape cases, kidnapping, killing and burning of churches and houses of farmers, threat to take ownership of the community by the Fulani herdsmen in Iseyin Local government area in Oyo state. In line with this contribution Oluwole and Nathaniel (2015), assert that the criminal activities of Fulani herdsmen include violent acts which most cases have no direct bearing to their illegal occupation of land for grazing but solely for criminal purposes such as armed robbery, murder, looting, kidnapping, kidnap for ransom, rape, arson, destruction of communities and Churches. These criminal acts are subsumed under the guise of land struggle for cow grazing. However, no government security agency in Nigeria has taken punitive action aimed at apprehending, investigating and prosecuting these criminals.

Finally, based on the implications of Fulani herdsmen and farmers clashes as it affects Criminal Justices System in Nigeria, the findings of the study revealed that criminal procedure of the Criminal Justice System has not been altered till this day. They are not deficient in necessary policies and legislation, so they can facilitates fair trial of suspects, the society institutions of social control in the community has been effective, they have been responsive in discharging their duties. In line with this, Onimajesin (2009), asserts that design of each country's Criminal Justice System should reflect its social and cultural orientation as an instrument of social control that situate within the cultural milieu in which it operates. An effective Criminal Justice policy regime requires every society to create its own institutions of social control that reflects popular societal mores and values. Criminal law legislation should holistically mirror government's policies as it relate to the control of conducts that threaten law and order in a territory.

## 6. CONCLUSION AND RECOMMENDATIONS

Based on the findings of the study, it can be concluded that the causes of Fulani herdsmen and farmers' clashes in Iseyin could be averted if the people would understand each other's language other than their mother tongue for easy communication. Also, clashes would be minimal if they understand climate change and be accommodating which may result to a better farming experience for both farmers and Fulani herdsmen. The Iseyin people as a result of the clashes in the community prefer to stay away from farming to be safe from being killed. Criminalities during these incessant clashes between the Fulani herdsmen and farmers include invading of farms, rapping, kidnapping, and burning of properties perpetrated by the herdsmen. Also, effect of Fulani herdsmen and farmers' clashes on criminal justice system in Nigeria has strengthened the arms of the system to support the steps flagged up to curb the clashes. Lastly, it was concluded that there is no implication of Fulani herdsmen and farmers clashes on effectiveness of the criminal justice system in Nigeria.

### *5.3 Recommendations*

Based on the findings of the study, the following recommendations are made:

9. Federal government should adopt both short-term and long-term measures towards tackling the incessant farmers and Fulani herdsmen crisis.
10. Federal government should discharge her primary constitutional responsibility to the people by arresting and prosecuting the Fulani herdsmen who perpetrate the attacks for the various possible crimes.
11. Federal government should take the lead and ensure that grazing laws are enacted for the entire country.
12. Federal government should develop the legal structure and framework for restorative justice, to complement the extant criminal justice system in Nigeria and encourage farmers and herdsmen to bring their misgivings to the constituted authority.
13. Federal government should adopt critical policy decision (s) in collaboration with all the states of the federation and criminal justice system that could end the recurrent killings and other criminalities.
14. The criminal justice system should ensure to put in undiluted efforts in discharging their duties and ensure the enforcement of law and punishment giving by the government
15. The Oyo state government can also make complementary by-laws. These laws should clearly provide for ranches and define grazing lands, and should mark out grazing routes across the state and country.
16. The Oyo states government should follow possible civil actions against the Fulani herdsmen because it would help to curb the recurrent Fulani herdsmen attacks.

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# Effectiveness of Classical and Generalizability Test Theory in Estimating Reliability of Teachers Job Performance Scale in Secondary School in Oyo State

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## Abstract

*The study estimated the reliability of the teacher job performance scale using classical test theory. It also examined the reliability of the teacher job performance scale using generalizability theory. Furthermore, it compared the margin of measurement error in the teacher job performance scale based on classical and generalizability test theories. These were with a view to improving the psychometric quality of the teacher job performance scale. Descriptive survey research design was adopted for the study. The population for the study consisted of all secondary school teachers in Oyo State. The study sample consisted of 450 secondary school teachers who were selected using multistage sampling technique. Three Local Government Areas (LGAs) were selected from each of the three senatorial districts in the state using simple random sampling technique. Five secondary schools were selected from each LGA using simple random sampling technique. Furthermore, 10 teachers were selected in each school using simple random sampling technique. The research instrument titled teacher job performance scale (TJPS) was used to collect the data. The TJPS was adopted from Goodman and Svyantek (1999) job performance scale developed by Goodman and Svyantek (1999). The reliability of the TJPS was estimated using Cronbach alpha, Spearman Brown Split halve and Pearson test retest for CTT and G and Phi coefficient for GT. The results showed that the reliability of the teacher job performance scale based on classical test theory was 0.86 (Cronbach's alpha), 0.80 (split halve) and 0.685 (test retest). On the other hand, the reliability of teacher job performance scale based on generalizability theory was 0.86 (G-coefficient) and 0.85 (Phi-coefficient) for one-facet design, while the reliability was 0.625 and 0.59 for G and Phi coefficients respectively using two-facet design Furthermore, estimated margin of measurement error from reliability coefficients based on classical test theory was 4.9% (Cronbach's alpha), 5.8% (split halve) and 7.03% (test retest), while the margin error based on GT was 0.18% and 0.29% using one and two-facet respectively. The study concluded that the reliability of teacher job performance scale can be improved using the generalizability theory.*

**Keywords:** Classical Test Theory, Generalizability Test Theory, Estimation of

Reliability, Job Performance Scale.

## INTRODUCTION

Reliability and validity are two important fundamental psychometric properties to be considered in the evaluation of any measurement instrument. Validity is concerned with the extent to which an instrument measures what it is intended to measure while reliability is concerned with the ability of an instrument to measure consistently an intended construct. Although the two psychometric properties are closely associated with one another. But it should be noted that, an instrument cannot be valid unless it is reliable. However, the reliability of an instrument does not depend on its validity.

Therefore, the need to have reliable job performance scale cannot be over emphasised. For example in education industry, the decision related to teacher job performance such as selection, retention, promotion and compensation of teacher would not be valid and dependable if it is not based on reliable measure.

Classical and generalizability test theories are psychometric theories use to determine the reliability of any psychometric measuring instrument. Studies have shown that classical test theory have been used for long to determine reliability of the measuring instrument (Borsboom, 2009), though it can only examine a single source of measurement error at a time. Meanwhile in reality, several types of measurement error can exist concurrently.

In complex measurement situations such as job performance assessment, random and systematic measurement errors may arise from many different possible sources. The observed score is the result of the true score plus the effects and interactions of various possible sources of measurement errors. When confronted with multiple sources of measurement error, a common practice in Classical Theory is to use different method o such as the test-retest method, the inter-rater method, parallel form method and internal consistency methods, to assess “reliability due to various sources of measurement errors.” This approach is quite problematic both in theory and in practice. First, it leads to estimation of different types of reliability coefficients. Secondly, having different reliability coefficients within classical test theory, would lead to estimation of different standard errors of measurement. Which standard error of measurement should someone used to build confidence intervals around the observed scores? Since the observed score is partly the

product of all sources of measurement errors and their interactions, all standard errors of measurement should be considered when building a confidence interval. However, it is not so that classical test theory denies the existence of multiple sources of measurement errors; rather it has no capacity to accommodate the estimation of multiple sources of error in a single reliability estimate.

The fundamental idea of CTT is that an observed score is the result of the respondents' true score plus error. Hence, the error score is defined as the difference between the observed score and the true score. Thus, CTT provides a simple way to link the latent variable (i.e. true score) with its manifest variables (i.e. observed score). Classical Test Theory defines the true score of person, towards a measurement, as the expectation of the observed score over replications.

The CTT partitions observed score variance into only two components, true score variance and random score variance (Hoi & Pui-Wa, 2007). It is possible to consider estimates of measurement error due to inconsistency in forms (equivalence), observers (interrater agreement), sampling the item domain (internal consistency or split-half), or time (test-retest or stability) in CTT. However, only one measurement error influence can be considered in a given analysis. Each type of reliability estimate can be used to determine the degree to which true scores deviate from observed scores. The problem, however, is that classical test theory is unable to examine inconsistencies in test forms, raters, items, or occasions concurrently.

Generalizability theory (G-theory) extends classical test theory by recognizing and estimating the magnitude of the multiple sources of error (Brennan, 2001). Both sources of error variance and interactions among these sources can be considered simultaneously in a single generalizability analyses (Yelboga, 2013). The G-theory permits multifaceted perspective on measurement error and its components, and enables an investigator to partition measurement error into multiple error sources while CTT admits consideration of only one type of measurement error at a time and does not consider the interaction effects of the measurement error variance.

In G-theory, the observed score is considered to represent the universe score, and this allows the researcher to generalize from the specific sample to the universe of interest (Brennan 2001). More importantly, G-theory allows the exploration of multiple sources of variance such as

person (p), item (i), occasion (o), and rater (r); each of these is defined as a facet, or a set of measurement conditions (Crocker & Algina, 1986 cited in Yelboga, 2013). It also allows the determination of the variance components for the interactions amongst the different facets in the study. These variance components can then be used to determine the sources of error that limit the generalizability of the results. For example, in a single facet design, (p x i), the three sources of variability include differences in examinees achievements, differences in item difficulty, person-item interaction.

The data to be analysed in G theory can be crossed or nested. In a fully crossed data set, each condition of a facet appears in combination with each condition of other facets. However, data are nested when each condition of a facet does not appear in combination with each condition of other facets. Also, facets can be fixed or random. A facet is random if its conditions can be exchanged with any other of the conditions from the same facet (Brennan, 2001). Facets are considered fixed when their levels are not exchangeable and are of specific interest to the investigator, as in many experiments. Generalizability results can also be used to conduct Design study (D-studies) to address "what if" questions about variation in measurement design. With the D-study, sources of error can be pinpointed and protocol modifications can be specified that will result in the desired level of generalizability coefficient (Shavelson & Webb, 2004).

In generalizability studies, decisions made in the context of cutoff scores (absolute decisions), and decision made based on relative standing or ranking (relative decision) can be considered. Classical test theory only estimates the reliability involving relative decisions. The coefficients that address reliability in the context of relative decisions are called relative generalizability coefficients (G-coefficient) while the coefficients that address reliability in the context of absolute decisions are called phi coefficients.

A relative G-coefficient reflects the degree to which the objects of measurement maintain rank order across facets, regardless of possible changes in raw score elevations. It is equivalent to the reliability coefficients of classical test theory (Richard & Noreen 2005;

Yelboga & Ezel 2010; Brenna 2013). Absolute G coefficients are more stringent and reflect both the degree of consistency in the rank ordering of measurement object and consistency in the elevations of the raw score. Absolute G coefficient is useful when the actual values of the obtained scores are important or meaningful to the investigator. It typically involves performance measurement where there is a cut-off value that is deemed particularly meaningfully.

Regardless of the strength, generalizability theory has not yet been widely applied specifically to measure performance. It is therefore necessary to investigate the psychometric properties of scores from teacher job performance scale using both classical and generalizability test theory; hence this study.

The specific objectives of the study are to:

a. estimate the reliability of the teacher job performance scale using classical test theory
b. examine the reliability of the teacher job performance scale using to generalizability test theory
c. compare the margin of measurement error in the teacher job performance scale based on classical and generazability theory.

**METHODOLOGY**

Descriptive survey research design was adopted for the study. The population for the study consisted of all secondary school teachers in Oyo State. The study sample consisted of 450 secondary school teachers who were selected using multistage sampling technique. Three Local Government Areas (LGAs) were selected from each of the three senatorial districts in the state using simple random sampling technique. Five secondary schools were selected from each LGA using simple random sampling technique. Furthermore, 10 teachers were selected in each school using simple random sampling technique. The research instrument titled teacher job performance scale (TJPS) was used to

collect the data. The TJPS was adopted from Goodman and Svyantek (1999) job performance scale developed by Goodman and Svyantek (1999).

The scale is a 25-item affective scale covering three dimensions of job performance, namely altruism, conscientiousness and task performance. The scale was developed to consist of two sub-scale; Contextual and task performance. Items under task performance are related to core activities of the job while items under contextual performance generally related to individual efforts that are not directly related to their main task functions.

The scale had been used in past for assessing the Job Performance among various workers. For instance, Goodman and Svyantek (1999), when the scale was developed, reported that TJPS has reliability of 0.88 for contextual performance sub-scale, reliability of 0.90 for task performance sub-scale and 0.95 reliable for the whole scale. Also Chung and Angeline, (2010) on their study confirm that TJPS is has reliability of 0.88 and 0.95 for contextual and task performance respectively. Similarly Arnold and Matthijs (2010) have also reposted its cronbach alpha reliability to be 0.87 after its use in assessing the performance of starting Dutch Teachers in six different teacher training colleges in the Netherlands. Also Yusoff, Khan, & Azam (2013) found it highly reliable and valid with Cronbach alpha reliability of 0.94. Furthermore Rosman et' al (2014) on their study, found that reliability statistics showed that Goodman and Svyantek (1999) job performance scale possessed mean Cronbach's Alpha Coefficient up to 0.82 and mean Item-total Correlation of 0.70.

Due to fact that TJPS has not been formally reported to measure teacher job performance in Nigeria, therefore the researcher carried out the pilot study to trial-test the instrument. The TJPS was trial tested using 35 secondary school teachers similar to the target sample but not part of the selected sample used for the study. In order to obtain the reliability, the resulting respondents' response was used to obtain the reliability coefficient. The internal coefficient reliability of TJPS was confirmed using Cronbach alpha. This is because Cronbach alpha method is a more generalize method of estimating internal consistency. However, the score obtained from the responses of the teacher who participated in the trial testing was subjected to internal consistency reliability from where a Cronbach Alpha of 0.93 was established. Hence, the instrument was confirmed suitable for the study

**RESULT AND DISCUSSION**

Reliability of TJPS was determined base on CTT and GT. In CTT, Cronbach alpha, Spearman Brown Split halve and Pearson test retest were estimated. while on GT G- coefficient and Phi coefficient were estimated.

**4.1.1 Research Question One:** What is the reliability of the teacher job performance scale using classical test theory?

**Table 1: Internal Consistency of Teacher Job performance Scale**

| Scale Dimension | No. of Item | Min. | Max. | Mean | S.D | α | $r_{1/2}$ |
|---|---|---|---|---|---|---|---|
| Full Scale | 25 | 25 | 100 | 83.9 | 10.89 | 0.86 | 0.80 |
| Task performance Sub-scale | 9 | 9 | 36 | 30.85 | 3.35 | 0.84 | |
| Contextual Per-formance Sub-scale | 16 | 16 | 64 | 51.92 | 7.59 | 0.793 | |

NB: S.D Standard Deviation, α =Cronbach Alpha Coefficient, $r_{1/2}$ = split-halves correlation coefficient

Table1 showed internal consistency of teacher job performance scale with Cronbach Alpha and Spear man-brown split-halves correlation coefficient. The TJPS had Cronbach Alpha coefficient of 0.86 and yielded 0.840 and 0.793 for task and contextual performance sub scale dimension respectively. Also TJPS accounted for 0.80 Spearman-brown split-halves correlation coefficient which is also measure of internal consistency. Therefore, the result indicates that TJPS had high coefficient of reliability with Cronbach alpha and Spearman brown split half reliability estimate.

