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**A Publication of the Department of Economics, Ibrahim  
Badamasi Babangida University, Lapai, Niger State, Nigeria**

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## Table of Content

Repositioning Arts and Culture for Economic Development of Niger State <i>Apegba Ker; Mohammed Alhaji Usman</i>	1
Mining of Mineral Deposits and the Impacts on Livelihood in Niger State <i>Nuhu George Obaje; Mohammed U. Umar; Kolawole A. Aweda; T. M. Ozoji</i>	8
Utilisation of Fadama Land for Improved Rural Economy in Niger State <i>Yakubu Muhammad</i>	22
Agriculture as Catalyst for Niger State Economic Development <i>Lawal Alimi Folorunso</i>	30
Halal Economic System: An Explorable Window to Niger State Rapid Economic Development <i>Musa Salihu Ewugi; Musa Abdullahi Sakanko</i>	40
Ordered Logit Model, Proportional Odds Assumption and Marginal Effects: Demysfying the Derivational steps <i>Muktar Bala</i>	50
Sociological Perspective of the Roles and Impact of Nigeria Bank of Industry on Small and Medium Enterprises for National Developments <i>Bashir Bello; Mustapaha Muhammad Abdullahi</i>	65
Evaluation of the Effects of National Poverty Eradication Programme (NAPEP) on the Wellbeing of Rural Dwellers in Niger State <i>Adamu Isah</i>	80
Teacher Turnover in Primary Schools: An Assessment of Promotion Factor <i>Umar Abdulkadir Umar; Henry Eggon Ahmed; Adamu Ndanusa</i>	95
Evaluating the Use of Pricing Model to Win Customers in Manufacturing Industries: Evidence from Nigerian Bottling Companies <i>Abdulwaheed Adelabu Salihu</i>	111
The Solid Mineral Sector and Economic Diversification in Nigeria <i>Orji Martin Chukwuma; Eleanya Eberechkwu Edith; Mohammed Danlami Alfa; Yahaya Adamu Babadoko; Williams Osagiele Ebhohimen; Chukwu Christian Uchenna</i>	123

Does Women Freedom of Movement Enhance Access to Credit? Hauwa Daniyan Bagudu; Abdulmumini Baba Alfa; Usman Alhaji Usman ; Abubakar Zakari	143
Influence of Bank Liquidity on Economic Growth of Nigeria Shuaib Ndagi Sayedi; Kabiru Jinjiri Ringim	152
Relationship between fiscal policy and balance of payment on economic growth in Nigeria Umar Habiba Mohammed Bello; Adewale William	168
Human Development and Economic Growth in Nigeria: An Empirical Study <i>Ahmed Mohammed; James Obilikwu</i>	182
An Empirical Study on Impact of Crude Oil Price and Real Exchange Rate on Economic Growth of Nigeria <i>Usman Alhaji Usman</i>	204
The Contributions of Education to Niger State Economic Development <i>Muraina Olawale Ojuola</i>	221
Entrepreneurial Education, Economic Opportunities and Venture Creation in the Semi-Urban Areas of Niger State, Nigeria <i>Sidikat Shitu</i>	227
Informal Financial Institutions (IFIs) and Investment in Nigeria: A Binomial Logit Linear Regression Approach <i>Mohammed Yelwa; Awe Emmanuel Omoniyi; Umar Musa</i>	235

## Repositioning Arts and Culture for Economic Development of Niger State

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### Abstract

*Many nations, especially those that have depended solely on just one or even two sources of foreign exchange earner have been trying to diversify their economies as a strategic means of generating revenue for the development of their respective societies. Nigeria is one such nation that has since discovered the need to look for additional sources of revenue generation. Niger State is one of the 36 federating states of Nigeria. It also needs to diversify its economy. This article discusses how arts and culture, if properly repositioned can generate additional income for the state and also create jobs for the teeming youths. The paper focuses mainly on the many tourist sites that can attract visitors both from within the state, Nigeria and even from abroad. A survey of the major sites has been carried out and analysed. It was discovered that some of these sites/centres, like the Bida Brass and Glass Works actually used to be vibrant and well patronised in the past. Unfortunately, since the last twenty years, the fortunes of the place have drastically reduced. The article concludes with a recommendation that the Niger State government as well as interested investors should take deliberate and practical steps to rehabilitate/reposition the numerous tourist centres/sites identified. This will generate additional revenue needed for the development of Niger State instead of basically depending on monthly revenue allocation from the federation account.*

**Key words:** Repositioning, Arts and Culture, Economic Development, Revenue

**JEL Classification:** M14, Z11

### 1. Introduction

Arts and culture are very important in any society. They make life worth living by providing entertainment in various forms. A society without the humanising influence of the arts lacks what is pleasurable in life, as well as much of what is educationally critical and socially essential. One can only imagine how dull human life could be without the collective effect of libraries, museums, theatres and galleries, or without the personal experiences of literature, music and art. In fact, such human existence



would be static and sterile, lacking creative arguments about the past, without a diverse and stimulating present and of course, with no dreams of the future.

The subsets of the arts and culture industry's productive activities of book publishing, performing arts and artistic creations can be seen as contributing a lot to a nation's gross domestic product (GDP). Labour productivity in the arts and culture industry might however, be seen as low but its significant aggregate output in a country's development cannot be ignored. For instance, the performing arts and artistic creation activities as subsets of arts and culture contribute significantly to the employment level of any nation.

### *1.1 Arts*

The arts represent an outlet of human expression, usually influenced by culture, and driven by human creative impulse. Major components of the arts include literature (poetry, drama, and fiction), epics, performing arts, among them music, dance, theatre, culinary arts, media arts like photography and film, and visual arts. Some art forms combine visual elements with performance (e.g. film) and the written word (e.g. comics). Unlike the sciences that have fixed laws of operation, the arts are liberal and allow us the freedom to be more imaginative in our thinking and arguments, thus making our discussions more lively and interesting. The term *arts* is usually used along with culture, hence it is common to hear people talk of the role of arts and culture in societies or among peoples, as this paper intends to do.

### *1.2 Culture*

The common definition of *culture* is that it is a people's total way of life. This embraces people's arts, food, artefacts, dress, language, and in fact, everything that defines them as distinct specie of homo sapiens.

In this paper, our working definition of culture is that culture comprises all the historically created materials designed for living, explicit and implicit, rational, irrational and non-rational, which exist at any given time as potential guides for the behaviour of man. Culture is learned and shared; it is also transmitted from one generation to another and through this process, culture is modified, renewed or dropped. Culture is therefore both static and dynamic. Culture is what makes us human, because it is the foundation of any society and it is something that all human beings have.

Nations that take arts and culture as serious and viable forms of entertainment and relaxation also gain some economic benefits. This is because cultural industries create jobs, turn ordinary cities into tourist destination sites, create interconnection between arts and business, spin-off business and attract skilled workers as well. For example, the sale of tickets to audience at play performances, exhibitions and museums, all produce direct profits for artistic and cultural initiatives. Well delivered artistic productions have power to facilitate social interaction and alleviate depression and anxiety among people.

Niger State, which was created in 1976, has a lot of potential tourist sites which if well developed, are capable of generating a lot of for the state. Some of the key sites include: Gurara Waterfalls, Zuma Rock, Lord Lugard's Colonial Ruins in Zungeru, the first Railway Locomotive engine in Minna, the three hydro-electric power stations in Kainji, Shiroro and Jebba respectively, Baro Empire Hills and brass/glass work centres in Bida.

This article is a brief analysis of how arts and culture can be repositioned for economic development of Niger State through a deliberate policy of government and the organised private sector or even well financially endowed individual investors, both from within and outside the state. The scope of the paper is however, limited to some obvious tourist attraction sites within the state.

## **2. The Need to Reposition Tourist Attraction Sites in Niger State**

Owing to the dangers inherent small and especially mono economies, many nations are diversifying their economies. It has been predicted that in 30 years from now (2018), oil reserves in Nigeria would be no more. It has therefore become imperative for all the states in Nigeria to look inwards for alternative sources of funds to run government and become economically self sufficient and less dependent on federal monetary allocations. A situation where a delay in the monthly allocation from the federation account always becomes a threat to states' socio-political and economic survival is dangerous and unacceptable. Thus, arts, culture and especially tourism development through the establishment of holiday resorts, game villages, parks, recreational centres and museums or monuments are some of the ways the Niger State government can diversify its economic for greater development.