Furthermore, the coefficient of stability of the TJPS was determined using Pearson test-retest correlation coefficient. The result is summarized in Table 4.2

**Table 2: Coefficient of Stability of TJPS**

| | N | Min. | Max. | Mean | SD | $r_{12}$ |
|---|---|---|---|---|---|---|
| Test | 413 | 25 | 100 | 83.9 | 10.89 | |
| Retest | 413 | 25 | 100 | 83.7 | 10.47 | 0.685 |

NB: N = Number of respondents, X Mean, S.D Standard Deviation, $r_{12}$ = Pearson correlation coefficient.

The result of Table 4.2 reveals that Pearson correlation coefficient obtained between test and retest was 0.685 at 0.01 level of significant (2-tailed). This result indicated JPS had moderate test retest reliability coefficient and found significant (p-value<0.05).

**4.1.2 Research Question 2**: What is the reliability of the teacher job performance scale using generalizability test theory.

To answer this research question, teachers' responses to teacher job performance scale were scored in multivariate format and later converted to univariate format using SPSS syntax command. Then, the converted scores were subjected to reliability estimation based on generalizability test theory. The generalizability estimate of the JPS for one facet measurement design was determined. The summary of this is presented in Table 4.3

**Table 3: Generalizability Estimate of One-facet Design of TJPS**

| Source | Df | SS | MS | VC | % of VC | $Ep^2$ | Phi (Φ) |
|---|---|---|---|---|---|---|---|
| Person (P) | 412 | 1584.3 | 4.3986 | 0.132 | 18.7 | 0.86 | 0.85 |
| Item(i) | 24 | 290.6 | 11.7236 | 0.028 | 4.0 | | |
| Person*Item(pi,e) | 9888 | 5391.9 | 0.5453 | 0.5453 | 77.3 | | |

NB: Df = degree of freedom, $EP^2$ = Reliability (G-coefficient), Φ = Dependability ( Phi-coefficient), SS = sum of square, MS = mean square, VC = variance component

The Table 3 presented ANOVA source table, variance component and generalizability coefficient. The variance component for person (18.7%) indicates that there are differences in

teacher performance. The 4% magnitude of variance component for the items refers to the degree to which the number of items and potential differences in their difficulty affect the reliability of the test. The person by item interaction (77.3%) indicates that the relative scoring of each teacher differs substantially across the items.

The relative and absolute error variance associated with this measurement procedure was used to calculate reliability (G-coefficient) and dependability (phi-coefficient) for G-study and D-study respectively. The result indicates that G-coefficient and phi-coefficient of teacher job performance scale for one facet design were 0.86 and 0.85 respectively. The result reveals that the JPS has high reliability coefficient for both relative and absolute decision.

Furthermore. The generalizability estimate of the TJPS for two facet measurement design was determined. The summary of this is presented in Table 4.6

**Table 4: Generalizability Estimate of Two-facet Design of TJPS**

| Source | Df | SS | MS | VC | % of VC | $Ep^2$ | Phi (Φ) |
|---|---|---|---|---|---|---|---|
| Person | 412 | 3107.3 | 7.542 | 0.065 | 5.25 | 0.625 | 0.59 |
| Occasion | 1 | 4.535 | 4.535 | 0.0002 | 0.02 | | |
| Item | 24 | 516.77 | 21.532 | 0.025 | 2.02 | | |
| Person*Occasion | 412 | 1007.3 | 2.445 | 0.080 | 6.47 | | |
| Person*item | 9888 | 575 | 0.82 | 0.634 | 0.582 | 47.05 | |
| Occasion*Item | 24 | 12.245 | 0.5102 | 0.000006 | 0.00049 | | |
| Person*Item*Occasion | 9888 | 4795.68 | 0.485 | 0.485 | 39.21 | | |

NB: Df = degree of freedom, $EP^2$ = Reliability (G-coefficient), Φ = Dependability ( Phi-coefficient), SS = sum of square, MS = mean square, VC = variance component

From above Table 4, the variance component for persons shows that only 5.25 % of the total variance in scores accounted for differences among the persons, 0.02% accounted for difference in occasions and 2.02% indicates the variability of items in measuring the construct of performance on TJPS. The magnitude of variance component for person-by-occasion interaction (6.47%) suggests

that teachers differed in job performance on TJPS over time while person-by-item interaction (47.05%) indicates scoring variability of each teacher across the items. Also, the variance component for person-by-item-by-occasion interaction (39.21%) indicates that the relative scoring of each teacher differs substantially across the items over the number of test administration.

The relative and absolute error variance associated with this measurement procedure was used to calculate reliability (G-coefficient) and dependability (phi-coefficient) for G-study and D-study respectively. The result indicates that G-coefficient and phi-coefficient of teacher job performance scale for one facet design were 0.625 and 0.59 respectively. The result indicates that the TJPS for two facets measurement design had moderate reliability coefficient for both relative and absolute decision.

**Research Question Three:** How far is the margin of measurement error in the teacher job performance scale based on classical and generalizability test theories.

Table 5: present estimation standard error of measurement (SEM) and margin error based on Classical and Generalizabiity Test Theory Furthermore. For classical test theory, SEM was determine using formula (SEM= $SD\sqrt{(1-r_{xx})}$ , for generalizability theory, The square root of relative error variance represents the relative standard error of measurement for coefficient of $Ep^2$. In both theories, margin error was obtain by estimating percentage ratio of standard error of measurement to performance mean score Summary of this is presented in Table 4.6

**Table 5: Estimation of Margin error Based on Classical and Generalizabiity Test Theory**

| **CTT** | | | | | | **GT** | | |
|---|---|---|---|---|---|---|---|---|
| | **Form of Reliability Estimates** | **Mean** | **SD** | **SEM** | **Margin Error (SEM/Mean x100)** | **Design** | **SEM ($EP^2$)** | **Margin Error= (SEM/Mean x100)** |
| Test | α (0.86) | 83.9 | 10.89 | 4.07 | 4.9% | one-Facet | 0.148 | 0.18% |
| | $r_{1/2}$ (0.80) | 83.9 | 10.89 | 4.87 | 5.8% | | | |
| Retest | $r_{12}$ (0.685) | 83.7 | 10.47 | 5.88 | 7.03% | Two-facet | 0.245 | 0.29% |

NB: CTT= Classical test theory, GT= Generelizability test theory, α =Cronbach Alpha Coefficient, $r_{1/2}$ = spearman rank split-halves correlation coefficient, $r_{12}$ = Pearson test -retest correlation, $Ep^2$ = GT reliability coefficient, Φ = GT

phi coefficient, SEM = Standard error of measurement, SD = Standard deviation.

Table 5 showed estimation of margin error based on classical and generalizabiity test theory. The result reveals that, in classical test theory, Cronbach alpha yielded 4.9% margin error, spearman brown split-halve yielded 5.8% and test retest person correlation yielded 7.03% margin error.

In Generalizability theory, however, one facet measurement design and two facet measurement design yielded 0.18% and 0.29% margin error respectively. The standard error of measurement indicates precision of teachers rating to their performance. The margin errors obtained indicates the percentage scoring distance from observed score in CTT and universal score in GT. This finding indicates that, at 0.05 level of significant, margin error estimated with Cronbach alpha reliability coefficient was found significant among classical test reliability estimates. Meanwhile in generalizability test theory, G-coefficients in both one facet and two facet design measurement yielded margin error less that 5% and therefore found significant. Hence in one single administration of test, coefficient of Cronbach alpha was consistency with G-coefficient one. However, GT appear to be more power than CTT Cronbach alpha because it yielded low margin error which indicates its high level of significant.

**Conclusion and recommendation**

The study concluded that the reliability of teacher job performance scale can be enhanced using the generalizability theory. The study therefore recommended that, in estimation of margin of error, generalizability theory should be given prevalence over CTT.

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# Liquidity Management and the Bank Operational Efficiency of Deposit Money Banks in Nigeria

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## Abstract

This study examines the relationship between liquidity management and bank operational efficiency of Deposit Money Banks (DMBs) in Nigeria. Utilising an ex-post facto design, the research analysed ten years of annual reports from eight listed DMBs with international authorisation licences, yielding eighty observations. Multiple regression analysis was conducted using the Ordinary Least Squares approach via E-VIEW software. Key findings reveal that Cash Flow Coverage (CFC) has an insignificant negative effect on Bank Efficiency ($R^2 = 0.309693$, $p < 0.05$). Capital Adequacy Ratio (CAR) significantly positively influences Bank Efficiency ($R^2 = 0.065635$, $p < 0.05$). Loan-to-Asset Ratio (LAR) has an insignificant positive effect on Bank Efficiency ($R^2 = 0.306720$, $p < 0.05$). Loan-to-Deposit Ratio (LDR) significantly positively impacts Bank Efficiency ($R^2 = 0.344147$, $p < 0.05$). The study concludes that effective liquidity management, particularly through optimal loan-to-deposit ratios and adequate capitalisation, is crucial for enhancing operational efficiency in Nigerian DMBs. Recommendations include optimising cash flow coverage without compromising operational effectiveness, maintaining robust capital adequacy ratios, responsible loan portfolio management, and balancing loan-to-deposit ratios for improved operational efficiency.

**Keywords:** Liquidity Management, Bank Efficiency, Cash Flow Coverage, Capital Adequacy Ratio (CAR), Loan-to-Asset Ratio (LAR), Loan-to-Deposit Ratio (LDR), Nigeria

# 1. Introduction

## 1.1 Background to the Study

Understanding the dynamics and performance of deposit money banks in the financial sector is essential for assessing the success, growth, and sustainability of these institutions (Souder et al., 2024). Enhanced performance indicates efficient resource utilisation, effective risk management, and strategic decision-making, all vital for maintaining competitiveness and long-term viability in the banking sector (Akinadewo et al., 2023). Bank efficiency represents the ability of a bank to optimise its operational costs whilst maximising returns from its activities, encompassing various operational metrics such as cost-to-income ratio, operating expenses, and revenue generation (Partovi & Matousek, 2019).

The Nigerian banking sector plays a crucial role in the country's economy by facilitating financial intermediation, supporting businesses, and driving economic growth (Eluyela et al., 2019). Within this sector, deposit money banks, as key financial institutions, perform essential functions such as mobilising deposits, granting loans, and providing various financial services to individuals and businesses. However, despite stringent reforms and regulation in the Nigerian banking industry, deposit money banks continue to face significant challenges related to operational efficiency and liquidity management (Wuave et al., 2020).

Liquidity management refers to the strategic planning and control necessary to ensure that banks maintain adequate liquid assets to meet short-term obligations whilst avoiding the negative impact of keeping large amounts of idle cash on profitability (Bianchi & Bigio, 2022). Efficient liquidity management is essential for maintaining bank profitability and protecting both the banking institution and the financial system from liquidity risks. The relationship between liquidity management practices and bank efficiency remains a critical area requiring empirical investigation, particularly within the Nigerian context.

Bank efficiency encompasses aspects such as cost management, revenue generation, and asset utilisation (Shair et al., 2021). In a landscape marked by regulatory changes, technological advancements, and economic fluctuations, improving efficiency is imperative for DMBs to enhance their sustainability and adaptability (Wang et al., 2021). Operational efficiency indicates that the bank is able to achieve its financial objectives with minimal wastage and optimal allocation of resources (Phan et al., 2019).

## 1.2 Statement of the Research Problem

Deposit Money Banks in Nigeria aim to attain maximum operational efficiency by maintaining optimal liquidity. This involves ensuring adequate liquid assets for meeting short-term obligations whilst minimising operational costs and maximising resource utilisation. However, the current situation in the Nigerian banking sector presents several challenges that potentially compromise operational efficiency.

In 2009, ten out of the twenty-four megabanks were declared by the Central Bank of Nigeria as troubled and uncertain or banks in grave condition for having liquidity challenges, capital inadequacy, and lack of sound risk management processes, amongst others. Whilst regulatory interventions have been implemented, DMBs continue to struggle with balancing liquidity requirements against operational efficiency imperatives (Dzapasi, 2020).

The lack of in-depth analysis examining the specific relationship between various liquidity management metrics and bank operational efficiency may limit understanding of this critical aspect of banking operations. Most prior research has offered broad overviews of liquidity

management practices without delving into specific metrics or employing advanced analytical techniques to examine their impact on operational efficiency (Sathyamoorthi et al., 2020). Few studies have utilised panel data techniques or controlled for individual bank-specific factors, limiting the depth and robustness of findings regarding efficiency outcomes.

This study aims to bridge these gaps by focusing on specific liquidity ratios—Cash Flow Coverage Ratio, Loan-to-Deposit Ratio, Liquid Assets Ratio, and Capital Adequacy Ratio—and their impact on bank operational efficiency. By employing advanced panel data techniques to analyse a comprehensive dataset encompassing multiple DMBs over several years, this longitudinal approach allows examination of the nuanced and evolving impact of each metric on operational efficiency whilst controlling for individual bank characteristics (Alim et al., 2021).

### 1.3 Objectives of the Study

The broad objective is to examine the effect of liquidity management on bank operational efficiency of Deposit Money Banks in Nigeria. The specific objectives are to:

1. Assess the effect of Cash Flow Coverage on bank efficiency in Nigerian deposit money banks
2. Examine the effect of Capital Adequacy Ratio on bank efficiency in Nigerian deposit money banks
3. Investigate the influence of Loan-to-Asset Ratio on bank efficiency in Nigerian DMBs
4. Analyse the influence of Loan-to-Deposit Ratio on bank efficiency in Nigerian DMBs

### 1.4 Research Hypotheses

The following hypotheses, stated in null form, were tested:

**$H_{01}$:** Cash Flow Coverage has no significant effect on bank efficiency in Nigerian deposit money banks.

**$H_{02}$:** Capital Adequacy Ratio has no significant effect on bank efficiency in Nigerian deposit money banks.

**$H_{03}$:** Loan-to-Asset Ratio does not significantly influence bank efficiency in Nigerian DMBs.

**$H_{04}$:** Loan-to-Deposit Ratio does not significantly influence bank efficiency in Nigerian DMBs.

## 2. Literature Review

### 2.1 Conceptual Review

#### 2.1.1 Bank Efficiency

Efficiency in banking operations refers to the ability of a bank to minimise costs whilst maximising returns from its activities (Partovi & Matousek, 2019). This measure encompasses various aspects of operational efficiency, including cost management, resource utilisation, process optimisation, and productivity enhancement. A high level of efficiency indicates that the bank achieves its financial objectives with minimal wastage and optimal allocation of resources (Shair et al., 2021).

Efficiency ratios such as the cost-to-income ratio, overhead ratio, and asset utilisation ratio are

commonly used to assess a bank's operational efficiency and performance relative to industry benchmarks (Wang et al., 2021). Bank efficiency is crucial for determining overall performance and competitiveness in the financial marketplace, as it encompasses the bank's ability to minimise costs whilst maximising returns from activities (Phan et al., 2019).

Recent studies have emphasised the multifaceted nature of bank efficiency. Research has revealed significant influences of market structure, regulatory environment, and technological innovation on efficiency outcomes (Shair et al., 2021). Efficiency analysis examining efficiency levels of banks has uncovered substantial variations across institutions and over time, identifying key factors that influence efficiency scores and performance disparities (Partovi & Matousek, 2019).

### 2.1.2 Liquidity Management Components

**Cash Flow Coverage** assesses a bank's ability to meet financial obligations through available cash flows (Rahman & Sharma, 2020). Optimising Cash Flow Coverage is essential for DMBs to sustainably manage their liquidity position and support ongoing operations. A higher Cash Flow Coverage ratio indicates greater financial stability and resilience to economic downturns (Sidhu et al., 2022). Efficient management of cash flow can positively impact bank efficiency ratios by ensuring the bank's ability to meet operating expenses and debt obligations without relying excessively on external financing (Benson & Odey, 2022).