## **3. Economic Potentials of Tourist Sites in Niger State**

### *3.1.1 Gurara Waterfalls*

Gurara Waterfalls has the potential to become a world class tourist destination by virtue of its pleasant weather, beautiful scenery and conducive vegetation. Reports have shown that the highest percentage of people that visit the Waterfalls are secondary school and university students who usually come in groups for excursion, parties and picnics. Unfortunately, most of these visitors merely come to confirm its existence. However, visiting a site like Gurara Waterfalls for the mere confirmation of its existence cannot boost internal revenue generation for the state. It is thus necessary to revive the falls by providing attractions such as recreational facilities and amusement parks within the vicinity of the falls. Moreover, the following measures are essential in repositioning Gurara Waterfalls for optimum economic benefits:

- i) Robust security system in around the Waterfalls. This would give confidence to the tourists, especially now that insurgency, terrorism and kidnapping have become security challenges in Nigeria.
- ii) Employment of qualified professional to manage the falls.

- iii) Provision of social amenities such as good road network within and around the falls, communication facilities like telephone and internet services as well as a steady power and water supply, etc.
- iv) Complete rehabilitation of Minna-Suleja road as this would ease the access to the falls and encourage tourists to patronise it.
- v) Control of fishing and hunting activities in and around the falls.
- vi) Regular publicity of the activities of the Waterfalls and what it has to contribute to the economic development of Niger State.

### *3.1.2 Baro Empire Hills*

This was a colonial radio station used by the first Governor-General of Nigeria, Sir Frederick Lord Lugard. It was actually used before and after the amalgamation of the Northern and Southern Protectorates of Nigeria in 1914. Investigations revealed that the radio station was not used for public broadcast but for sending and receiving messages from the Queen of England on the day to day administration of the colonial territory of Nigeria. It was also used to send messages to troops of the West African Frontier Force deployed to the area by England.

It is interesting to note that the present administration of Governor Mohammed Sani Bello in Niger State (as gathered online) is making efforts to bring in the British High in Nigeria to assist in preserving British colonial monuments in the state. It was also gathered that the Nigerian Army has been approached with a request to turn Baro Empire Hills to a training ground, and build an FM radio station there. These are right and necessary steps towards repositioning attractive tourist sites in the state for socio-economic development.

The dredging of the Baro inland port by the Federal Government of Nigeria has made the Baro Empire Hills very critical to the economic development, not only of Niger State but also of Nigeria as a whole. Baro Empire Hills, if well harnessed by the Niger State government, would give those who are going to patronise Baro Port and rail line a place to relax before moving to other parts of the country. (Thisday, 2017).

### *3.1.3 Bida Brass/Glass Making Centre*

Bida brass, silver, gold and metal works were well known throughout Nigeria and beyond. It has been reported that during the reign of Etsu Usman Zaki in the 18<sup>th</sup> century, brass and metal works in the Nupe kingdom, particularly Bida, flourished. In the past, visitors from Asia, Europe, America, and other parts of Africa, especially people from Songhai Empire, Mali Empire, and Ashanti Empire of Ghana used to come to Bida to buy the beautiful works of art such as kitchen utensils, bangles, kettles, pots, buckets, bracelets, beads and gold wears. Unfortunately, the situation is no longer the same. One Mukhtar Zailani is reported to have said that patronage of brass works began to decrease drastically with the coming of civilian administration in 1999 to date! According to him, military administrations used to ask the brass makers to produce souvenirs for their (military) visitors and this made the brass industry to grow as hundreds of young men and women were engaged in the industry. Currently,

it is only the Etsu Nupe that occasionally patronises the industry by way of purchasing gifts for his visitors. (Abubakr, 2017)

### *3.2 Required Government Intervention to Reposition Bida Brass Works*

In this section, we itemise what we think are the necessary steps that the government in particular and other interested investors may take to reposition the Bida Brass Works in such a manner that it can be economically viable and thus contribute to the socio-economic development of Niger State.

- i) Financial assistance to the brass/glass workers is of paramount importance for the industry to grow. This would reduce the problems of finance needed in sourcing for raw materials for the industry.
- ii) Procurements of necessary modern equipment for the industry. This will make the products of the industry to be competitive with similar ones elsewhere in the world and thus encourage patronage.
- iii) Patronage of brass works by government, its officials and well doing members of the society as this will stimulate more production.
- iv) Advertisement of the industry, its activities and products. Government should also help the brass workers by advertising their products across the country and beyond.

### *3.3 Other Tourist Sites and Industries that Need to be Developed*

As we stated at the beginning of this paper, Niger State is blessed with a lot of economic tourists attracting sites and industries. What we have so far discussed above is just a tip of the ice berg. Other sites and tourist industries that have to be well repositioned to generate revenue for the government and investors are the following:

*3.3.1 Zuma Rock:* This is a large rounded natural rock formation that rises high into the sky presenting a fascinating background to Abuja. It is located along Abuja-Kaduna road. Oral tradition has it that the Zuma Rock used to be hiding fortress to the ancient Gwari people during prehistoric inter-tribal wars.

*3.3.2 Bina Footprints:* These are visible footprints seen on a rock at a hilltop in Bina village close to Muye in the eastern part of Lapai Local Government Area of Niger State. The footprints are known as Dauda Woyeba in the local language of the area. Fable attributes the footprints to be that of one Dabo, who moved from Bina to Gulu, when he observed his ablution rites and then built a mosque there before moving to Kano.

*3.3.3 Lord Lugard's Colonial Ruins in Zungeru:* Zungeru was the first colonial headquarters in Nigeria before it was moved to Kaduna. There is a cemetery containing graves of about 100 white settlers and aides to Lord Lugard in Zungeru. Amalgamation of Northern and Southern Protectorates in Nigeria in 1914 is reported to have taken place while Lord Lugard was in Zungeru.

- a) First Railway Locomotive Engine in Minna: The first steam train to work in Northern Nigeria in 1901 can still be found at the Minna Railway Station. It is 0-6-7 1/2 x 2 two cylinder 2.6 gauge locomotive built by Hunslet Engine Company,

- England. It ran on the 12” Wushishi-Zungeru-Barijoko Train way. The steam facilitated construction works on the railway road that link Zungeru to Wushishi.
- b) Baro Port: It was used in the colonial days to transport goods by ship to and from foreign countries through River Niger. Minna-Baro railway line terminus was also used for the transportation of goods from the hinterland to the Baro Port for export as well as the remains of the warehouse where goods were stored can still be seen at the Baro Port. It is gratifying that the federal government has finally recognised the need to rehabilitate the Baro Port. When and if this is completed, it will definitely promote economic activities which in turn will alleviate poverty among the traders and investors that may patronise the Port.
  - c) The three hydro-electric power stations in Shiroro, Kainji and Jebba power stations respectively, are equally sites for tourist attractions that if well repositioned with adequate facilities can also generate revenue from tourism, both for Niger State and the federal government.
  - d) Kainji Lake National Park in New Bussa is noted to be the largest park in Nigeria. Even though a national asset, if the park is viable, it can provide employment for Niger state indigenes as well as small businesses for the inhabitants and interested investors in catering and hotel businesses.
  - e) Ladi Kwali Pottery Centre in Suleja Local Government Area is another site of cultural attraction in Niger State. The Centre used to produce different types of pots and other ceramic products and it was well patronised by foreigners visiting Abuja. For some unknown reasons by these writers, the Ladi Kwali Pottery Centre is currently a shadow of its former active self! Something urgently needs to be done to revitalise/rehabilitate the Centre to make it to be socio-economically viable.
  - f) Kutigi Annual Traditional Wrestling Festival is equally capable of attracting tourists if properly repositioned and publicised.

#### **4. Conclusion**

The present globalised economy, it is suicidal for nations and their constituent parts to depend on one main source of revenue as Nigeria and her federating states have been doing until very recently when efforts are being made to diversify the economy. Attention is being mainly paid on agriculture and the exploitation of solid minerals. While these are noble efforts, the cultural and tourism industries are other sources of enormous revenue generating outlets, if properly harnessed. What this article has attempted to do is to draw the attention of the Niger State government and well to do investor to tap into these tourist site highlighted above by way of providing the necessary facilities to enhance their profitably. Thus, we conclude that if the governments (federal, state and local) and other interested investors really reposition these cultural and tourist attracting sites, the era of continuously waiting for monthly federal financial allocation will gradually be less life threatening, when delayed.