**Loan-to-Deposit Ratio (LDR)** indicates the proportion of a bank's loans relative to its deposits, reflecting its ability to meet loan demands whilst maintaining liquidity (Sukmadewi, 2020). Managing the LDR effectively is essential for DMBs to strike a balance between lending activities and liquidity requirements, ensuring financial stability and regulatory compliance. An optimal LDR ensures that the bank maintains a healthy balance between loan assets and deposit liabilities, thereby minimising liquidity risks whilst maximising profitability (Goh et al., 2022).

**Liquid Assets Ratio** measures the ratio of a bank's liquid assets, such as cash and government securities, to its total assets. Maintaining an adequate Liquid Assets Ratio is critical for DMBs to mitigate liquidity risks and meet short-term obligations promptly (Otekunrin et al., 2019). A higher Liquid Assets Ratio indicates greater liquidity and financial stability, reducing the risk of default and enhancing investor confidence (Kalimashi et al., 2022).

**Capital Adequacy Ratio (CAR)** assesses a bank's capital adequacy relative to its risk-weighted assets, ensuring it has sufficient capital to absorb potential losses (Vu & Dang, 2020). Maintaining a healthy CAR is vital for DMBs to instil investor confidence, comply with regulatory requirements, and safeguard against financial distress (Ezu et al., 2023).

## 2.2 Theoretical Framework

### 2.2.1 Trade-off Theory of Liquidity

This study is primarily anchored on the Trade-off Theory of Liquidity, which suggests that enterprises aim to achieve an optimal level of liquidity to balance factors such as profitability, operational efficiency, and financial stability (Khoa & Thai, 2021). The Trade-off Theory suggests that firms, including banks, must balance the costs and benefits associated with maintaining different levels of liquidity (Kong et al., 2019).

According to this theory, there is an optimal level of liquidity that maximises firm value, taking into account the costs of holding liquid assets and the benefits of being able to quickly meet financial obligations (Stevanovic et al., 2019). The significance of this theory lies in its ability to minimise expenses and optimise the advantages associated with working capital components. For

deposit money banks, this means striking a balance between maintaining sufficient liquidity for operational requirements and regulatory compliance whilst avoiding excessive idle funds that could reduce efficiency (Agyei et al., 2020).

The theory emphasises that liquidity management should be tailored to the specific needs and circumstances of each organisation (Kinyua & Fredrick, 2022). Banks with higher liquidity may have greater capacity to withstand liquidity shocks and maintain appropriate cash buffers to pay short-term obligations, but this may come at the expense of operational efficiency if resources are not optimally deployed (Kong et al., 2019).

### 2.3 Empirical Review

#### 2.3.1 Cash Flow Coverage and Bank Efficiency

Research examining the relationship between cash flow coverage and bank efficiency has produced mixed findings. Studies have highlighted the crucial function of intelligent liquidity management in assuaging financial risks and preserving seamless corporate operations even amidst poor economic situations (Rahman & Sharma, 2020). However, the specific impact on operational efficiency metrics remains contested.

Investigations into cash flow management have demonstrated that maintaining appropriate cash reserves is essential for operational stability, but excessive cash holdings may reduce efficiency (Olunja, 2022). Banks that prioritise liquidity over interest-generating activities often experience challenges in optimising operational performance, as resources may be diverted from efficiency-enhancing activities (Kiplagat, 2021). Research by Abuga et al. (2023) confirmed that liquidity capacity affects financial performance, though the relationship with operational efficiency specifically requires further examination.

#### 2.3.2 Capital Adequacy Ratio and Bank Efficiency

Studies on Capital Adequacy Ratio have consistently demonstrated its importance for bank stability and operational performance (Korankye et al., 2022). Higher capital adequacy not only improves financial stability but also enhances operational efficiency by reducing the cost of capital and enabling better resource allocation (Syafrizal et al., 2023).

Research in various emerging markets has shown that well-capitalised banks tend to operate more efficiently (Pham, 2022). Banks with robust capital positions can manage their operating expenses more effectively, leading to improved overall performance and enabling investment in efficiency-enhancing initiatives (Vu & Dang, 2020). This relationship appears particularly strong in developing economies where capital buffers provide crucial resilience against economic volatility (Ezu et al., 2023).

Muchuku (2022) examined bank-specific factors affecting capital adequacy in Kenyan commercial banks and found significant relationships between operational performance and capital strength. Similarly, research by Korankye et al. (2022) in Ghana demonstrated that adequate capitalisation positively influenced operational metrics including efficiency ratios.

#### 2.3.3 Loan-to-Asset Ratio and Bank Efficiency

Empirical evidence on the Loan-to-Asset Ratio suggests that whilst higher ratios might contribute to increasing revenues through lending activities, the relationship with operational efficiency is not straightforward (Suroso, 2022). Studies have indicated that external factors such as loan quality and credit risk may influence whether increased loan portfolios translate into efficiency

gains (Nugraha et al., 2021).

Research in the Western Balkans demonstrated that banks maintaining balanced loan-to-asset ratios were better positioned to optimise resource allocation (Kalimashi et al., 2022). Effective liquidity management, including optimising the loan-to-asset ratio, positively impacts operational efficiency when loans are well-managed and aligned with market demand (Ajayi & Lawal, 2021).

Ngumo et al. (2020) investigated determinants of financial performance in microfinance banks and found that loan portfolio management significantly affected operational outcomes. The study emphasised the importance of balancing asset growth with operational capacity to maintain efficiency.

### 2.3.4 Loan-to-Deposit Ratio and Bank Efficiency

Studies on Loan-to-Deposit Ratio have consistently found significant positive effects on bank efficiency, suggesting that effective deposit-to-loan conversion enables banks to streamline operations and reduce overhead costs (Sukmadewi, 2020). Research in Indonesia highlighted that banks with optimal LDR demonstrated superior operational performance through better resource utilisation (Liyana & Indrayani, 2020).

However, scholars emphasise the importance of balance (Awaluddin et al., 2023). Whilst LDR impacts operational performance, its real value lies in the bank's ability to balance liquidity with profitability, which in turn drives efficiency gains (Sochib et al., 2023). Excessive lending relative to deposits may create liquidity pressures that ultimately compromise operational efficiency (Goh et al., 2022).

Research by Rajindra et al. (2021) examined the relationship between LDR and Return on Assets in Indonesian banks, finding that operational efficiency served as a mediating factor. The study concluded that optimal LDR management enhanced both profitability and operational performance through improved resource utilisation.

## 3. Methodology

### 3.1 Research Design

The research utilised an ex-post facto design, examining past data to analyse relationships between variables. This quasi-experimental approach was appropriate as the study examined relationships between variables that had already occurred and could not be manipulated. The design aligned with previous studies in banking and finance research, allowing for robust analysis of historical financial data (Wabwoba, 2022).

### 3.2 Population and Sample

The population consisted of Deposit Money Banks listed on the Nigerian Stock Exchange as of 31st December 2014. From the twenty-four listed DMBs, eight banks with international authorisation licences were selected, representing institutions with comprehensive financial activities and robust liquidity management practices. The sample size comprised ten years of annual reports (2014-2023) from these eight banks, yielding eighty observations.

### 3.3 Data Collection and Variables

Secondary data were collected from audited annual financial statements of the selected banks. The dependent variable was Bank Efficiency, measured by the cost-to-income ratio (non-interest expenses divided by total revenue). Independent variables included:

Cash Flow Coverage (CFC): Net Operating Cash Flow divided by current interest expense plus short-term debt

Capital Adequacy Ratio (CAR): Total capital divided by risk-weighted assets

Loan-to-Asset Ratio (LAR): Total loans divided by total assets

Loan-to-Deposit Ratio (LDR): Total loans divided by total deposits

### 3.4 Model Specification

The functional relationship was specified as:

**Bank Efficiency = f(CFC, CAR, LAR, LDR) + ε**

The regression equation:

$$\mathbf{BE = \beta_0 + \beta_1 CFC + \beta_2 CAR + \beta_3 LAR + \beta_4 LDR + \varepsilon}$$

Where BE represents Bank Efficiency, $\beta_0$ is the constant term, $\beta_1$-$\beta_4$ are coefficients, and ε is the error term.

### 3.5 Method of Data Analysis

Data analysis employed descriptive statistics and multiple regression analysis using the Ordinary Least Squares (OLS) method via E-VIEW software. Diagnostic tests including the Levin, Lin & Chu unit root test, Variance Inflation Factor for multicollinearity, and Breusch-Pagan test for heteroscedasticity were conducted. The Hausman test determined the appropriate model (Fixed Effects or Random Effects) for panel data analysis.

## 4. Results and Discussion

### 4.1 Descriptive Statistics

**Table 1: Descriptive Statistics**

| Variable | Mean | Median | Maximum | Minimum | Std. Dev. | Skewness | Kurtosis | Observations |
|---|---|---|---|---|---|---|---|---|
| EFFICIENCY | 0.224 | 0.215 | 0.450 | 0.030 | 0.093 | 0.306 | 2.867 | 80 |
| CFC | 0.426 | 0.420 | 0.660 | 0.220 | 0.127 | 0.175 | 1.795 | 80 |
| CAR | 0.144 | 0.140 | 0.210 | 0.070 | 0.030 | -0.040 | 2.623 | 80 |
| LAR | 0.298 | 0.290 | 0.470 | 0.110 | 0.076 | 0.028 | 3.046 | 80 |
| LDR | 0.637 | 0.645 | 0.870 | 0.340 | 0.160 | -0.281 | 1.847 | 80 |

Descriptive analysis revealed that Bank Efficiency averaged 22.4% with moderate variability (standard deviation of 0.093) across Nigerian DMBs. The distribution showed slight positive skewness (0.306), indicating that a few banks operated at higher efficiency levels than most. Cash Flow Coverage averaged 42.6%, Capital Adequacy Ratio 14.4%, Loan-to-Asset Ratio 29.8%, and Loan-to-Deposit Ratio 63.7%. The CAR showed slight negative skewness (-0.040), suggesting most banks-maintained capital levels above the mean. All variables demonstrated kurtosis values near 3, indicating approximately normal distributions suitable for parametric analysis.

### 4.2 Diagnostic Tests

***Table 2: Unit Root Test Results (Levin, Lin & Chu t)****

| Variable | Statistic | Probability | Decision |
|---|---|---|---|
| EFFICIENCY | 6.22008 | 0.0000 | Stationary |
| CFC | 11.15711 | 0.0000 | Stationary |
| CAR | 5.201009 | 0.0000 | Stationary |
| LAR | 3.41147 | 0.0316 | Stationary |
| LDR | 3.66126 | 0.0000 | Stationary |

The Levin, Lin & Chu unit root test confirmed stationarity for all variables ($p < 0.05$), ensuring reliability for panel data analysis. All test statistics were highly significant, with efficiency showing the strongest evidence of stationarity (statistic = 6.22008, $p < 0.0001$). This confirms that all variables are suitable for regression analysis without risk of spurious correlations.

**Table 3: Variance Inflation Factor (VIF)**

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|---|---|---|---|
| CFC | 0.24970 | 9.07038 | 2.672992 |
| CAR | 0.37919 | 3.11702 | 1.989234 |
| LAR | 0.16427 | 3.21395 | 1.267561 |
| LDR | 0.19900 | 29.2308 | 2.269927 |

Variance Inflation Factor values remained below 3 for all centered VIF values, indicating absence of problematic multicollinearity. CFC showed the highest centered VIF (2.673), followed by LDR (2.270), both well below the threshold of concern (VIF > 5). This confirms that independent variables are sufficiently distinct, allowing for reliable coefficient estimates.

**Table 4: Heteroscedasticity Test (Breusch-Pagan-Godfrey)**

| Test | Statistic | Probability | Decision |
|---|---|---|---|
| F-statistic | 0.567710 | 0.369 | Homoscedastic |
| Obs*R-squared | 3.622100 | 0.285 | Homoscedastic |
| Scaled explained SS | 16.43311 | 0.034 | Potential Heteroscedasticity |

The Breusch-Pagan test suggested homoscedasticity based on F-statistic ($p = 0.369 > 0.05$) and Obs*R-squared ($p = 0.285 > 0.05$). However, the Scaled explained SS statistic ($p = 0.034 < 0.05$) indicated potential mild heteroscedasticity. Given two of three measures supported homoscedasticity, we proceeded with analysis whilst considering robust standard errors.

### 4.3 Correlation Analysis

**Table 5: Correlation Matrix**

| | EFFICIENCY | CFC | CAR | LAR | LDR |
|---|---|---|---|---|---|
| EFFICIENCY | 1.000 | | | | |
| CFC | -0.116 (0.306) | 1.000 | | | |
| CAR | 0.288** (0.010) | -0.184 (0.103) | 1.000 | | |
| LAR | 0.134 (0.235) | -0.182 (0.105) | 0.326** (0.003) | 1.000 | |
| LDR | 0.133 (0.239) | -0.051 (0.654) | 0.048 (0.675) | -0.057 (0.614) | 1.000 |

Note: Probabilities in parentheses. ** Significant at 5% level.

Correlation analysis revealed that Cash Flow Coverage had a weak negative correlation with Bank Efficiency (-0.116, p = 0.306), indicating minimal impact. Capital Adequacy Ratio demonstrated a significant positive correlation with Bank Efficiency (0.288, p = 0.010), suggesting that better-capitalised banks achieve higher operational efficiency. Loan-to-Asset Ratio showed weak positive correlation (0.134, p = 0.235), whilst Loan-to-Deposit Ratio exhibited weak positive correlation (0.133, p = 0.239). Notably, CAR and LAR showed significant positive correlation (0.326, p = 0.003), suggesting well-capitalised banks maintain larger loan portfolios relative to assets.

### 4.4 Hypothesis Testing Results

**Hypothesis One: Cash Flow Coverage and Bank Efficiency**

**Table 6: Hausman Test for Hypothesis One**

| Statistic | Chi-Sq. | Probability | Selected Model |
|---|---|---|---|
| Cross-section random | 2.649 | 0.088 | Random Effects |

**Table 7: Effect of Cash Flow Coverage on Bank Efficiency (Random Effects Model)**

| Variable | Coefficient | Std. Error | t-Statistic | Probability |
|---|---|---|---|---|
| CFC | -0.053863 | 0.073148 | -0.736366 | 0.4637 |
| C (Constant) | 0.246591 | 0.035813 | 6.885436 | 0.0000 |
| **Model Statistics** | | | | |
| R-squared | 0.006795 | | | |
| Adjusted R-squared | -0.005939 | | | |
| F-statistic | 0.533618 | | | 0.467278 |
| Durbin-Watson stat | 1.787881 | | | |

The Hausman test (Chi² = 2.649, Prob = 0.088) indicated the Random Effects model was appropriate. Results showed CFC had a negative effect on Bank Efficiency (β = -0.05386, p = 0.4637). The overall model had $R^2$ = 0.006795 with p-value = 0.467278, indicating the effect was not statistically significant. Therefore, the null hypothesis was not rejected. The negative coefficient suggests that higher cash flow coverage creates slight operational inefficiencies, possibly through idle cash holdings, though this relationship is not statistically meaningful. The low R-squared (0.68%) indicates CFC explains minimal variation in bank efficiency.

**Hypothesis Two: Capital Adequacy Ratio and Bank Efficiency**

**Table 8: Hausman Test for Hypothesis Two**

| Statistic | Chi-Sq. | Probability | Selected Model |
|---|---|---|---|
| Cross-section random | 2.92 | 0.551 | Random Effects |

**Table 9: Effect of Capital Adequacy Ratio on Bank Efficiency (Random Effects Model)**

| Variable | Coefficient | Std. Error | t-Statistic | Probability |
|---|---|---|---|---|
| CAR | 0.764206 | 0.314217 | 2.432155 | 0.0147 |
| C (Constant) | 0.113914 | 0.047176 | 2.414557 | 0.0140 |
| **Model Statistics** | | | | |
| R-squared | 0.065635 | | | |
| Adjusted R-squared | 0.053656 | | | |
| F-statistic | 5.479163 | | | 0.021800 |
| Durbin-Watson stat | 1.740445 | | | |

The Hausman test (Chi² = 2.92, Prob = 0.551) supported the Random Effects model. CAR demonstrated a positive significant effect on Bank Efficiency (β = 0.764206, p = 0.0147). The model achieved $R^2$ = 0.065635 with overall significance (p = 0.021800). The null hypothesis was rejected, confirming CAR significantly positively influences Bank Efficiency. A one-unit increase in CAR leads to a 0.764 increase in bank efficiency, indicating well-capitalised banks operate substantially more efficiently. The model explains 6.56% of variation in efficiency, with the F-statistic confirming overall model significance.

**Hypothesis Three: Loan-to-Asset Ratio and Bank Efficiency**

**Table 10: Hausman Test for Hypothesis Three**

| Statistic | Chi-Sq. | Probability | Selected Model |
|---|---|---|---|
| Cross-section random | 3.32 | 0.001 | Fixed Effects |

**Table 11: Effect of Loan-to-Asset Ratio on Bank Efficiency (Fixed Effects Model)**

| Variable | Coefficient | Std. Error | t-Statistic | Probability |
|---|---|---|---|---|
| LAR | 0.022393 | 0.153521 | 0.145855 | 0.8845 |
| C (Constant) | 0.216949 | 0.049041 | 4.423781 | 0.0000 |
| **Model Statistics** | | | | |
| R-squared | 0.306720 | | | |
| Adjusted R-squared | 0.228604 | | | |
| F-statistic | 3.926468 | | | 0.000690 |
| Durbin-Watson stat | 2.005832 | | | |

The Hausman test ($Chi^2 = 3.32$, Prob = 0.001) indicated the Fixed Effects model was appropriate. LAR showed a positive effect ($\beta = 0.022393$, $p = 0.8845$). With $R^2 = 0.306720$ and overall model significance ($p = 0.000690$), the specific effect of LAR was not statistically significant. The null hypothesis was not rejected. Whilst the coefficient is positive, suggesting potential efficiency benefits from larger loan portfolios, the high p-value (0.885) indicates this relationship is not reliable. The model's relatively high R-squared (30.67%) is primarily attributed to fixed effects rather than LAR's contribution.

**Hypothesis Four: Loan-to-Deposit Ratio and Bank Efficiency**

**Table 12: Hausman Test for Hypothesis Four**

| Statistic | Chi-Sq. | Probability | Selected Model |
|---|---|---|---|
| Cross-section random | 3.32 | 0.001 | Fixed Effects |

**Table 13: Effect of Loan-to-Deposit Ratio on Bank Efficiency (Fixed Effects Model)**

| Variable | Coefficient | Std. Error | t-Statistic | Probability |
|---|---|---|---|---|
| LDR | 0.114941 | 0.056946 | 2.018446 | 0.0473 |
| C (Constant) | 0.150465 | 0.037322 | 4.031569 | 0.0001 |
| **Model Statistics** | | | | |
| R-squared | 0.344147 | | | |
| Adjusted R-squared | 0.270248 | | | |
| F-statistic | 4.656993 | | | 0.000132 |
| Durbin-Watson stat | 1.990733 | | | |

The Hausman test ($Chi^2 = 3.32$, Prob = 0.001) supported the Fixed Effects model. LDR demonstrated a positive significant effect ($\beta = 0.114941$, $p = 0.0473$). The model achieved $R^2 = 0.344147$ with strong overall significance ($p = 0.000132$). The null hypothesis was rejected, confirming LDR significantly positively influences Bank Efficiency. A one-unit increase in LDR

leads to a 0.115 increase in bank efficiency, indicating banks that effectively convert deposits into loans achieve superior operational performance. The model explains 34.41% of variation in efficiency, the highest among all hypotheses tested, with excellent model fit indicated by the F-statistic.

### 4.5 Discussion of Findings

The empirical findings reveal a nuanced relationship between liquidity management components and bank operational efficiency in Nigeria. Capital Adequacy Ratio and Loan-to-Deposit Ratio emerged as significant positive determinants, whilst Cash Flow Coverage and Loan-to-Asset Ratio showed insignificant effects.

The significant positive impact of CAR on efficiency ($\beta = 0.764$, $p = 0.015$) underscores the importance of strong capitalisation for operational excellence, supporting findings by Korankye et al. (2022) and Ezu et al. (2023). Well-capitalised banks possess greater capacity to invest in efficiency-enhancing initiatives, manage risks effectively, and optimise resource allocation. This finding has particular relevance for Nigerian banking regulators and policymakers seeking to enhance sector efficiency through capital requirements (Vu & Dang, 2020).

The significant positive effect of LDR ($\beta = 0.115$, $p = 0.047$) highlights the efficiency benefits of optimal deposit-to-loan conversion, consistent with research by Sukmadewi (2020) and Rajindra et al. (2021). Banks that effectively mobilise deposits and channel them into productive lending activities achieve operational efficiencies through improved asset utilisation and reduced idle resources. However, this must be balanced against liquidity management imperatives to avoid excessive lending that could compromise financial stability (Goh et al., 2022).

The insignificant effects of CFC ($\beta = -0.054$, $p = 0.464$) and LAR ($\beta = 0.022$, $p = 0.885$) suggest these liquidity metrics, whilst important for financial stability, do not directly drive operational efficiency improvements. This indicates that liquidity management's contribution to efficiency may be more indirect, operating through risk mitigation and financial stability rather than direct operational optimisation, aligning with findings from Abuga et al. (2023) and Kalimashi et al. (2022). The Trade-off Theory of Liquidity finds empirical support in these results, demonstrating that banks must carefully balance liquidity requirements with operational efficiency objectives (Khoa & Thai, 2021; Kong et al., 2019).

## 5. Conclusion and Recommendations

### 5.1 Conclusion

This study examined the relationship between liquidity management and bank operational efficiency in Nigerian Deposit Money Banks from 2014 to 2023. The findings demonstrate that effective liquidity management significantly influences operational efficiency, though the relationship varies across different liquidity metrics.

Capital Adequacy Ratio and Loan-to-Deposit Ratio emerged as significant positive determinants of bank efficiency. Well-capitalised banks with optimal loan-to-deposit ratios achieve superior operational performance through better resource allocation, risk management, and asset utilisation. Conversely, Cash Flow Coverage and Loan-to-Asset Ratio showed insignificant effects, suggesting their contribution to efficiency operates through indirect channels rather than direct operational improvements.

The study contributes empirical evidence on the multifaceted relationship between liquidity management and operational efficiency in emerging market banking systems. Findings underscore

the importance of balanced liquidity management that maintains financial stability whilst optimising operational performance. Nigerian DMBs must strategically manage capital adequacy and loan-deposit ratios to enhance efficiency without compromising liquidity requirements.

### 5.2 Recommendations

Based on the findings, the following recommendations are proposed:

**For Bank Management:**

- **Optimise Capital Adequacy Ratios:** DMBs should maintain CAR levels exceeding regulatory minimums, as higher capitalisation significantly enhances operational efficiency (coefficient = 0.764, $p < 0.05$). Management should view capital not merely as regulatory requirement but as strategic resource enabling operational excellence through investments in technology, processes, and capabilities.
- **Balance Loan-to-Deposit Ratios:** Banks should strategically optimise LDR to maximise operational efficiency (coefficient = 0.115, $p < 0.05$) whilst maintaining adequate liquidity buffers. This requires sophisticated analytics to dynamically adjust lending activities based on deposit mobilisation trends, market conditions, and liquidity requirements.
- **Implement Integrated Liquidity Management:** Develop comprehensive liquidity management frameworks that consider interrelationships between different liquidity metrics and their collective impact on operational efficiency. This holistic approach should balance cash flow coverage, capital adequacy, and lending activities to optimise both stability and efficiency.
- **Invest in Efficiency-Enhancing Initiatives:** Well-capitalised banks should leverage their financial strength to invest in operational improvements including process automation, digital transformation, staff development, and risk management systems that drive long-term efficiency gains.

**For Regulators:**

- **Strengthen Capital Requirements:** The Central Bank of Nigeria should maintain robust capital adequacy requirements whilst providing incentives for banks exceeding minimum thresholds, recognising capital's positive contribution to operational efficiency ($R^2 = 6.6\%$, $p = 0.022$) and systemic stability.
- **Monitor Efficiency Metrics:** Regulators should incorporate operational efficiency indicators into supervisory frameworks, enabling early identification of banks with deteriorating efficiency that may signal underlying operational or governance challenges.
- **Promote Best Practices:** Facilitate knowledge sharing and benchmarking amongst DMBs regarding liquidity management practices that enhance operational efficiency whilst maintaining financial stability.

**For Future Research:**

- Investigate the mechanisms through which capital adequacy influences operational efficiency, examining specific channels such as technology investments, risk management capabilities, and organisational development.
- Explore optimal ranges for loan-to-deposit ratios that maximise efficiency ($R^2 = 34.4\%$, $p < 0.001$) without compromising liquidity, considering bank-specific characteristics and market conditions.

- Examine the moderating effects of bank size, ownership structure, and market positioning on relationships between liquidity management and operational efficiency.
- Conduct comparative studies across African banking markets to identify regional patterns and best practices in balancing liquidity management with operational efficiency objectives.

### 5.3 Contribution to Knowledge

This study contributes to banking and finance literature by providing empirical evidence on the specific relationships between liquidity management components and operational efficiency in an emerging market context. It demonstrates that different liquidity metrics have varying impacts on efficiency, highlighting the complexity of balancing financial stability with operational performance. The application of Trade-off Theory of Liquidity to Nigerian banking operations extends theoretical frameworks for understanding liquidity-efficiency relationships in developing economies. Findings offer practical insights for bank managers and regulators seeking to enhance operational efficiency through effective liquidity management strategies.

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# Electronic Payment Systems and Customer Satisfaction in the Nigerian Banking System

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## Abstract

This study explores the impact of electronic payment systems on customer satisfaction in the Nigerian Banking System, specifically targeting undergraduate students. The research has two primary objectives: assessing satisfaction levels with ATM, Point of Sale (POS), and mobile applications payment systems, and identifying the factors that influence student satisfaction. Data collection involved a random sampling technique, with 384 undergraduate students selected from a population of 9,500 at Lead City University. A survey questionnaire was administered to gauge satisfaction levels with the electronic payment systems. Statistical analyses, including mean, simple percentage, and Chi-square tests, were conducted to examine variable relationships. The findings reveal that improvements or modifications to the ATM payment system directly impact customer satisfaction, supported by rejecting the null hypothesis with a $\chi 2$ value of 108.9 and a p-value below 0.05. Similarly, enhancements to the POS payment system significantly affect customer satisfaction, with the null hypothesis rejected based on a $\chi 2$ value of 103.5 and a p-value below 0.001. Additionally, the use of mobile applications for financial transactions has a significant influence on customer satisfaction, demonstrated by rejecting the null hypothesis with a $\chi 2$ value of 93.2 and a p-value below 0.001. Most undergraduate students express high levels of satisfaction with the ATM, POS, and mobile applications payment systems. In conclusion, this study highlights the positive impact of electronic payment systems on undergraduate students' satisfaction in the Nigerian Banking System. To further enhance student satisfaction, it is recommended to focus on improving usability, technological advancements, and user interface

**Keywords:** Automated Teller Machine (ATM), Point of Sale (POS), and Mobile Applications Payment Systems, Customer Satisfaction

**Introduction**

The banking sector has undergone a transformation because to the development of electronic payment systems, which provide clients quick and easy access to their money. In recent years, Nigeria has seen a substantial increase in the usage of electronic payment systems such Automated Teller Machines (ATMs), Point of Sale (POS) devices, and mobile applications. With the use of these technologies, clients may manage their financial activities with more accessibility and flexibility. It is critical to evaluate the effect of these electronic payment systems on consumer satisfaction as Nigeria's banking industry develops.

The stock of currency held outside the banking system, which could be a source of unproductive economic resources because they are not available for credit expansion, is integrated into it as the shift to electronic payment systems proceeds, increasing the deposit base of the monetary system. Nigeria's payment system has historically been based primarily on cash, which has both advantages and disadvantages. Advantages include instant conversion to other forms of value without the need for a financial institution's intermediary, while disadvantages include anonymity and untraceability in unethical transactions1. The administration was bombarded with claims of corruption in the Federal Civil Service2, which led to the introduction of electronic payment.

Modern information and communication technology (ICT) advancements have propelled the banking sector into a new technological era. The sector exhibits several characteristics typical to high-tech industries, most notably market, technological, and competitive instability. In the twentyfirst century, broad adoption of electronic payment systems makes their impact unavoidable. The industry's adoption of information and communication technology (ICT) for the provision of banking goods and services is a notable development. Automated teller machine (ATM) transactions, point of sale (POS) systems, mobile banking systems, and online banking systems are some examples of these service delivery models.3. Business transactions in the financial and production sectors were challenging and stressful before there were electronic payment systems. Banks frequently employ ledgers, folio numbers, and postcard-style data sheets where clients' names, sample signatures, and photos are recorded. The performance of the banks in Nigeria was incredibly sluggish and ineffective due to manual procedures. All Nigerian banks' past performances have been impacted by technology.

Customers, on the other hand, stand to gain from rapid service delivery, less frequent physical bank visits, and less handling of cash, which will result in a larger level of turnover. However, it appears that the goals of these changes in the Nigerian banking sector have not been met. Bank clients continue to handle excessive amounts of cash, there are still lines in the banking rooms, and rarely anybody discusses the Nigerian electronic banking options that are accessible.

Nigerian banks are currently improving their services to better satisfy their customers. Customers have more options when picking their banks thanks to the new age IT (Information Technology), which is causing the banking sector to reengineer many of its fundamental systems and procedures. Mobile applications, POS hardware, and ATMs have become essential elements of Nigeria's electronic payment infrastructure. Customers have 24/7 access to their money through ATMs,

enabling them to withdraw cash, check account balances, and carry out standard banking operations. Customers can use debit or credit cards at a variety of retail outlets using POS devices to make payments that are deducted directly from their bank accounts. Contrarily, mobile applications have grown in popularity as a result of the increasing usage of smartphones and now give users the ease of managing their financial transactions while on the go. The Nigerian banking sector is currently efficiently utilizing new technical capabilities to produce value and improve customer relationship management4.

In recent years, there has been a noticeable trend toward digital banking solutions in Nigeria, and the financial system there has seen a fast development. The Central Bank of Nigeria (CBN) reports that from 12.4 million in 2010 to over 2.7 billion in 20207, there were more electronic transactions. This increase in electronic transactions demonstrates how much the nation is depending on electronic payment systems. The difficult business climate in the financial markets has increased pressure on banks and financial institutions to create and use various service delivery channels in an effort to draw in more clients, improve client perceptions, and foster client loyalty1,2,6.