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## Mining of Mineral Deposits and the Impacts on Livelihood in Niger State

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### **Abstract**

*Niger State is very rich in mineral resources. The geological cover of the State embraces igneous and metamorphic rocks of the Basement Complex and sedimentary rocks of the Bida Basin with a small portion of the Sokoto Basin to the north-west. Mineral deposits of economic to sub-economic quantities are associated with each of the components of the geology of Niger State. Physical site mapping and analysis of structured questionnaires have been used in this study to assess the positive and negative impacts of mining in Niger State. On the aggregate, gold constitutes 70% of the minerals being mined, followed by manganese, tantalite, talc, marble and kaolin. These mineral deposits are mined by different mining organizations (corporate and artisanal) for the benefit of the economy of the State. However, the mining activities also pose serious negative environmental and health impacts. Noteworthy in the positive impacts is the provision of employment (livelihood) to the immediate communities while health complications (sometimes leading to death), soil degradation and surface and ground water pollutions have been documented as the negative impacts.*

**Keywords:** Basin, Communities, Livelihood, Niger

**JEL Classification:** O22

### **1. Introduction**

Niger State is very rich in mineral natural resources. The geological cover of Niger State embraces the igneous and metamorphic rocks of the Basement Complex and sedimentary rocks of the Bida Basin and a smaller portion of the Sokoto Basin to the north-west (Fig. 1). The Basement Complex in Niger State (and indeed in Nigeria) is made up of the Migmatite-Gneiss Complex, the Schists Belts and the Older Granites (Obaje, 2009). Sedimentary successions in the Bida Basin comprise the Bida Sandstone at the base, followed successively upward by the Sakpe Ironstone, the Enagi Siltstone and terminating at the top with the Batati Formation. Mineral deposits of economic to sub-economic quantities are associated with each of the components of the geology of Niger State. Such economic minerals include: Gold, Manganese,

Tantalite, Lead, Copper, Iron Ore, Talc, Asbestos, Kyanite, Marble, Graphite, Mica, Gemstones, Feldspars, Garnet, etc (Fig. 2). Some of these mineral deposits are being mined by different mining organizations (corporate and artisanal) for the benefit of the economy of the State. Derivation funds should usually accrue to the State and royalties to the mining communities. Furthermore, such mining concerns assist greatly in poverty reduction through the employment they provide for able men, women and youths within and around the communities. However, the rocks containing these mineral deposits and the mineral themselves in their chemical compositions contain varying amounts of major and trace elements (heavy metals) which have positive and negative impacts on the environment, livelihood and food security. This study has documented some of the mine fields in Niger State and has assessed the positive and negative impacts. Noteworthy in the positive impacts is the provision of employment (livelihood) to the immediate communities while health complications (sometimes leading to death), soil degradation and surface and ground water pollutions have been documented as the negative impacts.

## **2. Review of Literature**

### *2.1 Geology*

#### *2.1.1 Basement Complex*

Obaje (2009) gave a vivid account of the geology of Niger Province (generally synonymous with Niger State) to be made up of the Basement Complex and the sedimentary rocks of the Bida Basin and a small portion of the Sokoto Basin (Fig. 1). The Nigerian basement complex forms a part of the Pan-African mobile belt and lies between the West African and Congo Cratons and south of the Tuareg Shield. It is intruded by the Mesozoic calc-alkaline ring complexes (Younger Granites) of the Jos Plateau and is unconformably overlain by Cretaceous and younger sediments. Within the basement complex of Nigeria three major petro-lithological units are distinguishable, namely:

1. The Migmatite – Gneiss Complex (MGC)
2. The Schist Belt (Metasedimentary and Metavolcanic rocks)
3. The Older Granites (Pan African granitoids)

#### *The Migmatite – Gneiss Complex (MGC)*

The Migmatite – Gneiss Complex is generally considered as the basement complex *sensu stricto* (Rahaman, 1988; Dada, 2006) and it is the most widespread of the component units in the Nigerian basement. It has a heterogeneous assemblage comprising migmatites, gneisses, and a series of basic and ultra-basic metamorphosed rocks. They generally occur intricately associated with the Older Granites intruding into them and in some places along with schist belts, but chronologically the Migmatite-Gneiss complexes are oldest (older than Schist Belts older than Older Granites). In Niger Province, migmatite-gneisses are most prominent in Diko, Minna, Suleja and Kagara.



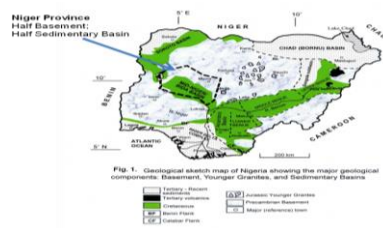


Fig. 1. Geological sketch map of Nigeria showing the major geological components: Basement, Younger Crustals, and Sedimentary Basins.

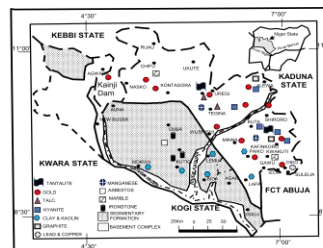


Fig. 2. Geological and Mineral Resources Occurrence Map of Niger State

*The Schist Belt (Metasedimentary and Metavolcanic rocks)*

According to Obaje (2009), the Schist Belts comprise low grade, metasediment-dominated belts trending N-S which are best developed in the western half of Nigeria (Fig. 3). These belts are considered to be Upper Proterozoic supracrustal rocks which have been infolded into the migmatite-gneiss complex. The lithological variations of the schist belts include coarse to fine grained clastics, pelitic schists, phyllites, banded iron formation, carbonate rocks (marbles / dolomitic marbles) and mafic metavolcanics (amphibolites). The belts are confined to a NNE-trending zone of about 300 km wide. The schist belts have been mapped and studied in detail in the following localities: Maru, Anka, Zuru, Kazaure, Kuseriki, Zungeru, Kushaka, Isheyin Oyan, Iwo, and Ilesha where they are known to be generally associated with gold mineralization (Obaje et al., 2013). In Niger Province, the Zungeru-Birnin Gwari, Kuseriki-Kushaka and the Zuru Schist Belts are encountered.

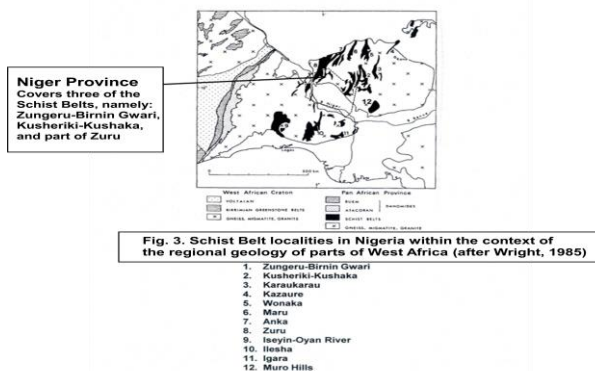


Fig. 3. Schist Belt localities in Nigeria within the context of the regional geology of parts of West Africa (after Wright, 1985)

1. Zungeru-Birnin Gwari
2. Kuseriki-Kushaka
3. Kiraikararu
4. Kazaure
5. Wonaka
6. Maru
7. Anka
8. Zuru
9. Isheyin-Oyan River
10. Ilesha
11. Igara
12. Muro Hills

*The Older Granites (Pan African Granitoids)*

The term 'Older Granite' was introduced by Falconer (1911) to distinguish the deep-seated, often concordant or semi-concordant granites of the Basement Complex from the high-level, highly discordant tin-bearing granites of Northern Nigeria. The Older Granites are believed to be pre-, syn- and post-tectonic rocks which cut both the migmatite-gneiss-quartzite complex and the schist belts. The rocks of this suite range in composition from tonalites and diorites through granodiorites to true granites and

syenites. The Older Granites occur intricately associated with the Migmatite-Gneiss Complex and the Schist Belts into which they generally intruded. Older Granite rocks therefore occur in most places where rocks of the Migmatite-Gneiss Complex or of the Schist Belt occur. In Niger Province, Older Granites are most noteworthy in Paiko, Minna, Kudna, Kagara and Suleija.

### 2.1.2 Sedimentary Rocks / Sedimentary Basins

Sedimentary rocks in Niger State belong majorly to the Bida Basin (95%) and a small portion of the Sokoto Basin (5%) to the northwest of the State. Accordingly, the Bida Basin was described as a NW-SE trending intracratonic structure extending from Kontagora in Niger State in the north to the area slightly beyond Lokoja in the south (Fig. 4) (Braide, 1992; Ladipo et al., 1994; Obaje et al., 2013). The sedimentary fill is known to comprise post-orogenic molasse and thin unfolded marine sediments (Akande et al., 2005). Obaje et al. (2013) subdivided the Bida Basin into two portions, namely the Northern Bida Basin and the Southern Bida Basin with the boundary approximating the subdivision shown in Figure 5. In the Northern Bida Basin, four mappable lithostratigraphic units are recognized, namely, the *Bida Sandstone* (divided into the *Doko Member* and the *Jima Member*), the *Sakpe Ironstone*, the *Enagi Siltstone*, and the *Batati Formation*. These are correlatable with the stratigraphic units in the Southern Bida Basin.