To enhance service delivery, reduce line-ups for cash payments, allow customers to withdraw money whenever they want, facilitate international payment and remittance, track individual cash transactions, request an online statement, or even transfer deposits to a third party account1, electronic payment (E-Payment) systems were adopted. Despite the efforts of the telecommunications sectors to ensure that customers benefit from e-payment systems, the industry is met with complaints from customers regarding broken Automated Teller Machines (ATMs), network outages, online theft and fraud, the lack of financial services, the payment of hidden costs of electronic payment (E-Payment) systems like Short Message Services (SMS), for sending alerts, the requirement to obtain ATM cards, and non-acceptabilities.3. The telecommunications industry has been deploying ATM cards and investing in payment cards for their clients since the early 2000s. However, due to a lack of interconnection, or a switching platform to interconnect the ATMs for card holders, usage has been limited. Therefore, this study on effect of e-payment systems on Nigeria is designed to address these highlighted issues

Aim and Objectives of the Study

The aim of this research is to appraise the influence of electronic payment (ATM, Point of Sale and mobile applications payment system) system on customer satisfaction (Customer Feedback and Reviews, Transaction Success Rate, Net Promoter Score (NPS)) in Nigeria banking system.

Specifically, the general objectives of this study are to:-

**i.** determine the influence of ATM payment system on the customer satisfaction in Nigeria banking system.

**ii.** ascertain the effect of Point of Sale (POS) payment system on the customer satisfaction in Nigeria banking system.

**iii.** examine the effect of mobile applications payment system on the customer satisfaction in Nigeria banking system.

Research Questions

The following research questions were developed in order to guide the study:

i. What is the influence of ATM payment system on the customer satisfaction in Nigeria banking system?

ii. What is the influence of Point of Sale (POS) payment system on the customer satisfaction in Nigeria banking system? **iii.** What is the influence of mobile applications payment system on the customer satisfaction in Nigeria banking system?

Hypotheses

The following hypotheses were formulated

H01: There is no significant influence of ATM payment system on the customer satisfaction in Nigeria banking system

H02: There is no significant influence of Point of Sale (POS) payment system on the customer satisfaction in Nigeria banking system

H03: There is no significant influence of mobile applications payment system on the customer satisfaction in Nigeria banking system

## Literature Review

Conceptual Review Customer Satisfaction

Customer satisfaction depends on expectations and knowledge of the services being provided. The satisfaction theory makes use of a variety of psychological and physical factors. With the variety of services financial institutions now provide their clients, electronic services have benefited consumer satisfaction. Customers perceive operating in contemporary banking to be very simple and satisfying since most tasks are completed at the customer's convenience, which has put an end to the period of the banking hall queuing system1. In relation to the fulfillment of a need, aim, or desire, satisfaction is described as the general customer attitude toward the service delivered or as an emotional response to disparities between what the customer expected and what is being offered2. Customer satisfaction can also be described as a judgment made after learning more about the specific service being provided and if it matches the customer's expectations3. An individual's impression of happiness and disappointment as a result of evaluating how well a good or service appears to have performed in comparison to his or her expectations3.

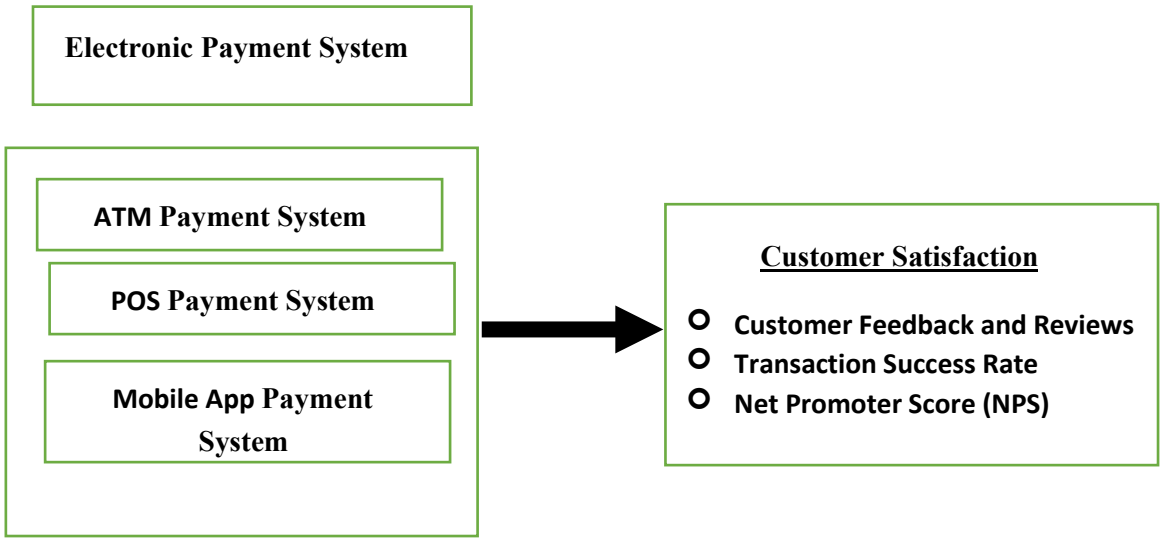
It comprises of many tactics intended to maintain, fulfill, or surpass consumers' expectations in a highly competitive market like the banking sector. Customers' satisfaction as a culmination of their perceptions, assessments, and emotional responses to a product or service consumption experience2. In other words, it is the outcome of a cognitive and emotive appraisal in which the performance as really experienced is contrasted with some consumption standard. Customer dissatisfaction results

from perceived performance falling short of expectations, whereas customer satisfaction results from perceived performance exceeding expectations, which would result in positive behaviors or outcomes4. A pleased consumer is more likely to be dependable, require less time, be less price sensitive, and pay less attention to advertising from rival businesses5. In the context of electronic payment systems used by banks, this section covers the value of customer feedback, transaction success rates, and the Net Promoter Score (NPS). Customer feedback, especially favorable ratings, has a big impact on how satisfied and devoted customers are to mobile banking services. It is advised to actively seek out and respond to consumer feedback to improve service quality. The NPS is a popular metric for gauging customer happiness and loyalty. Insights on customer satisfaction and loyalty levels are provided by categorizing clients based on their propensity to promote a service. Understanding client feedback and loyalty is essential in the banking industry, and the NPS assists banks in determining overall satisfaction and system efficacy. NPS measures customer happiness and the potential for consumer advocacy, both of which are essential for improving electronic payment systems and attaining success.

*2.1.2 Electronic Payment System (E-Payment)*

E-payment systems are the automated procedures for transferring money and communicating it across ICT networks between participants in commercial transactions12. E-payment in Nigeria involves sending money from one end to the other via a computer, with no human participation other than entering payment information. It is the capability to electronically pay the salary of the personnel, vendors, and suppliers12. E-payment systems have recently emerged as a handy means of exchanging money, particularly in emerging economies like Nigeria where carrying cash is customary. An effective e-payment system has been acknowledged to have significant significance on financial stability, monetary policy, and general economic activity13. In Nigeria, e-payment systems provided the key beginning point of her contemporary market economy. One of the newest methods for using mobile phones to make payments is mobile banking. Sending a payment request through text message (USSD) or a bank's mobile app is required for this. Since account information is already connected to the bank software13, using a credit card or cash is quicker and less stressful when using mobile banking. Automated Teller Machines (ATMs) are a type of electronic banking facility that let users carry out transactions independently of a teller or member service agent. As long as they are all connected to the same network, anybody with a credit card or debit card can use an ATM. In order for users to access their account information, an ATM connects with the network of other ATMs. Point of Sales (POS) Terminals are a type of terminal that let customers pay with payment cards provided to them by any bank in or outside of Nigeria, including Visa, MasterCard, Verve, and others, straight into other accounts14.

Conceptual Framework




The conceptual framework explores the connection between electronic payment systems (ATM, POS, and Mobile App payment systems) and customer satisfaction, using three indicators: customer feedback and reviews, transaction success rate, and Net Promoter Score (NPS). Electronic payment systems include ATMs, which enable various banking transactions; POS systems used for payments at retail locations, and Mobile App payment systems accessed through mobile applications for financial transactions. Customer satisfaction is measured through customer feedback and reviews, reflecting their overall satisfaction, ease of use, convenience, and security. The transaction success rate indicates the percentage of successful transactions completed using the electronic payment systems, while the Net Promoter Score (NPS) gauges customer loyalty and willingness to recommend the systems to others. The link between electronic payment systems and customer satisfaction is established through several factors. Convenience and accessibility play a crucial role, as systems offering round-the-clock availability, multiple transaction options, and user-friendly interfaces contribute to customer satisfaction.

## Theoretical Review

### Disconfirmation Theory

Richard L. Oliver first proposed the Disconfirmation Theory in 1980. This psychological theory describes how people make decisions regarding goods and services based on the mismatch between their expectations and actual experiences. According to the disconfirmation theory, the

amount and direction of the disconfirmation experience that results from comparing service performance to expectations is correlated with satisfaction. In contrast to the Negative theory, this theory takes into account the direction of the mismatch between the user's expectations and their actual experience. The meta-analysis by Szymanski and Henard revealed that the disconfirmation paradigm is the most accurate predictor of client satisfaction. A revised explanation of the disconfirmation hypothesis reads as follows: The guest's fulfillment answer is satisfaction26. A product or service feature, or the product or service itself, is judged to have delivered (or is continuing to offer) a pleasurable degree of consumption-related fulfillment, including levels of under- or over-fulfillment. According to this idea, when clients utilize the numerous electronic payment systems that the banks have advertised to the banking public, they will contrast their actual usage with their expectations.

Researchers may use the Disconfirmation Theory as a framework to look at a number of important issues related to the impact of electronic payment systems in the Nigerian banking sector. First and foremost, it's crucial to comprehend what clients anticipate from electronic payment systems. When using such systems in the Nigerian Banking System, this entails assessing their predicted levels of security, comfort, speed, simplicity of use, dependability, and other pertinent criteria. Second, it's critical to assess how customers really perceive the functioning of electronic payment systems. This review includes determining how satisfied they are with a variety of factors, including the system's functionality, user interface, transactional flow, error-handling capabilities, and customer support, among others. Ultimately, the Disconfirmation Theory may be used to improve electronic payment systems continuously, resulting in higher client satisfaction in the Nigerian banking sector.

### 2.3 Empirical Studies

The link between economic development and electronic payment systems utilizing monthly data from 2012 to 20179. The investigation made use of the Autoregressive Distributed Lagged Regression (ADLR) technique. The findings showed a strong correlation between the use of electronic payments and economic growth, as measured by real gross domestic product (GDP) growth.

The connection between banks' client retention rates and electronic payment systems. Based on their history in the sector, degree of competition, and ICT compliance, a few Nigerian banks were chosen and compared using this study methodology. Additionally, a questionnaire was created to capture the EPS grey area as well as customer retention and bank entrepreneurship growth. 200 people completed the survey, and SPSS was used to evaluate the results. The correlation between the electronic payment system and customers' retention was shown to be positive and significant.35.

Consumer satisfaction with electronic banking services. The research particularly examined the many aspects of the quality of the electronic banking services as well as the connection between client satisfaction and these aspects. The chosen study design was a descriptive survey. There were 93 responders in the sample. Questionnaires were the primary study tool employed. To evaluate the hypotheses, the data were examined using descriptive statistics, Pearson correlation, and regression analysis. The results showed that there is a substantial link between customer happiness and the different aspects of the quality of the electronic banking service, and that

customer satisfaction is significantly impacted by the quality of the electronic banking service34.

Evidence from the Lebanese Banking Sector on the effect of the quality of the E-Banking service on customer satisfaction. The research makes use of primary data that was collected using a survey tool and used structural modeling, SPSS, and Amos for data analysis. According to the research, customer satisfaction is significantly impacted by dependability, efficiency, user friendliness, responsiveness, and communication, as well as security and privacy.3. Impact of e-banking services and client satisfaction at certain bank branches in the Nigerian state of Oyo and the city of Ibadan. The research used sampling techniques and a cross-sectional survey design as its methodology25. The analytical method employed in the research was Pearson correlation. The results demonstrated widespread use of electronic banking products, including electronic transfers (97%), online banking (85%), and ATMs (98%). Internet network failure, bank fraud, and economic loss as a result of unsuccessful e-transactions are examples of constraints. Due to its cashless nature, accessibility of cash, time savings from bank visits, and frictionless transactions, e-banking has gained the favor of customers.

The impact of electronic banking on Nigerian customers' happiness15. A questionnaire was used to gather first-hand information. With the use of the SPSS program, hypotheses were created, tested, and assessed using the Chi-square test. The findings show a strong correlation between inadequate interconnectivity and consumers' use of electronic banking services. Additionally, there is a strong correlation between users using electronic banking services and service disruptions. The research also discovers a strong correlation between consumer happiness and electronic banking.

**Methodology**

The research design adopted for this study is descriptive survey research. The population of this study is comprised of all undergraduate students of Lead City University Ibadan with total population of about 9500 students. These students was chosen because they represent the youth of the digital age and utilize various banks and e-banking services. Taro Yamale's formula was adopted to determine the sample size for this study as follows:

The formula is $n = N / (1 + Ne^2)$

Where: n = Number of samples, N = Total population and e = Error tolerance (level). Thus, N = 9500, e = 5% i.e. 0.05, $n = N / (1 + N e^2) =$

$n = 9500 / (1 + 9500 * 0.05^2) = 383.83$

Thus, the sample size for this is 384 students

Simple random sampling was adopted for this study as it cut across all the students. Students from each faculty were chosen to represent sample for this study as distributed in the table below:

**Table 1 Distribution of the Sampled Respondents**

| Faculty | Sample |
|---|---|
| Management and Social Science | 64 |
| Art and Education | 64 |
| Engineering | 64 |
| Basic and Applied Science | 64 |

| | |
|---|---|
| Basic and Clinical Science | 64 |
| Law | 64 |
| Total | 384 |

For this study, primary data was used. As a result, the instrument for this study was a self-structured questionnaire with a set of precisely prepared and sequential statements to elicit data in order to answer the research objectives. To obtain the reliability of the instrument, 20 copies of the questionnaires were given to respondents who were not among the sample size for this study. The result of the analysis was 0.82 indicated that the instrument is reliable enough for measuring what it purports to measure in a consistent manner. Data to be collected from administered questionnaires was subjected to statistical manipulations. The descriptive statistics was used to analyze biographical data and arithmetic mean and standard deviation was used to make the decision about research questions. And also, T-test statistical tool was used to test the hypothesis raised at 0.05 significant level. Statistical Package for Social Science (SPSS) version 23 was used to ensure accuracy of the analysis of the data collected for study.

## Results and Discussion of Findings

### 4.3 Testing of Hypotheses

**Hypothesis One:** H01: There is no significant influence of ATM payment system on the customer satisfaction in Nigeria banking system?

Table 6 Influence of ATM payment system on customer satisfaction in Nigeria Banking System

| Variable | No | df | Chi-Square ($\chi 2$) | P-value |
|---|---|---|---|---|
| Customer Satisfaction | 382 | | | |
| | | 3 | 109.8 | < 0.001 |
| ATM payment System | 382 | | | |

Table 6 shows the results of the Chi-Square Tests indicate that the relationship between the ATM payment system and customer satisfaction in the Nigerian Banking System is statistically significant. With a chi-square value (X2) of 109.8 and a p-value of less than 0.001, the association between the variables is deemed highly significant. The magnitude of the chi-square value (109.8) signifies the strength of the connection between the ATM payment system and customer satisfaction. A higher value indicates a more pronounced relationship between the two factors. By rejecting the null hypothesis due to the p-value being less than the significance level of 0.05, it can be concluded that there is indeed a significant relationship between the ATM payment system and customer satisfaction in the Nigerian Banking System.

**Hypothesis Two:** H02: There is no significant influence of Point of Sale (POS) payment system on the customer satisfaction in Nigeria banking system?

Table 7 Influence of Point of Sale (POS) payment system on customer satisfaction in Nigeria Banking System

| Variable | No | df | Chi-Square (χ2) | P-value |
|---|---|---|---|---|
| Customer Satisfaction | 382 | | | |
| | | 3 | 103.5 | < 0.001 |
| **Point of Sale (POS)** payment | 382 | | | |

Table 7 shows the results of the Chi-Square Tests provide strong evidence that there is a significant relationship between the Point of Sale (POS) payment system and customer satisfaction in the
Nigerian Banking System. The chi-square value (X2) of 103.5, along with a p-value of less than 0.001, indicates that the association between these variables is highly significant. The magnitude of the chi-square value (103.5) indicates the strength of the relationship between the Point of Sale payment system and customer satisfaction. A higher value suggests a more substantial connection between these factors. By rejecting the null hypothesis based on the p-value being less than the significance level of 0.001, we can confidently conclude that there is indeed a significant relationship between the Point of Sale payment system and customer satisfaction in the Nigerian Banking System.

**Hypothesis three:** H03: There is no significant influence of mobile applications payment system on the customer satisfaction in Nigeria banking system

Table 8 Influence of Mobile Applications Payment System on customer satisfaction in Nigeria Banking System

| Variable | No | Df | Chi-Square (χ2) | P-value |
|---|---|---|---|---|
| Customer Satisfaction | 382 | | | |
| | | 3 | 93.2 | < 0.001 |
| **Mobile Applications Payment System** | 382 | | | |

The table 8 shows the results of the Chi-Square Tests indicate that there is a significant relationship between the Mobile Applications Payment System and customer satisfaction in the Nigeria Banking System. The chi-square value (X2) of 93.2 and the p-value of less than 0.001 indicate a highly significant association between these variables. The chi-square value of 103.5 signifies the strength of the relationship between the Mobile Applications Payment System and customer satisfaction. A higher chi-square value indicates a stronger association between the two factors.
By rejecting the null hypothesis based on the p-value being less than the significance level of 0.001, it can be concluded that there is indeed a significant relationship between the Mobile Applications Payment System and customer satisfaction in the Nigeria Banking System.

### 4.4 Discussion of Findings

The results of this study's first objective, which looks at how customer satisfaction in the Nigerian banking system is affected by ATM payment services as an electronic payment system, provide evidence that there is a strong correlation between these two variables. These findings are in line with earlier research done in relevant fields. Customer satisfaction in the banking sector and the influence of ATM services2. Their research showed a link between customer satisfaction and the quality of ATM services. They noted that as consumers enjoy the convenience and accessibility given by ATMs, efficient and dependable ATM services greatly contribute to customer satisfaction. Similar to this, a study was conducted to examine the variables affecting customer satisfaction in the banking industry, with an emphasis on self-service technologies21. According to the survey, one of the major factors influencing consumer satisfaction was the quality of ATM services. Customers preferred ATMs with speedy transactions, precise balance information, and an intuitive user interface. These results lend credence to the idea that changes and upgrades to the ATM payment system might directly affect consumer satisfaction levels. In addition, a cross-sectional study24 examined the connection between consumer satisfaction with ATM services and the Nigerian Banking System. The findings showed a strong positive association between client happiness and the quality of ATM services. The research stressed how crucial it is to provide dependable and straightforward ATM services in order to raise client happiness and loyalty.

In addition, a research was done on the connection between customer loyalty and ATM service quality in the context of Nigerian banking. The results showed a significant positive association between customer loyalty and ATM service quality. Customers were more inclined to show loyalty to their banks when they thought the service quality at the ATMs was greater. The research stressed the need of offering dependable and effective ATM services to establish long-term client relationships and consumer trust. The findings that modifications or improvements to the ATM payment system may directly affect customer satisfaction levels in the Nigerian banking system are supported by empirical data from several linked research taken together. It emphasizes how important it is for banks to make technology investments and keep enhancing their ATM services as a form of electronic payment in order to satisfy consumer expectations and raise general satisfaction. The results of this study's second objective, which looked at how the Point of Sale (POS) payment system affected customer satisfaction in the Nigerian banking system, strongly suggest that there is a significant connection between these two variables. These findings are in line with a number of important research in the area that provide empirical proof of the beneficial effects of POS payment systems on client satisfaction. One of the ways that POS payment systems in the retail sector have an impact on customer satisfaction is 7. According to the research, clients who used POS systems for their purchases expressed greater levels of pleasure than those who used more conventional payment methods. The research focused on the ease of use, quickness, and effectiveness of POS systems as determinants of customer satisfaction. The researchers looked at the connection between POS payment systems and customer satisfaction in another study that targeted the hotel industry24. The findings showed a considerable positive association, demonstrating how much customer happiness was increased by the use of POS systems. The survey identified enhanced service, transaction speed, and simplicity of use as the three main factors that influence consumer happiness. Similar research is being done in the e-commerce sector to examine how POS payment systems affect consumer happiness. Their research showed that consumers who used POS systems for online purchases had greater levels of satisfaction30.

The research emphasized the importance of POS systems' simplicity, security, and dependability in affecting consumer satisfaction. Research is being done in the banking industry to look at the connection between POS payment systems and client happiness. The findings showed that clients who conducted their banking transactions using POS systems showed greater levels of satisfaction than those who only utilized conventional banking procedures. The survey emphasized that POS systems' ease, transaction speed, and accuracy are key factors in consumer satisfaction.

Furthermore, a research in the food service sector looked at how POS payment systems affected consumer satisfaction. The results showed a link between the deployment of POS systems and increased customer satisfaction. The research highlighted elements that positively impacted consumer satisfaction, such as the simplicity of payment, shorter wait times, and increased order accuracy. In light of these connected research, the present results provide strong evidence that there is a causal link between consumer satisfaction in the Nigerian banking system and the Point of Sale payment system. The findings highlight the significance of taking into account elements like practicality, effectiveness, security, speed, and accuracy while upgrading and changing POS payment systems to raise customer satisfaction levels in the banking industry.

The findings of this study's third goal provide compelling evidence in favor of the link between customer satisfaction in the Nigerian banking system and the mobile applications payment system. These results are consistent with other research that emphasizes the influence of mobile apps on client satisfaction in the banking industry. a research on how Nigerian banks' customer satisfaction is impacted by mobile banking applications8. The results showed a relationship between the use of mobile applications and customer satisfaction that was favorable. In order to increase consumer happiness, the research underlined the significance of a user-friendly design, simple navigation, and practical functionality. Li and Liu (2018) looked at mobile payment applications in another study and looked into the connection between app quality and user happiness. The findings showed that effective navigation, well-designed user interfaces, and strong security controls all had a favorable impact on consumer satisfaction. To guarantee high levels of consumer happiness, the research stressed the necessity for ongoing improvements in app dependability and performance. In addition, a research was done to determine how mobile banking apps affected consumer satisfaction in the Nigerian banking industry19. According to the research, clients who frequently used mobile banking applications reported greater levels of satisfaction than those who only used conventional banking procedures. The survey emphasized the advantages of mobile applications for convenience, accessibility, and time savings as variables that affect consumer happiness.

Similar research has been done on the connection between mobile banking applications and client satisfaction in the Indian banking sector9. The findings showed that consumer satisfaction was favorably impacted by mobile applications that provided easy navigation, speedy transaction processing, and safe authentication procedures. The research stressed the significance of ongoing mobile app upgrades and improvements to satisfy users and match their expectations. Additionally, a research on the effects of mobile payment applications on client satisfaction in the Sri Lankan banking industry10 was conducted. According to the research, clients who utilized mobile payment applications expressed greater levels of satisfaction as a result of the ease, quickness, and security they offered. In order to increase customer happiness, the research underlined the necessity for userfriendly interfaces, trustworthy transaction processing, and efficient customer assistance.

Conclusion

This research shows a significant relationship between consumer satisfaction in Nigeria's banking

industry and electronic payment systems (ATM, Point of Sale, and mobile applications). Customer satisfaction ratings are directly impacted by improvements to these systems. According to earlier research that emphasized the importance of effective, dependable, and user-friendly ATM services, the study specifically emphasizes the critical role of the ATM system in affecting satisfaction. In a similar way, it has been shown that the Point of Sale system and mobile app payments have a big impact on consumer satisfaction via elements like overall experience, usability, convenience, and accuracy. For increasing satisfaction, it became clear that mobile applications' user interfaces, security, and dependability needed to be improved. The report emphasizes how crucial electronic payment systems are for determining consumer happiness and calls on banks and politicians to continuously improve these systems to live up to expectations, enhance client experiences, and encourage loyalty in a cutthroat financial environment.

*5.3 Recommendations*

Based on the findings of this study regarding the influence of electronic payment systems on customer satisfaction in the Nigerian Banking System, the following recommendations are suggested:

1. Enhance the usability of ATM services: Banks should prioritize improving the user experience of their ATM services. This can be achieved by ensuring clear instructions, intuitive interfaces, and easy navigation.
2. Invest in advanced ATM technologies: Banks should consider investing in advanced ATM technologies to provide customers with innovative and convenient features. For example, implementing contactless payment options, biometric authentication, and personalized transaction preferences can enhance the overall customer experience and increase satisfaction levels.
3. Optimize Point of Sale systems: To further enhance customer satisfaction, banks should focus on optimizing their Point of Sale (POS) systems. This can involve improving transaction speed, accuracy, and security.
4. Continuously update and improve mobile payment applications: Given the increasing popularity of mobile banking, banks should regularly update and enhance their mobile payment applications. This includes improving the user interface, simplifying navigation, and ensuring robust security measures.
5. Provide comprehensive customer support: Banks should prioritize providing efficient and accessible customer support services. This can include a dedicated helpline, online chat support, and informative self-service options.
6. Conduct regular customer feedback surveys: Banks should regularly collect feedback from customers regarding their experiences with electronic payment systems. Feedback surveys can provide valuable insights into areas for improvement and identify emerging customer needs and preferences. Acting upon customer feedback demonstrates a commitment to customer satisfaction and helps banks stay responsive to changing customer expectations.

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# Planned Obsolescence and Household Financial Behavior in Oyo State, Nigeria

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## Abstract

This study examines the impact of planned obsolescence on household financial decisions in Oyo State, Nigeria; specifically, its effect on consumption, savings, and investment decisions. The research questions observe the influences of premature replacement of products on financial behavior, the exposure levels of households to obsolescence in electronics, fashion, and automotive products, and the reasons and frequency of product replacement. The quantitative method was utilized, in which a survey (consisting of 156 questionnaires) was distributed through the Internet among the adult population of the urban Oyo State, Nigeria. The analysis of data was done by descriptive statistics and multiple regression in SPSS. It was found that Nigerian households often dispose of functional products, particularly fashion products, footwear, and smartphones, mainly because of new models (31.7%), and the slowdown of performance because of software (24.1%). The regressions indicate that pressure to upgrade ($\beta = 0.300$, $p < 0.001$) and increased monthly income ($\beta = 0.476$, $p < 0.001$) have a significant impact on the amount of income spent on replacements. Consciousness of planned obsolescence and education level, however, had no great impact. The study finds that planned obsolescence helps to generate repeated consumption, saving degradation, and investment perversion, particularly among urban households with middle income. Some of the recommendations are the enactment of right-to-repair policies, labeling the lifespan of products as mandatory, tax incentives for long-lasting items, a ban on software updates that lower the performance of devices, and public awareness to see forced obsolescence as an economic and environmental cost.

**Keywords:** Planned obsolescence, Household financial behavior, Consumption patterns, Savings, Investment.

## Introduction

Planned obsolescence has become a widespread phenomenon in a world of high technology and consumer-based economies, whereby manufacturers are now creating products that have short lifespans. Planned obsolescence is a designation of a product whose useful life or perceived attractiveness is intentionally designed to force the purchaser into an earlier replacement than is warranted (Yurtsever, 2023). The theory can be traced back to the early part of the 20th century, and one of the first recorded cases of this phenomenon was the Phoebus cartel of the 1920s, when the leading manufacturers of lightbulbs agreed to reduce the life of the bulbs to 1,000 hours to sell more of them (Bulow, 1986). Nevertheless, the concept of planned obsolescence became widely known in the 1950s with the help of an industrial designer, Brooks Stevens, who believed that a product should be designed in such a way that it would become obsolete stylistically, rather than by functionality (Strasser, 1999).

Planned obsolescence occurs today in three main forms, that is functional, psychological, and technological. Functional obsolescence can be described as a product that stops functioning after a certain time has elapsed, usually because of non-replaceable batteries or delicate parts. The marketing trends and social trends are what cause psychological obsolescence, where consumers are convinced that the older models are outdated and not fashionable, even though they can still be used. Technological obsolescence occurs when a product is unable to work with another one that has changed in its software, requirements, or system, as is often the case with smartphones and computers (Acikgoz, Borulu & Bölen, 2025).

The effects of planned obsolescence have become more pronounced in Nigeria, especially in the fast-growing consumer markets of electronics, fashion, and motor vehicles. An example of these markets is the consumer electronics in Nigeria, which is estimated to be worth about $2.3 billion in 2023 and is forecasted to increase with a compound annual growth rate (CAGR) of 6.4% up to 2028 (Statista, 2024). Another huge portion of this market is imported smartphones and laptops, which most have classic indicators of planned obsolescence, including non-replaceable batteries, software development that slows down performance, and little to no options for repair.

Equally, Nokia's fast fashion has taken off, and this is due to the increased urbanization, social media, and the escalation of online shopping sites, such as Jumia and Konga. The survey of the Nigerian Bureau of Statistics (NBS) in 2022 showed that clothing consumption constituted approximately 18% of the average household spending on non-food items in the largest urban areas, such as Lagos and Abuja, which is more than 12% in 2015 (NBS, 2022). This change is not merely an indication of an increasing amount of disposable income in middle-class Nigeria, but also the

vulnerability to psychological obsolescence, whereby one would throw away clothes not because they are worn out but because they are out of fashion.

These trends are also manifested in the automotive industry. More than 90% of the vehicles imported by Nigeria are mostly products of Europe and Asia (Atime, 2023). A great number of these cars come with defects that are not visible or with short life cycles, requiring their owners to do repairs or get other replacements. The expectancy of the imported used cars in Nigeria is estimated to be only 57 years on average, with a considerably shorter lifespan of mere 5 to 7 years compared to the native countries, which partly explains the fact that there is a planned limitation of durability or spare parts (Pristerà et al., 2025).

In addition to consumer behavior, planned obsolescence cuts across key economic and environmental issues in Nigeria. Frequent shopping for non-durable commodities undermines savings in the home. The gross domestic savings rate in Nigeria was a pitiable 13.6% of the gross domestic product in 2022 - one of the lowest in Africa (World Bank, 2023). Low savings, in their turn, limit the investment capacity and long-term accumulation of wealth, particularly middle- and lower-income households that spend a disproportionate share of income on replacement goods.

In the environmental world, the impact is severe. In Nigeria, the country produces more than 600,000 metric tons of electronic waste every year, which means that it is one of the largest e-waste producers in Africa (UNEP, 2021). Some of this waste is a result of abandoned electronic materials that have been made obsolete too soon. Little formal recycling facilities and a lack of strict implementation of environmental laws mean that most of this waste will be discarded in open dumps, which are dangerous to health and the environment.

Under these dynamics, it is timely and urgent to learn how individual financial behavior in Nigeria is influenced by planned obsolescence. The present research is aimed at exploring this effect on income distribution, saving habits, and investment choices, especially in the environment where the financial resilience is already compromised by inflation (28.9% as of Q1 2025; NBS, 2025) and currency fluctuations. This study should provide a marker of policy, consumer advocacy, and sustainable consumption of planned obsolescence in Nigeria by placing it within the context of its socio-economic environment.