In the Southern Bida Basin (which has been studied in more detail, e.g. Ladipo et al., 1994; Akande et al., 2005), exposures of sandstones and conglomerates of the *Lokoja Formation* directly overly the Pre-Cambrian to Lower Paleozoic basement gneisses and schists. This is overlain by the alternating shales, siltstones, claystones and sandstones of the *Patti Formation* (ca. 70–100 m thick in the Koton-Karfi and Abaji axis). The Patti Formation is succeeded by the claystones, concretionary siltstones and ironstones of the *Agbaja Formation* (Fig. 6).

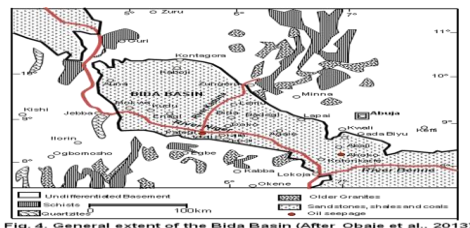
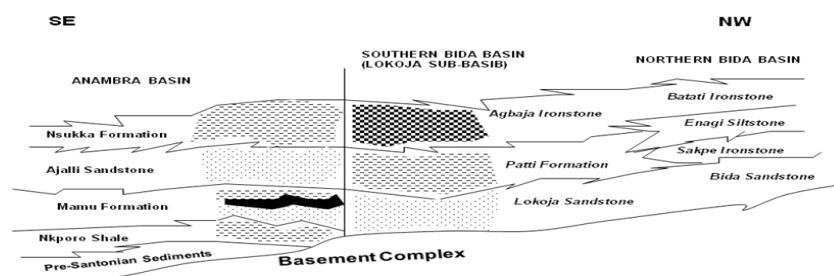


Fig. 4. General extent of the Bida Basin (After Obaje et al., 2013)



Fig. 5. Approximate boundary indication between the Northern Bida Basin and the Southern Bida Basin



**Fig. 6.** The formations in the Northern and Southern Bida Basin are correlatable with those in the Anambra Basin in the south-east.

### 2.2 Mines and Mining Impacts

Unfortunately there are no accessible documentations on the mines and mining operations in Niger State. A pamphlet of the Niger State Ministry of Mining and Mineral Resources notes that presently there are active mines for Gold at Maiwayo (Katcha LGA), Zumba (Shiroro LGA), at Suleija, Kontagora, Rafi, Agwara, Borgu, Munya and Paiko. Talc mining is on-going at Kagara and Zungeru while Kaolin mining is currently being undertaken in Kutigi and Gbako. There are no information on inactive and abandoned mines and mine sites.

Mining of mineral deposits usually release heavy metals which are high priority pollutants because of their relatively high toxic and persistent nature in the environment. Knowledge of the changing concentration and distribution of heavy metals and their compound in various compartments of the environment is a priority for good environmental management programmes all over the world (Don-pedro et al., 2004). Several workers have investigated the concentration of heavy metals, however, not around mining environments but in coastal rivers and the aquatic lives. Egborge (1991) related the heavy metal pollution of the Warri River to industrialization of the Warri town. Edema (1993) investigated the heavy metal contents of the shellfishes of the Warri River catchments. Ndiokwere (1984) investigated the heavy metal content of the sediments, algae and the Nigerian coastal waters. Ntekim et al. (1993) reported on the distribution of trace metals in the sediments of the Calabar River, while Oluwannde et al. (1983) reported generally on the pollution levels in some Nigerian rivers. Essential heavy metals are generally considered to be less toxic than non-essential metals (Batley, 1983). Metals such as cadmium, chromium, copper, iron, nickel, lead and zinc exhibit aquatic toxicity when present above recommended standard in that they can contaminate surface and ground water bodies, soil, plant, aquatic life and man, through bioaccumulation. Bio-concentration of heavy metals over time in aquatic ecosystem has been reported by Alabaster and Lloyd (1980), Friberg et al. (1986), and Fischer (1987). According to Mason (1991), heavy metals pollution is one of the five major types of toxic pollutants commonly present in surface and ground waters. The environmental pollutants tend to accumulate in organisms, and become persistent because of their chemical stability or

poor biodegradability and that they are readily soluble and therefore environmentally mobile. Unreclaimed mining pits and mine dusts constitute heavy negative environmental and health impacts. However mining also provides employment and other positive socio-economic impacts.

### 3. Methodological Approach

The following methodological approaches were adopted:

- i) Literature search and visitations to Ministries, Departments and Agencies of governments responsible for mining and mineral development in Nigeria in general and Niger State in particular to obtain available information on title holders of mineral properties in the geological terrains of Niger State and the status of mining operations on such titles;
- ii) Physical mapping of mining environments;
- iii) Preparation, distribution and collation of questionnaires in the selected Local Government Areas of Niger State to obtain data / information on mining activities in the communities and perception of the indigenous communities of the impacts (positive and negative) of the mining activities on their livelihood, with emphasis on health, food and social security.
- iv) Analysis of data obtained through the questionnaires
- v) Determination of remediation and prevention options for identified environmentally polluted soils and waters for enhanced healthy livelihood and food security

### 4. Results and Discussion

#### 4.1 Physical Mapping and Background Geology

Physical on-site mapping of ten mine sites was carried at Minna FM Maitumbi, Minna Chanchaga, Kateregi, Kagara, Shikira, Sarkin-Pawa, Zazagar, Kwakuti, Maiyaki and Kutigi (Figs. 7a-i).

Mine Site	Local Government Area	Target Mineral	Status
Minna FM Maitumbi	Bosso	Gold	Active, Corporate
Minna Chanchaga	Chanchaga	Gold	Active, Corporate, Artisanal
Kateregi / Maiwayo	Katcha	Gold	Active, Corporate
Kagara	Rafi	Talc	Active, Corporate
Shikira	Rafi	Manganese	Active, Corporate, Artisanal
Sarkin Pawa	Munya	Granite	Rested
Zazagar	Munya	Gold, Tantallite	Active, Artisanal
Kwakuti	Paiko	Marble	Active, Corporate
Maiyaki	Lapai	Gold	Active, Corporate
Kutigi	Lavun	Kaolin	Rested

*Corporate = Mining undertaken by a licensed corporate entity; Artisanal = Generally communal and self-help engagements.*

The gold deposits mined at Minna FM Maitumbi, Chanchaga, Katerigi, Zazagar and Maiyaki are encased in quartz veins and pegmatites within schists and granitic schists. The schists in many places are intruded by granitic bodies trending NE-SW. The talc deposits at Kagara, the manganese at Shikira and marble at Kwakuti are also embedded within schistose basement rocks with intermingling of talc schist with granitoids and migmatite-gneisses. The granite mining and quarrying at Sarkin Pawa and in other places in Niger State are carried out on Pan African Older Granite granitoids. Kaolin deposit in Kutigi occurs interbedded as clay deposits within the Enagi Formation of the sedimentary Bida Basin.



Katerigi



Minna FM Maitumbi

Fig. 7a. Huge pits dug for gold mining in Katerigi and Minna FM Maitumbi



Fig. 7b. Mining generates employment for women and children in Katerigi, Niger State



Fig. 7c. Processing for Gold at Katerigi and Gold recovered after the processing





Fig. 7d. Artisanal mining for Gold in Zazagar within almost vertically inclined schistose rocks (Schist Belt)



Fig. 7e. As with most mining sites, the roads to many mining communities are very encumbering. This road leads to Zaagar mining site.



Fig. 7f. Rested granite quarrying at Sarkin Pawa  
Fig. 7h. Kaolin deposit in-situ within the Enagi Formation at Kutigi



Fig. 7g. Mined talc schist at Kagara(i), in-situ marble Deposit at Kwakuti (ii), and kaolin deposit resulting from weathering of metasedimentary basement rocks at Kwakuti (iii).