**Research Objectives and Questions**

This study aims to:

1. Examine how planned obsolescence influences household financial behaviors in Nigeria, particularly recurrent consumption patterns driven by premature product replacement.
2. Examine the consumption patterns and household exposure to planned obsolescence in Nigeria.
3. Find out the main reasons and how often consumers replace their functional items.

**Key research questions include:**

- What are the consumption patterns and household exposure to planned obsolescence in Nigeria?
- What are the main reasons, and how often do consumers replace their functional items?

**Hypothesis**

**$H_0$ 1:** Planned obsolescence does not affect household financial behaviors.

**$H_1$ 1:** Planned obsolescence affects household financial behaviors.

**Scope and Methodology Overview**

The study focuses on urban areas in Oyo state, Nigerian households (Ibadan, Ibarapa, Ogbomoso, Oke-ogun, and Oyo) across varying income brackets, with emphasis on consumer electronics, fashion, and automotive goods. A qualitative approach is employed, in which a survey method (online Google form) was used to capture behavioral insights. Descriptive statistics (such as frequency distribution, table, and charts) and inferential statistics (multiple regression) will test the relationship between obsolescence exposure and financial outcomes of the consumer.

**Theoretical Framework**

The study is based on the major theories in consumer behavior, inter-temporal choice, and behavioral economics, which assist in understanding the impact of planned obsolescence on financial decision-making in Nigeria. According to the Theory of Planned Behavior (TPB) (Usman, Rianto & Aujirapongpan, 2025), individual behavior is influenced by an intention that is formed by attitudes, subjective norms, and probabilities of perceived behavioral control. Within the framework of planned obsolescence, the attitudes and norms are influenced by marketing discourses and social pressures (e.g., the necessity to have the newest smartphone), which makes a consumer buy another brand-new product again and again, even though the old one is still working. The theory especially applies to the urban areas in Nigeria, where conspicuous consumption is closely related to social status (Nogueira, Dias & Santos, 2023).

In addition to TPB, there is the notion of limited rationality (Khan, 2025), which claims that consumers make decisions under informational and cognitive limitations. Under the pressure of difficult product life cycles, the inability to fix a product, or vague warranty agreements, Nigerian households can fall into defaulting to habitual or impulsive responses, replacing products instead of the cost-minimizing response. The ability to purchase now and pay later schemes, as well as informal credit, which facilitates this habitual consumption, only deepens short-term decision-making.

Macroeconomically, the Life-Cycle Hypothesis (Martini & Spataro, 2024) and Permanent Income Hypothesis (Mafruhah & Istiqomah, 2024) hold that rational actors make a lifetime consumption

decision according to their expected income. This smoothing behavior is, however, interfered with by recurrent and unplanned spending caused by obsolescence. Households that spend disproportionate income replacing depreciating goods at the expense of long-term savings and retirement lose savings, and retirement planning is bad, especially in a nation such as Nigeria, where formal pension coverage is less than 10% (National Pension Commission, 2023).

Through concepts such as present bias, which is the inability to appreciate immediate returns more than future gains (Laibson et al., 2024), behavioral economics provides a valuable insight. Planned obsolescence capitalizes on this bias by laying stress on newness and instant gratification that promotes impulse buying. Combined with the increasing culture of wastefulness in Nigeria due to fast fashion and frequent changes in technologies, these psychological forces make wasteful consumption acceptable and undermine financial discipline (Parvatiyar & Sheth, 2023).

**Planned Obsolescence in Modern Markets**

Planned obsolescence has become the order of the day in major areas of consumer activity worldwide- and in Nigeria also, where business policies are driven more by recurrent sales than by product life cycles. In consumer electronics, especially smartphones and laptops, the company can place non-replaceable batteries, limit software updates, or create components that wear out after 23 years (Cappelle, De Strycker & Van der Perre, 2025). In Nigeria, most of the smartphones sold in 2024 are used or refurbished phones (NBS, 2024), with most developing high rates of performance loss because of the obsolete hardware or incompatible updates. Popular brands such as Apple and Samsung were headquartered in Nigeria, with older models being slowed down using software by the companies, which has been subject to criticism across every part of the world since, effectively, it compels people to upgrade (European Environmental Bureau, 2020).

The psychology of obsolescence helps the fast fashion market to flourish. The brands such as Shein and Zara have weekly releases, and the line of clothes encourages the notion of clothing disposability. In Nigeria, social media influencers and online shopping websites are increasing this trend, with 60% of urban young people stating that they dispose of garments within less than five visits (Parvatiyar & Sheth, 2023). Localized fashion cycles, such as weddings or festivals, also further popularize temporary consumption of apparel at the expense of durable consumption.

Planned obsolescence in the car and home appliances industries is in the form of limited availability of spare parts, complicated repair processes, and used cars imported under the guise of wearing out that are not necessarily old. Nigeria is home to more than 70% of imported used cars, most of which have odometers that have been manipulated or are close to expiry (Atime, 2023). Likewise, household appliances such as refrigerators and washing machines (most of them imported second-hand) also have no servicing infrastructure within the country, thus being disposed of soon. Such trends are motivated by corporate choices. Product life cycles become shorter in companies with

the aim of generating more revenue faster, a trend that is aggravated by the pressure from shareholders to make a growth quarter in and out (Yurtsever, 2023). Marketing solidifies what is perceived as innovation, and the newness is treated as a status, particularly in aspirational markets, such as Nigeria, where brand recognition is a sign of upward social trajectory (Barango-Tariah & Oguru, 2024).

The reactions in the global arena have taken the form of the right-to-repair movement, which supports the right of consumers to repair manuals, parts, and tools. The European Union has also implemented laws that require repairability ratings and prohibit anti-repair schemes (EU Circular Economy Action Plan, 2020). Nigeria, however, does not have any similar legislation. The e-waste guidelines are available in the National Environmental Standards and Regulations Enforcement Agency (NESREA), but are poorly implemented, and there is no national policy on the right to repair (UNEP, 2022). Environmental laws are also behind; Nigeria has not made an amendment to the Basel Convention on e-waste, and this restricts the control of hazardous imports. Therefore, without effective regulatory protection, the Nigerian consumers will continue to be susceptible to the consumption that is obsolescent-based, and this will have a major implication on domestic budgets and environmental sustainability.

**Impact of Planned Obsolescence on Individual Income Allocation**

Planned obsolescence has a major impact on the allocation of household income in Nigeria in the sense that it normalises frequent changes in short-lived commodities, thus consuming the resources that could be directed towards savings and investments in households for recurrent consumption.

*A. Frequency of Purchases*

The families in Nigeria, and especially the urban families, are spending large proportions of their disposable income on substituting electronics, fashion products, and appliances that have become obsolete too soon. In the survey conducted in 2023, the Nigerian Bureau of Statistics (NBS) discovered that consumer durables and digital devices are some of the largest spending items in the urban households, as 22% of monthly non-food spending, compared to 14% in 2017 (NBS, 2023). Such an increase is associated with a reduction in the life of products; a typical smartphone replacement cycle in Nigeria has dropped to 18 months, as compared to 30 months in the world (GSMA, 2022). Middle-income earners have a high income elasticity of demand for these goods, as they have seen them as aspirational but essential, and their expenditure is sensitive to changes in income and marketing influence (Hadji Acmad Vigonte & Abante, 2024).

*B. Imbalanced Impact on Income Groups*

Planned obsolescence is distributed unequally along the income lines. The poor households will tend to stick to cheaper, lower-quality imports (e.g., second-hand phones or tokunbo appliances) that break down sooner, perpetuating the poor into emergent buying cycles. E.g., a poor earner in

Lagos can afford a basic smartphone at ₦15,000–₦20,000 (≈ $16–$22) in 12-18 months, that is 10-15% of their monthly earnings (NBS, 2023). Conversely, high-income customers find it easier to bear the obsolescence costs, but are also as vulnerable to psychological obsolescence, which is fuelled by status rivalry. Nevertheless, they have more financial cushions to save and invest, which intensifies the wealth disparity (Yoganandham, 2025).

**Effects of Planned Obsolescence on Household Saving Behavior**

There is an observable pull of planned obsolescence on household saving within an economy, especially when the economy is emerging, as is the case in Nigeria, where structural and behavioral forces combine to inhibit long-term financial planning.

*A. Decline in Personal Saving Rates*

The personal saving rates of countries with high consumption turnover due to obsolescence are declining in the world. Personal saving rate in the U.S. declined to 3.2% in 2023, two years after the electronic and fashion cycles were becoming faster (U.S. Bureau of Economic Analysis, 2023). Equally, the gross domestic saving rate in Nigeria has ranged between 13 and 14% of GDP since 2015, which is significantly lower than the 20% of GDP set as an LTV of sustainable development by the African Union (World Bank, 2023). Although correlation is not causation, econometric research, which takes into account income, inflation, and access to credit, indicates that exposure to short-lifecycle goods is an adverse predictor of household savings (Adeyemi and Oladipo, 2022). In Nigeria, where informal consumption is the rule and pressure to keep up is strong in society, planned obsolescence serves as a fuel that transforms potential savings into regular spending.

*B. Psychological and Behavioral Influences*

The process of formalizing consumption as a social signal, in particular, in urban Nigeria, contributes to the culture of success being signaled by the possession of the most recent device or fashion object (Peck & Luangrath, 2023). This is enhanced by social media, which makes up lifestyles, generating a perceived need to use more functional items. Thus, the cultural imperative of delayed gratification, which was the core part of the traditional Nigerian value of economy and intergenerational feeding, is fading away. The behavioral test at Lagos concluded that 68% of participants between the ages of 18 and 35 years preferred immediate purchase of a new smartphone over the same sum of money in six months (Parvatiyar & Sheth, 2023). It can be seen as a movement towards the present-biased preferences, which is one of the fundamental principles of behavioral economics, as short-term incentives always prevail over long-term financial objectives.

**Influence on Investment Patterns**

Planned obsolescence is an indirect but important distortive activity that re-equips household investment behavior in Nigeria by consuming the disposable income in terms of recurrent expenditure, thus limiting capital formation and misallocation of assets.

*A. Lowered Capital to invest*

The more money spent to substitute perishable commodities, the less productive investment capital is created. The effect of crowding out is acute in Nigeria, which experiences low formal financial inclusion (45% of adults had bank accounts in 2023), even though formal financial inclusion is low in the country (EFInA, 2023). The money that can be invested in a financial product like a mutual fund, government securities, or even real estate is used to depreciate consumer items. As an illustration, a middle-income earner who spends ₦200,000 every year on buying new smartphones and fashion loses potential compound returns; with an average annual rate of 10 per cent, it would increase to more than ₦3.5 million in 10 years (Central Bank of Nigeria [CBN], 2023). Also, the uncertainty about replacement costs creates a preference to short term liquidity, discouraging long term investment commitment even by moderate saving individuals.

*B. Investment Biases: Behavioral*

The investment decisions are also skewed by cognitive biases. The preference of many Nigerians for tangible assets, including electronics, vehicles, or clothing, even though they tend to become obsolete quickly, is a result of being visible and signaling to society (Barango-Tariah & Oguru, 2024). This is opposed to the less noticeable but appreciating financial instruments, which are usually viewed as risky or not accessible. Besides, systematic misallocation of resources comes with consumption-driven budgeting in which spending takes precedence over saving. According to a 2022 study, 61% of urban Nigerian households that had disposable income had no formal investment portfolio, which cited continuing gadget and lifestyle costs as the major obstacle (Basher, Dipto & Rahman, 2024).

**Methodology**

The research design used in this study is the quantitative research design, where the researcher is seeking to understand the effects of planned obsolescence on household financial behavior in Oyo State, Nigeria. The structured form of an online survey was used as the primary data, which was distributed over the social media networks (WhatsApp, Facebook, Twitter) and email networks to provide a wide geographical coverage (Ibadan, Ogbomoso, Oyo, etc) of the urban centers of Oyo state. The survey has focused on adult consumers (18 years and above) who make or influence purchase decisions in the household. Two weeks were considered as the maximum time of data collection, and a total of 156 valid responses were obtained, which is sufficient to meet the minimum sample size requirement in the regression analysis according to the rule of thumb by Green (1991) (50 + 8k, where k is the number of predictors).

SPSS Version 28 was used to analyze data. The analytical method included descriptive and inferential statistics. The summarization of the demographic characteristics, consumption habits, awareness of planned obsolescence, and saving habits of the respondents was done by descriptive

methods such as frequency distribution, percentages, bar charts, and tables. These tabular and visual overviews allowed for a clear picture of the sample and the first impressions about the trends in spending. To analyse the inferential analysis, multiple linear regression was used to determine the correlation between exposure to planned obsolescence (measured by Frequency of replacement, income level, awareness of obsolescence, education, etc.) and household financial behaviour (measured by monthly expenditure on replacements). The conclusion was made at a 5 percent level of significance ( $p < 0.05$) to facilitate evidence-based findings on the role of planned obsolescence in the determination of financial choices of Nigerian households.

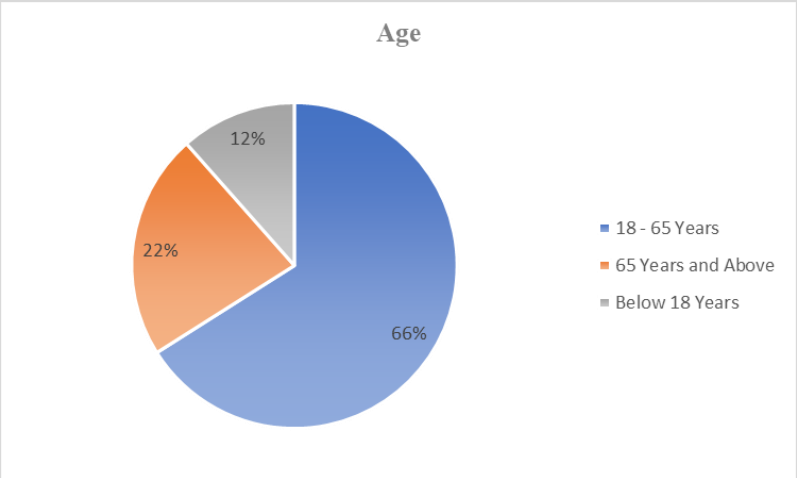
**Data Presentation and Analysis**

**Section A: Demographic and Socioeconomic Profile**

**Age**

| | N | % |
|---|---|---|
| 18 - 65 Years | 103 | 66.0% |
| 65 Years and Above | 35 | 22.4% |
| Below 18 Years | 18 | 11.5% |

**Source:** Field Survey, 2025.

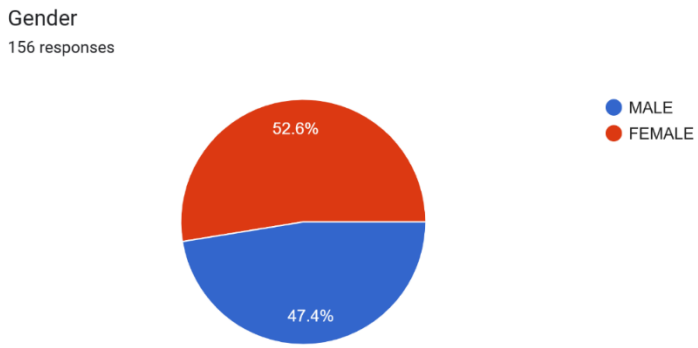



Most (66.0) of the respondents fall under the age of 18-65, which is the main consumer and income-earning group in Nigeria. Patients aged 65 years and older make 22.4, and those under 18 years make 11.5, which could be students, and this means that there is a high likelihood that the sample can make or influence financial decisions at the household level.

**Gender**

| | N | % |
|---|---|---|
| Female | 82 | 52.6% |
| Male | 74 | 47.4% |

**Source:** Field Survey, 2025.




The sample is almost balanced between the genders, with a slight majority of the female respondents (52.6%) over the male respondents (47.4%), so that there will be diversity of genders in consumption and financial behaviours during the analysis.

**Highest Educational Attainment**

| | N | % |
|---|---|---|

| | | |
|---|---|---|
| B.Sc./HND | 50 | 32.1% |
| No formal education | 4 | 2.6% |
| OND/NCE | 32 | 20.5% |
| Postgraduate | 26 | 16.7% |
| Primary | 12 | 7.7% |
| Secondary | 32 | 20.5% |

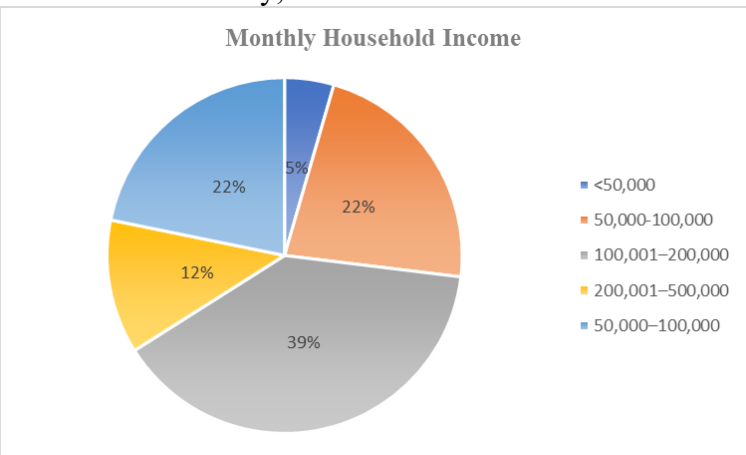
**Source:** Field Survey, 2025.

Respondents have a rather high standard of formal education: 69.3 percent have post-secondary education (B.Sc./HND, OND/NCE or Postgraduate). To be precise, 32.1 per cent have a B.Sc./HND, 20.5 per cent have OND/NCE or Secondary certificates respectively, and 16.7 per cent have postgraduate degrees. The highest percentage of 2.6 had no formal education; only 7.7% had a primary school education. It indicates that the sample might be biased towards educated, urban Nigerians, who are probably more active on the Internet and conscious of the trends in consumer behavior, which can limit the generalization of the sample to less-educated or rural groups. But it is consistent with the fact that the study targeted households that are involved in discretionary purchases of electronics and fashion, in which case, the digital literacy and income tend to be associated with higher education.

**Monthly household income**

| | N | % |
|---|---|---|
| <50,000 | 7 | 4.5% |
| 50,000-100,000 | 35 | 22.4% |
| 100,001–200,000 | 61 | 39.1% |
| 200,001–500,000 | 19 | 12.2% |
| 50,000–100,000 | 34 | 21.8% |

**Source:** Field Survey, 2025.




The distribution of income reveals a large percentage of respondents (60.9) are between ₦50,000-₦200,000 monthly with 39.1 present in the ₦100,000-₦200,000 monthly category, which is the

highest percentage group. It is only 4.5 percent very low (<₦50,000), implying that the sample is skewed towards the low-middle- and middle-income urban families. This group is a prime target of planned obsolescence because they are already possessing sufficient disposable incomes to participate in aspirational consumption and insufficient financial reserves to absorb frequent replacement expenses, which could impair savings and investment.

**Employment status**

| | N | % |
|---|---|---|
| Employed (formal) | 40 | 25.6% |
| Retired | 11 | 7.1% |
| Self-employed | 50 | 32.1% |
| Student | 45 | 28.8% |
| Unemployed | 10 | 6.4% |

**Source:** Field Survey, 2025.

The employment profile indicates that there is a wide sample; 32.1 are self-employed, and 25.6 are formally employed, which are the main income-earning groups. It is important to note that the number of students who constitute 28.8 percent are probably without or with low constant income, and this may affect their consumption patterns since many of them depend on allowances or part-time employment. Smaller segments are made up of retirees (7.1) and the unemployed (6.4). The large percentage of students and self-employed people shows the active but informal Nigerian labor market. This composition implies different degrees of purchasing power and financial independence, and thus, it can influence the vulnerability to planned obsolescence and savings or investment capabilities.

**Research Question 1:** What are the consumption patterns and household exposure to planned obsolescence in Nigeria?

**Consumption Patterns and Exposure to Planned Obsolescence**
**Descriptive Statistics**

| | | a) Smartphone | b) Laptop/Tablet | c) Clothing/Fashion items | d) Home appliances (e.g., blender, TV) | e) Footwear/Bags |
|---|---|---|---|---|---|---|
| N | Valid | 156 | 156 | 156 | 156 | 156 |
| Mean | | 2.58 | 2.14 | 2.83 | 2.44 | 3.03 |
| Std. Deviation | | 1.208 | 1.236 | 1.294 | 1.230 | 1.210 |
| Skewness | | .463 | .911 | .134 | .593 | .049 |
| Std. Error of Skewness | | .194 | .194 | .194 | .194 | .194 |
| Kurtosis | | -.634 | -.225 | -1.084 | -.497 | -.892 |
| Std. Error of Kurtosis | | .386 | .386 | .386 | .386 | .386 |

**Source:** Field Survey, 2025.

The frequency of the methods of replacing functional items is provided in the descriptive statistics as a 5-point scale (1 = Never, 5 = Very Often ). The highest replacement rate was reported with footwear/bags (mean = 3.03), clothing/fashion items (mean = 2.83), and this shows that psychological obsolescence has a great effect on the appearance-related goods. The less frequent replacements with home appliances (mean = 2.44) and laptops/tablets (mean = 2.14) were above the middle of the scale, indicating moderate levels of exposure to functional or technological obsolescence. The values of skew (all negative) suggest that the responses were tilted towards the lower side of the scale- most of the replacements are done either sometimes or fewer. Nevertheless, the comparably high means of fashion and footwear are indicative of an ongoing disposable trend in these categories, which would be consistent with international trends of fast-fashion and underscores the importance of this use of fashion and footwear in the repetitive household spending in Nigeria.

**What are your main reasons for replacing functional items?**

| **Main Reasons for Replacing Functional Items** | N | % |
|---|---|---|
| Battery no longer replaceable | 8 | 5.1% |
| Battery no longer replaceable, and other options | 4 | 2.50% |
| Newer model available | 14 | 9.0% |
| Newer model available and other options | 36 | 22.70% |
| No longer “in style.” | 10 | 6.4% |
| No longer “in style” and other options | 7 | 4.50% |
| Peer/family influence | 11 | 7.00% |
| Slower performance after update | 21 | 13.5% |
| Slower performance after the update and other options | 10 | 10.60% |
| Warranty expired | 13 | 8.3% |
| Other | 15 | 9.6% |

**Source:** Field Survey, 2025.

The table indicates that the replacement of the functional items by the Nigerian consumers is mainly because of the obsolescence of the items that is influenced by technology and marketing. The most common cause is the availability of newer models, which is cited as either a single cause (9.0%) or a combination of other causes (22.7) accounting to 31.7% of the responses. This highlights the strength of presumed innovation and upgrade culture to affect the purchasing decision-making. The second significant reason is also slower performance following software updates, a strategy most

frequently linked to technological obsolescence, and which was reported by 13.5% by itself, and 10.6% in combination with other causes, totalling 24.1%. This is an indication that the consumers are all too conscious of performance degradation engineered by the manufacturers.

Social and practical issues are also at play: warranty expiration (8.3%) and peer/family influence (7.0%) represent logistical restrictions and influence by the social pressure, respectively. Combined, the other four are less likely to cause obsolescence than style-related obsolescence (no longer in style) at 10.9%. Only 7.6% mentioned non-replaceable batteries, which is a typical aspect of functional obsolescence, which is possibly because very few consumers were familiar with this aspect or attributed it. Interestingly, 9.6 percent of the respondents chose Other, which points to the situation on the ground, such as inappropriate repair infrastructure or erratic power supply on the lifespan of appliances in Nigeria. Altogether, the evidence indicates that premature replacement in the first place is driven by corporate policies, particularly those that concern newness and slowdowns created by software, and has a profound effect on household expenditures and sustainability.

**How often do you feel pressured to upgrade to the latest product version?**

| | N | % |
|---|---|---|
| Always | 12 | 7.7% |
| Frequently | 25 | 16.0% |
| Never | 29 | 18.6% |
| Occasionally | 30 | 19.2% |
| Rarely | 60 | 38.5% |

**Source:** Field Survey, 2025.

A majority of the respondents (57.7%) rarely or never feel compelled to upgrade to the new version of the product, indicating some consumer resistance or a lack of money. Nevertheless, a significant proportion of 23.7% report being pressured most of the time or always, especially the younger, urban, and middle-income groups. This minority group is very vulnerable to marketing and social influence, which contributes to repeated consumption. The results reveal that even though the particular segment of the population is under real pressure because of the planned obsolescence, a large portion of the Nigerians are reserved, probably because of the financial situation and the insufficient disposable income.

**Hypothesis Testing**

**Hypothesis:** Planned obsolescence does not affect household financial behaviors.

**Multiple Regression Output**

**Model Summary**

| Model | R | R Square | Adjusted R-Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .571[a] | .326 | .308 | 1.002 |

a. Predictors: (Constant), Highest educational attainment, How often do you feel pressured to upgrade to the latest product version? Are you aware of the term planned obsolescence?, Monthly household income

**ANOVA[a]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 73.311 | 4 | 18.328 | 18.245 | .000[b] |
| | Residual | 151.682 | 151 | 1.005 | | |
| | Total | 224.994 | 155 | | | |

a. Dependent Variable: On average, what percentage of your monthly income do you spend on replacing electronics, fashion, or household goods?

b. Predictors: (Constant), Highest educational attainment, How often do you feel pressured to upgrade to the latest product version?, Are you aware of the term planned obsolescence?, Monthly household income

**Coefficients[a]**

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | | | Tolerance | VIF |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | (Constant) | .706 | .408 | | 1.729 | .086 | | |
| | How often do you feel pressured to upgrade to the latest product version? | .304 | .068 | .300 | 4.478 | .000 | .995 | 1.005 |
| | Monthly household income | .472 | .075 | .476 | 6.255 | .000 | .772 | 1.296 |
| | Are you aware of the term planned obsolescence? | .143 | .164 | .060 | .877 | .382 | .962 | 1.040 |
| | Highest educational attainment | -.060 | .070 | -.065 | -.866 | .388 | .790 | 1.266 |

a. Dependent Variable: On average, what percentage of your monthly income do you spend on replacing electronics, fashion, or household goods?

**Collinearity Diagnostics**

| | | | | Variance Proportions | | | | |
|---|---|---|---|---|---|---|---|---|
| Model | Dimension | Eigenvalue | Condition Index | (Constant) | How often do you feel pressured to upgrade to the latest product version? | Monthly household income | Are you aware of the term planned obsolescence? | Highest educational attainment |
| 1 | 1 | 4.560 | 1.000 | .00 | .01 | .01 | .00 | .00 |
| | 2 | .197 | 4.816 | .00 | .37 | .47 | .01 | .01 |
| | 3 | .132 | 5.881 | .02 | .48 | .21 | .30 | .00 |
| | 4 | .085 | 7.314 | .02 | .04 | .25 | .29 | .44 |
| | 5 | .026 | 13.121 | .95 | .10 | .06 | .40 | .55 |

a. Dependent Variable: On average, what percentage of your monthly income do you spend on replacing electronics, fashion, or household goods?

**Source:** Field Survey, 2025.

**Model Summary Interpretation**

A statistically significant proportion of the difference in household purchases of replacement goods is described by the regression model. The model, having an R value of 0.571, indicates that predictors and the dependent variable have a moderate positive relationship. The R 2 of 0.326 reveals that the four predictors used to explain the percentage of monthly income spent on replacing electronics, fashion, and household goods explain a percentage of 32.6 of that percentage. This figure is slightly modified by the Adjusted R Square (0.308) to indicate the number of predictors, which in turn indicates that the model has a strong but not a comprehensive effect on spending since other unmeasured factors (e.g., social norms, access to credit) might also have an effect on spending. The standard error of the estimate (1.002) indicates the relatively low error of prediction on the 5-point scale of spending, which is in favor of the model.

**ANOVA Interpretation**

The table of ANOVA validates the statistical significance of the regression model as a whole (F =

18.245, p = 0.001). The regression sum of squares (73.311) is large in comparison to the residual sum of squares (151.682), which means that the predictors comprising it all contain significant variation in terms of spending behavior. The p-value of 4 predictors and 151 degrees of freedom of residuals indicates that there is a highly significant difference of 0.001, which rejects the null hypothesis that all the regression coefficients equal zero. This confirms that one of the predictors does indeed play an important role in explaining why some households use a greater proportion of their income on consumptive goods that are short-lived than others.

**Coefficients and Collinearity Interpretation**

Pressure to upgrade (0.300, $p < 0.001$) and monthly household income (0.476, $p < 0.001$) are two predictors that have a significant influence on spending. An increase in the pressure in upgrading by one unit also correlates with the percentage of spending increasing by 0.304 points, and higher income has a strong correlation with a more significant expenditure, probably because higher income would allow people to buy more things more often. Conversely, the knowledge of planned obsolescence and education levels were not marked ($p > 0.05$), indicating that it is not the knowledge that will decrease spending. The diagnostics of collinearity indicate no problems with multicollinearity: there are no values of VIF above 1.3, and tolerance above 0.77, which is well below acceptable levels, which means that the estimates of coefficients are not unstable and can be interpreted.

## Conclusion

The results indicate that planned obsolescence plays an important role in determining the consumption behaviour of Nigerian households, especially the temptation to have newer models, and the degradation of performance after upgrades. Although most people say they swap smartphones and fashion goods either once in a while or even more often, a sizeable minority, particularly among the younger brackets, middle and self-employed individuals, feel compelled to upgrade often due to social pressure and advertisements. Even though a lot of people are restraining because of the financial issues, spending on items with a short shelf life is still common, especially in the appearance and technology segments. This habit is associated with low savings and investment, as attested by regression analysis. The study highlights the importance of enhanced consumer protection, repairability, and financial literacy in order to counter the economic and environmental impact of consumption based on obsolescence in Nigeria.

## Recommendations

Based on the findings, the following key recommendations are proposed:

1. The Nigerian government, via the Consumer Protection Council (CPC), ought to require the use of labels indicating the lifespan of products, software support time, and repairability ratings, which are in line with the international right-to-repair requirements.
2. Financial literacy Programs should be encouraged by the government through the incorporation of modules on sustainable consumption and opportunity cost in the national financial literacy programs (e.g., by the Central Bank of Nigeria) to enable households to be aware and resist expenditure based on obsolescence.
3. They ought also to provide tax rebates or lower importation duties on certified long-life or modular goods and promote home repair ecosystems by training skills and SME grants.
4. Software updates, which intentionally slow down devices without the user's consent, should also be banned, as it has to be banned on the basis of precedents established by the European Union.
5. Finally, the public awareness campaigns are to be made through the Nigerian Communications Commission (NCC), National Environmental Standards and Regulations Enforcement Agency (NESREA), and civil society on the economic and environmental repercussions of being forced to upgrade, focusing on young and urbanized consumers who are the most susceptible to the upgrade pressure.

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