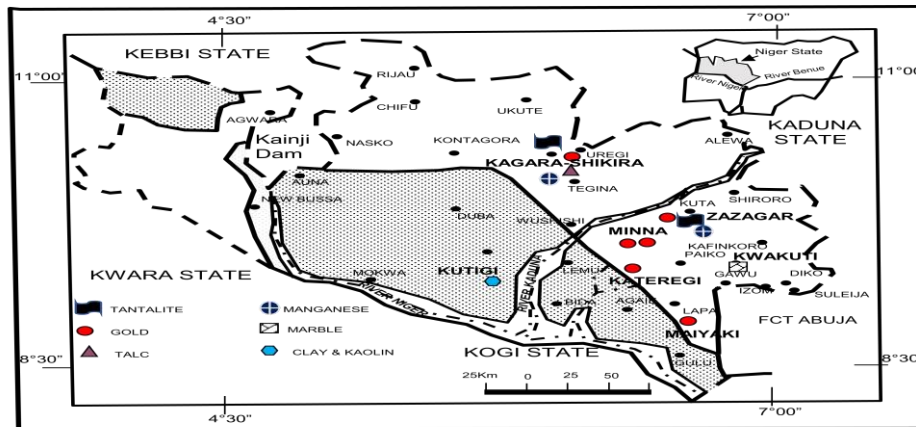


Fig. 7i. Map of localities and minerals mapped in this study

4.2 Respondent Characteristics

Questionnaire analysis shows that 85% of the respondents are male indicating that men dominate the workforce in the mining sector of Niger State (Fig. 8). However, considering the cultural and religious practices in the State, many of the female workers may have refrained from completing the questionnaires or did not return the completed questionnaires.

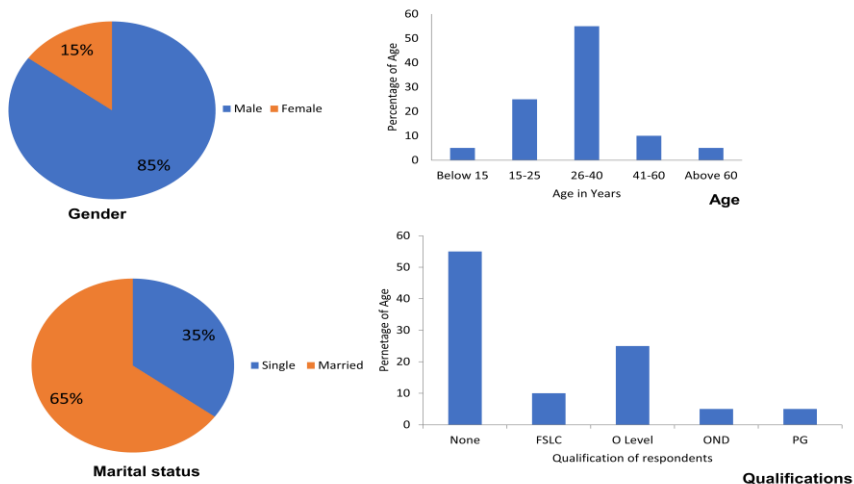


Fig. 8. Pie and bar charts showing the gender, ages marital status and qualifications of respondents at selected mining sites in Niger State

Sixty percent (60%) of the respondents vis-à-vis the workers engaged in mining activities in Niger State are in the age range of 25-40 years (Fig. 8), followed by 15-25 years old constituting about 28%. It should be noted that children below the age of 15 years constitute a significant 5%. This equally applies to the elderly of 60 years and above in age. Sixty five percent (65%) of the workers are married while 55% have no formal education. A significant 29% possesses the O'Level qualification.

Sixty percent (60%) of the workers adduced mining as their major occupation followed by farming practiced by 30% of the workers as their major occupation (Fig. 9). On the other hand, 45% are engaged in farming as a minor occupation with civil servants constituting about 10% in this category. An overwhelming 53% are self-employed in the mining enterprise of Niger State while 32% are engaged by a third party, normally a corporate entity. Eighty six percent (86%) of all the mine sites studied engage between 11-40 workers with mines having less than 10 worker making up the remaining 14%.



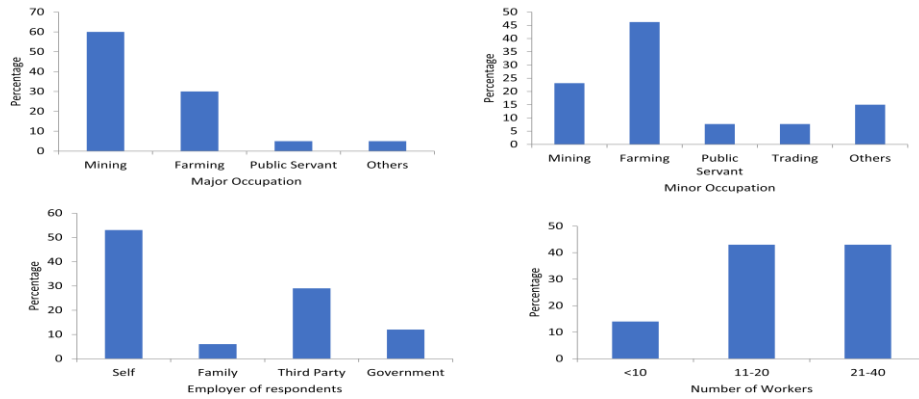


Fig. 9. Bar charts showing the major occupations, minor occupations and employers of respondents as well as the number of workers at selected mining sites in Niger State

### 4.3 Socio-Economic Impacts

Perception of respondents as to the percentage of workers from the community engaged in the mining business relative to the total population of inhabitants shows that in 17% of the cases, about 90-100% of inhabitants in the community are fully engaged in the mining activities (Fig. 10). These high percentages come from the gold mining sites at Kateregi and Zazagar. Cases where less than 30% of inhabitants of the communities obtain their sustenance through mining activities make up an overwhelmingly 55%. Fifty seven percent (57%) of all the workers at mining sites studied earn between N500-1000 per day. Those earning more than N1000 make up about 14% while those earning less than N200 constitute about 18%. Sixty two percent (62%) of the workers are of the opinion that what they earn is moderately adequate to sustain their livelihood. Five percent (5%) feel their earnings are very adequate while 12% opined that their incomes are grossly inadequate. It was noted that those who feel that their earnings are grossly inadequate come from those with married marital status while those who feel their incomes are generally adequate are mainly workers with single marital status.

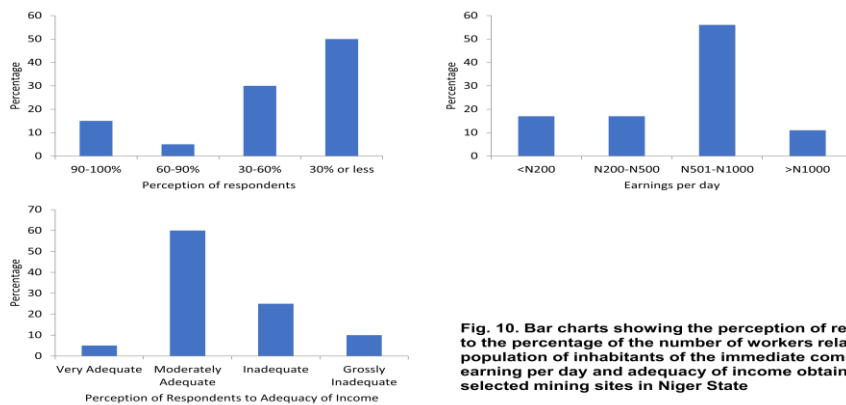
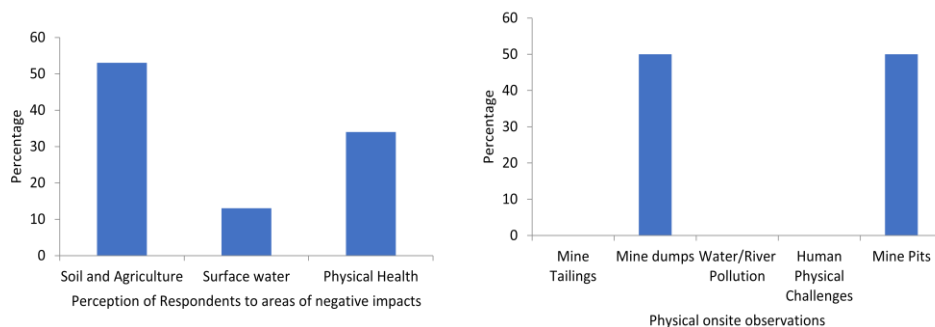


Fig. 10. Bar charts showing the perception of respondents to the percentage of the number of workers relative to the population of inhabitants of the immediate community, earning per day and adequacy of income obtained at selected mining sites in Niger State

#### 4.4 Health and Environmental Impacts

Fifty two percent (52%) of the respondents have the opinion that mining activities have negative impacts on their soil and agricultural practices (Fig. 11). Thirty six percent (36%) are of the opinion that mining activities impact negatively and seriously on their health while 12% feel mining activities constitute the major source of water sources in their communities.



**Fig. 11. Bar chart showing the perception of respondents to areas of negative impacts and physical onsite observations by investigators**

On-site observations by the researchers show mine dumps and mine pits constitute major environmental hazards and constitute serious impediments to farming and other land uses. The appropriate regulatory agencies should ensure reclamation, proper decommissioning and enforce adequate health, safety and environmental (HSE) measures at mining sites and in the mining communities.

#### 5. Conclusions

The geology of Niger State is made up of basement complex rocks and sedimentary terrains. Both of these components contain significant deposits of economic minerals typical to their petrogenesis and metallogenies. This study was carried out to document active, rested and abandoned mining sites in Niger State and to identify the impacts of the mining activities (positive and negative) on the environments and the mining communities in Niger State. Physical site mappings and analyses of structured questionnaires were deployed to achieve the objectives. Gold, Manganese, Tantalite, Talc, Marble and Kaolin were the major economic minerals being mined at the selected studied sites. Although men constitute the majority of the mine workers, women and children are also engaged in significant proportions. These have telling effects on the qualification of the miners as the majority have no formal education. The mining activities, however, provide employment to the communities, despite some negative impacts and consequences.

Civilization as we know it today would simply not exist without steel, oil, and hundreds more metals and fuels. Unfortunately, there's a terrible price to be paid for the wrenching of these materials from the ground. Mining produces twice as much hazardous garbage as all other activities combined, and too often it is the environment

that suffers. Many of these old mines are draining lethal concentrations of acid into nearby streams. A few have been cleaned up. It is an expensive and a difficult process. Major and trace elements are abundant in the environment we live. They are present in virtually every area of modern life: construction materials to cosmetics, medicine, processed food, fuel sources to agents of destruction. It is very difficult for anybody to avoid exposure to any of the harmful metals that are so prevalent in our environment. However, man has constantly disturbed and opened up the earth thereby spreading the element throughout the environment. For most elements, humans can only tolerate a range of about +/- a factor of 4 on either side of the mean crustal composition. As the level of these elements rise in air, water, and soil, they also increase within the human bodies as well as plants and animals, thus, contributing to various health disorders, crop damage and ultimate death of some animals and plants. The results in this study attempted to provide an inventory on the mining operations in Niger State which should be placed against derivable funds, royalties and employment generation. The results will also help to design control strategies to achieve a better environmental quality, sustainable livelihood and guaranteed food security. In the time interval, the appropriate regulatory agencies (Federal and Niger State Governments) should ensure controlled land reclamation, proper mine sites de-commissioning and enforce adequate health, safety and environmental (HSE) measures at mining sites and in the mining communities to enable both tiers of governments enjoy economic growth and positive social transformations derivable world-wide from mining of solid minerals.

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## Utilisation of Fadama Land for Improved Rural Economy in Niger State

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### Abstract

*This paper highlights the role of Fadama in enhancing the economy of the rural populace in Niger state. Fadama (wetland or floodplains) is seasonally flooded plain along major rivers and depression on the adjacent terraces. Its resources constitute an important agricultural ecology in the world and are major contributor of economic growth of the society. It is usually a site of busy agricultural activities (rainfed and irrigated agriculture) throughout the year owing to its characteristic residual and underground moisture retention within the root zone. Wetland soils have great potential for sustainable increase in food production. It hosts the production of arable and vegetable crops, fisheries and grazing land for livestock. The potential of Fadama is based on its ability to retain sufficient soil moisture that support cultivation of wide variety crops in two distinct seasons (wet and dry season). It also has soils that are generally more fertile than that of upland. However, some challenges that can hinder the attainment sustainable agricultural production in the Fadama include; difficulty in clearing natural vegetation, intensive weeds infestation, prevalence of pest and diseases, poor water control (flooding) and poor land use management. The study recommends supply of farm inputs and equipment to Fadama farmers at the right time, support farmers groups, and maintenance of rural roads and direct purchase of vegetables for school feeding programme to improve income of Fadama farmers.*

**Keywords:** Fadama, Land, Peasants, Soil

**JEL Classification:** Q15

### 1. Introduction

*Fadama* is an Hausa word meaning a valley-bottom, flood plain, wetland, or a lowland around a river that floods or becomes wet when the river is high (Blench and Ingawa, 2004). The word *Fadama* has been generally adopted and universally accepted for use among Scientists. Scoones (1992), described *Fadama* as “wet land in dry land” while Arnbog (1998) used the phrase “a garden, a little paradise’ in the semi-arid regions. *Fadama* have been described as the ‘kidney of the landscape’ because of their ability to store, assimilate and transform contaminants lost from the land before they reach waterways. Like the kidney, *Fadama* helps to dilute and filter

material that could otherwise harm our lakes, rivers and other waterways. Functions of *Fadama* include water storage, nutrients transformation, growth of living organism including fishes and wetland crops. Brinson (1995) observed that location and size of a wetland may determine what functions it will perform. Wetland soils have great potential for sustainable increase in food production (crops and fisheries) because of their inherent fertility status and their occurrence in flat or near flat landscape where soil erosion is not a major constraint. *Fadama* (wetland or floodplains) resources constitute an important agricultural ecology in the world and are major contributor of economic growth of the society (Usor and Uhie, 2016).

The rapid increase in population in Nigeria, and the realization of the need to feed the ever-increasing human populations and pressure for grazing land and for livestock, attention is now focused on the utilization of *Fadama* lands that were hitherto neglected. This is evidenced in the Federal Government's Projects of the National *Fadama* Development Project, (*Fadama I. Fadama II, Fadama III and Fadama III+ AF*).

Niger State covers a total land area of about 86,000km<sup>2</sup> or 8.6million hectares, representing about 9.3% of the total land area of the Country. Out of this, about 7Million ha (or 80%) are arable from which about 32% (2.3mha) is actually cultivated for production of various food and cash crops. The state's potential for agricultural output cuts across various food and cash crops including Sorghum, Maize Rice, Cowpea, Groundnut, Yam, Cassava, Sweet Potatoes, Cotton, Soya-beans, Sugarcane, Melon and Vegetables. Other cash crops are Sheanut, Locust bean, Jatropha, and Cashew.

*Fadama* farming through small and large scale irrigation plays a key role in the economy of Nigeria as a basic source of food, income, and employment, especially for youths and women in the period of rainfall and dry season agriculture. This paper reports on some general information on *Fadama* farming and how it could improve the economy of the rural populace in Niger state.

### *1.1 Fadama Land in Niger State*

Niger State is endowed with abundant underground and surface water reserves, and favourable agro-ecological conditions in the country's low-lying plains with alluvial deposits, popularly referred to as *Fadama* lands. *Fadama* lands are largely found in the extensive flood plains of the Niger River. The State has an estimated 495,000ha of irrigable land (*Fadama/floodplain*) the second largest *Fadama* in Nigeria after Adamawa with 625,000 Ha (Ingawa, 1998) of which only about 26,500ha being cultivated annually. The soils, moderately fertile with residual moisture offer attractive opportunities for the arable farmers to grow both season and off-season high-value crops. The potential and importance of *Fadama* agriculture for food production and economic development is crucial. *Fadama* areas in Niger state are critical to the survival and economic development of millions of rural dwellers.

The agricultural potentials of *Fadama* in Niger state have been rated medium to high and are typically waterlogged during rainy season but retain moisture during dry season. They are considered to have high potential for economic development through appropriate investments in agricultural infrastructure. The soils are poorly drained and are generally greyish or sometimes whitish in colour due to the high content of silt.

*Fadama* areas are scattered across the ecological zones of Guinea Savanna, Sudan Savanna, and the Sahel and the area vary from 1.5 to 3 million ha out of the 33million ha of land put into cultivation (FAO, 1997). These diverse wetlands are valuable for grazing, agriculture, and other domestic uses. The *Fadama*/wetlands have been used for dry season farming in Nigeria and it has contributed greatly to food crop production in the country.

### *1.2 Utilization of Fadama Land*

*Fadama* land constitutes the back bone of arable crop production in the dry humid, semi-arid and arid agro-ecological zones where rainfall is not adequate for agricultural production. *Fadama* land is cultivated widely under the rainfed agriculture to crops that like moisture such as rice, sugarcane, etc. During the dry season *Fadama* land is also cultivated to host of vegetable crops. Irrigation, fisheries, grazing and other agricultural economic activities are also undertaken in *Fadama* land.

### *1.3 Small Scale Vegetable Gardening*

Majority of *Fadama* farmers in Niger state are usually peasants, small-scale farmers that cultivate the *Fadama* land, usually around stream and riverbanks. These farmers cultivate varieties of vegetables for town and city population during the rainy and dry seasons when a proportion of inundated and flooded surface water must have receded, drained and evaporated. Towards the end of the dry season and on-set of rainfall, farmers most especially around the northern guinea savannah of the state cultivate maize and early maturing vegetables. The farmers because of their peasantry nature of farming carry out their farming with their local/crude implements like hoe and cutlass. The dry season's farming is carried out mostly by farmers of all age.

Ojo (2000) described dry season farming as a common practice in peri-urban or urban areas for production of vegetables and cereals for the ever-increasing population of the urban centres. Ladele and Omotosho (2000) pointed out that urban agriculture in Nigeria has not been given much policy considerations. This has resulted in deficiencies in some technical and managerial skills of *Fadama* resources use. In order to achieve optimum production level, resources must be available and whatever quantities of available resources need be utilized efficiently. Successful and result-oriented farming requires the skill and knowledge of the farmers, which can only be attained through the right training.

### *1.4 Large-Scale Arable Crop Production*

The arable land in Niger state consists of a vast upland (tudu) and some *Fadama* land (low-lying relatively flat areas in streamless depression or adjacent to streams/rivers).

The state's potential for agricultural output cuts across various food and cash crops including Sorghum, Maize Rice, Cowpea, Groundnut, Yam, Cassava, Sweet Potatoes, Cotton, Soya-beans, Sugarcane, Melon and Vegetables. Other cash crops are soya bean, beniseed, jatropha, and cashew. These crops are mainly cultivated in the upland which consists of over 70 % of the arable land. *Fadama* land though smaller is cultivated to host of high valued crops such as rice, sorghum, sugarcane and vegetable crops.

Niger State is presently cultivating 371,482 hectares of rice, mostly under the rainfed production season. Under the FADAMA III AF, 2,635 rice farmers with 7,100 ha land holding have been registered, 100 business plans for 10 production clusters were reviewed, out of which 49 were approved and currently being implemented. This is to ensure all-season farming through large scale irrigation system in the *Fadama* land. Nigeria and Niger state in particular has the land resources to support the production of rice through *Fadama* farming either rainfed or irrigated. Improved arable crop production through rainfed *Fadama* farming using recommended production practices and inputs will improve crop output and serve as a basis for improved income and poverty alleviation, particularly in the rural areas.

#### *1.5 Dry Season Farming (Irrigation)*

The potential for dry season farming (i.e. *Fadama* development) is also enormous. The State has an extensive irrigable land of which only about 15 % (26,000Ha) is being cultivated annually. The extensive flood plains at the water bodies (River Niger, Kaduna, Gbakogi, Gurara, Kontagora and Chanchaga), dams/reservoirs (Kainji, Shiroro and Jebba), numerous perennial streams as well as the distinct six months of dry season allows for the cultivation of rice, maize etc. *Fadama* dry season farming has also been given a boost by the Federal Government through the Federal Ministry of Water Resources (FMWR) and collaborating with the World Bank (WB) towards the implementation of a seven year programme dubbed "*Transforming Irrigation Management in Nigeria (TRIMING) Project*". The development objective of the program is to support and improve agricultural production and productivity in selected large-scale public scheme in Northern Nigeria. This is to be achieved through strengthened institutional arrangements and improved access to irrigation and drainage services including value chain development with active involvement of the stakeholders.

Table1 shows the irrigation projects in Niger state covering expanse *Fadama* lands that when fully utilised can bring the desired agricultural development in the state and also ensure food sufficiency and food security. This list is not exhaustive as new irrigation areas are coming up, the Kontagora-Auna and the Lioji dams in Magama and Kontagora local governments respectively.



Table 1. Irrigation Projects in Niger State by Local Government and Sited Area

Local Government Area	Project (Area Sited)	Gross Area (HA)
	Fogbe	1,000
Agaie	Ma Agba	50
	Agaie	40
	Loguma	120
Agwara	Papiri	45
	Landzu	8
Bida	Masaga	12
	Tungan Kawo	800
Borgu	Tamani	10
	Swashi	22,000
Chanchaga	Chanchaga	80
	New Chanchaga	40
	Kwale	200
Edati	Baratsu	400
	Kpayi	500
	Guzan	1,400
	Sonkpata	5,500
	Kusokenchi	80
Gbako	Nda'aji Guzan	125
	Marya/Eregi	6,000
	Edozhigi	1,000
	Toroko	80
Katcha	Badeggi	880
	Gbakogi	830
Lapai	Edo/Lapai	1,200
	Ebbo	50
Lavun	Sopa	200
Mariga	Lioji	80
	Masuga	12
Mokwa	Rabba	1,000
Rafi	Zara	100
Shiroro	Kuta	80
	Gusoro	30
Suleja	Rafin Karfe	50
	Tufa	50
Niger State		46,102

*Source: Niger state Ministry of Agriculture*

### 1.6 Fisheries

The abundant large inland water bodies including dams/reservoirs along valleys and flood plains of River Niger and Kaduna spanning over 436,196ha can support Artisanal fisheries if productively exploited. There are over 27,000 fishermen in the State with annual fish output estimated at about 43,000 metric tonnes. Many natural

fish ponds/lakes (Oxbow lakes) are found in valley bottoms (*Fadama*) around water bodies. Earthen ponds for fish farming are best constructed in *Fadama* land because of the availability of water year round and the nature of the soils.

### 1.7 Grazing

The wetlands/*Fadama* around the water bodies and along the Niger River, Kaduna and their tributaries provide good grazing land for herders. The land is green throughout the year because of the residual moisture. Grazing in wetlands during dry seasons has caused conflict between famers and headers in recent time because of the increased activities of dry season farming (irrigation). The wetland provides luxuriant and palatable pasture grasses for animals to graze. This land if properly demarcated and allotted between farmers and headsmen will go a long way to support livestock production and reduce conflict.

## 2. Constrains to *Fadama* Farming

Utilization of *Fadama* land for various farming activities has increased significantly over the years because of increasing demand for perishable commodities and arable crops (like rice and sorghum). The majority of farmers most especially those into arable crops (Rice and sorghum) production are assisted by World Bank Funded States Agricultural Development Program (ADP) under the *Fadama* III additional funding through provision of equipment and inputs.

However, the problems associated with *Fadama* farming include

1. Farmers lack adequate start-up capital for large scale irrigation activities and for those who irrigate using pumps are often faced with irregular fuel supply, frequent pump breakdown, low stream flow, and well dry ups.
2. The increasing irrigation activities along the *Fadama* land, has brought about famers-herders conflict due to competing use of the *Fadama* land
3. The soils of *Fadama* are subjected to seasonal flooding. The land is inundated with water as a result of the overflow of Rivers. Farmers often record losses of tonnes of agricultural produce thus worsening the food security situation in the country. The 2012 and 2018 nation-wide floods were more disastrous in Niger state as farmland and houses along River Niger, Kaduna and adjoining tributaries were all flooded.
4. Weeds are the major problem of *Fadama* farming. This problem of weeds in *Fadama* do take about 40 % cost of production
5. Other problems include pest infestation of farms

## 3. Conclusion

*Fadama* land constitutes the back bone of arable crop production, irrigation farming, fish farming and grazing in Nigeria. If well utilised, *Fadama* farming could be a solution to the food security issue and way to alleviating poverty in the rural areas in the country and Niger state in particular

#### **4. Recommendations**

1. The need for increased support from the Federal and State Governments in the supply of equipment and inputs to enable farmers to engage in massive food production in *Fadama* land.
2. Irrigation farming schemes, availability of farmers groups/cooperatives, existence of favourable policies and strategies, among others, would boost agricultural production and productivity in *Fadama* land
3. The government in its school feeding programme should make efforts to compel food vendors to buy vegetable directly from *Fadama* farmers to create a ready market
4. Construction and maintenance of rural roads to improve access to markets by *Fadama* farmers

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## Agriculture as Catalyst for Niger State Economic Development

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### Abstract

*Nigeria is an agricultural based country and significant part of its citizen derives their livelihood from it. There is thus the need for strong agricultural development along with related industries as an engine of higher economic growth and the reduction of mass poverty. This study however viewed agriculture as sources of surpluses to support industrialization, dynamic growth, employment, and better income distribution. It highlights on the potentials and challenges of agriculture in Niger State and proposed strategies that can lead to agricultural growth and economic development of the state. Niger state being a major producer of food crops, fisheries, livestock and tree crops; the agricultural activities are characterised by low productivity and inefficiencies due to small and scattered farms, poor use of technology and institutional support. This study proposes different strategies to kick-start agricultural growth and economic development of Niger state, mainly includes agricultural commodity and land development strategy, creation of agricultural land development agency to develop and manage small holding farm settlement schemes across the state to create employment for youth as full time farmers, and technology driven agricultural production strategy among others. The study therefore recommends 4 percent of State Budget for Agriculture and other funding options for the proposed agricultural transformation strategies.*

**Keywords:** Fadama, Land, Peasants, Soil

**JEL Classification:** Q15

### 1. Introduction

#### 1.1 Agriculture, Food Security and Economic Development

Agriculture involves the cultivation of crops, rearing of animals, fishes and exploitation of natural resources in the forest and water bodies. Economic development is the policies and processes by which a nation improves the economic, political and social wellbeing of its people. It is related to increase in output coupled with improvement in social and political welfare of the people within a nation. Therefore economic development encompasses both growth and welfare values.

(OSullivan &Sheffin, 2003). Food security as defined by the United Nations' Committee on World Food Security, is the condition in which all people, at all times, have physical, social and economic access to sufficient safe and nutritious food that meet their dietary needs and food preferences for and active and healthy life.

Agricultural growth is a catalyst for broad based economic growth and development in most low-income countries. Agricultural linkages to the non-farm economy generate employment, income and growth in the remaining part of the economy. Very few countries have experienced rapid economic growth without strong agricultural growth (Lawal, 2008). In Nigeria today, the oil sector provides bulk of the public finance. However, the huge revenue from the sector has not stimulates real economic development, has created very few jobs and its wealth has been distributed among a small elite. Nigeria has the ambition of diversifying its economy from crude oil dependency. Agriculture has been identified as the most important sector to diversify the economy and lead the development of the county through activation of the value chain of major agricultural products. Nigeria's economy is agrarian in nature: agriculture contributes more than 40% of the Gross Domestic Product (GDP) while between 60 - 70% of Nigerians are employed in agricultural related employment though with large regional differences (Nwajiuba, 2012). Since the days of David Ricardo, importance of agriculture in an economy's development has being recognised. Taking the "natural limits"—the problem of diminishing returns—in agriculture into account, Ricardo concluded that such 'limits' in agricultural production would set the upper limit to the growth of the non-agricultural sector and to capital formation for economic development. There are four ways through which agriculture contributes towards the process of economic development as described by Simon Kuznets. These are product contribution, market contribution, factor contribution, and foreign exchange contribution.

#### *1.1.1 Product Contribution:*

The product contribution of agriculture refers to its contribution of wage-goods, that is, foodstuffs over the subsistence level to feed the labour force of urban non-agricultural sector. A growing population must be supported with increased food supply. Raising food supply through different ways has thus great importance for economic growth of a country. The annual rate of increase in demand for food in an economy is determined by

$$D = p + \eta g$$

where  $p$  and  $g$  stand for the rates of growth of population and per capita income, and  $\eta$  stands for income elasticity of demand for agricultural goods. Poor nations experience high population growth rate and a high income elasticity of demand for food. Under this circumstance, an increase in per capita income strongly increases the demand for foodstuffs/agricultural goods. In Britain, agricultural revolution brought in the wake of Industrial Revolution (1760 onwards) raised agricultural productivity, provided surplus labour to the non-farm sectors, and wage-goods to support industrial expansion.

To this end, what is needed is the generation of ‘marketable surplus’—a surplus of agricultural output over the subsistence needs. Marketable surplus from agriculture also tends to widen the home market for the industrial products. Of course, the demand for industrial products largely depends on farm income. Increased agricultural productivity, a growing marketable surplus, and a rising income of the farmers are necessary to trigger an expansion in the demands for industrial products by the agricultural sector.

#### *1.1.2 Market Contribution:*

The market contribution of agriculture to economic growth refers to the fact that the demand from agriculture acts as the source of autonomous demand for industrial goods. As a result of agricultural progress there occurs a market extension for industrial goods. Agriculture thus has linkages with the industrial sector—there is a complementary between the two sectors.

A precondition for rapid industrial growth is a rapidly expanding agricultural sector. Thus, it is evident that if agriculture itself grows, there occurs a product contribution and when agriculture trades with other sectors, there occurs a market contribution.

#### *1.1.3 Factor Contribution:*

The factor contribution, comprising both labour contribution and capital contribution, occurs when there is a transfer of productive factors/resources to other sectors from the given sector. An overpopulated developing economy is characterised by the existence of surplus labour or disguised unemployment. Thus, transferring its labour resources to the modern industrial sector where they create a surplus can contribute to growth and development. In addition, agricultural sector provides funds for capital formation through (i) transfer of labour and capital from farm sector to the non-farm sectors, (ii) export of surplus agricultural products, (iii) turning the terms of trade against agriculture by imposing price controls on agricultural goods by taxation or by using multiple exchange rates against agriculture, etc.

#### *1.1.4 Foreign Exchange Contribution*

Agriculture may be a great source of foreign exchange of a country. Foreign exchange is an important source, just like savings. Primary products producing countries earn foreign exchange by exporting these products. Exports earnings increase the capacity to import capital goods and machinery required for industrial development. However, as terms of trade deteriorate against primary products in the international market, the prospect of higher export earnings is rather limited.

Finally, agricultural growth tends to improve income distribution more in favour of small peasants-. Agricultural development thus helps in improving social welfare, particularly in the rural areas. In the process, the rural masses enjoy a better way of living. While emphasizing the importance of agriculture, World Bank pleads for the development of agriculture in the 21st century as a fundamental instrument for both

sustainable development and poverty reduction. Three-quarters of poor people of developing countries derive their livelihoods from agriculture.

In this connection, the Bank considers that for the agriculture-based countries of most of sub-Saharan Africa, it recommends strong agricultural development along with related industries as an engine of higher economic growth and the reduction of mass poverty. What thus emerges from the above is that agriculture must play a great role in the transformation of a developing economy like Nigeria and Niger state. Agriculture must be viewed as sources of (i) surpluses to support industrialization, (ii) dynamic growth, employment, and better income distribution.

## **2. Scope of Agricultural Production in Niger State**

Niger State lies between longitude 8° 11' and 11° 20' north of the equator and between 4° 30' east of the equator. It covers an estimated land area of 4240 km sq. The vegetation of the state is mainly Guinea Savanna.. A total of 2.3million Hectares is under cultivation for the production of various food and cash crops annually. It is estimated that there are over 550,000 farming families in the state (Vision 20-3-3 report, 2010). Agriculture is a major sector in the economy of Niger State; it provides means of economic livelihood to majority of the population of the state. The sector has great potentials which if developed can help in the achievement of the vision of the state. Niger state as a major producer of food crops especially – rice, maize, millet, guinea corn and yam. The state has enormous potentials in fisheries, livestock and tree crops - cashew, mango, and Shea-butter nut processing. National Food Security Programme Plan (NFSPP) identified the state as having comparative advantage in import substitution for the production of rice, sugarcane, tomatoes and fisheries. Niger state is centrally located in Nigeria with easy access to major large markets in the northern and southern parts by road and rail services.

There are 3 Farm Institutes located at Tegna, Kuta an Nasko for training of interested youths in various aspect of crop production. High extension agent farm family ratio (1 extension Agent to 1,600 farmer). There exists only 1 state veterinary referral hospital in the state located in Minna in addition to 19 Zonal Livestock clinics and 6 Area Veterinary clinics all of which require rehabilitation. There are 2 modern Abattoirs in Minna & Suleja. Other major towns and cities are served with slaughter houses and slabs. There are 23 designated Grazing Reserves in the state with only 2 at Bobi and Iri gazetted. Over 2000 natural Fish ponds/lakes (Oxbow lakes) are in the state. An uncompleted Fish Hatchery with the capacity of producing 1.5million Fish fingerlings annually is located at Tagwai (Minna). The overreaching goal of Niger state vision 20- 3- 3 is “to take advantage of the diverse agricultural resources of the state to develop an agricultural sector that guarantees food security, reduction of rural poverty, facilitate agro Industrial growth towards accelerated economic development of the state”.



### *2.1 Challenges of Agricultural Production in Niger State*

The state has not been able to realise her full potentials in agricultural production and economic development due to some challenges among which the following are crucial. Most of the farms are scattered and small scale (<2.5 Ha), managed by farmers aged more than 40 years who utilize hoe and cutlass technology and depended on rain-fed agriculture. Access to mechanization and agro chemicals and other farm inputs are poor. Credit facilities are inadequate, inaccessible and with high interest rate. All agricultural activities are characterised by low productivity and inefficiencies. The average yield per hectare in all crops and livestock is lower than in most developing economy Actual yield for Rice, Maize, Yam, Cassava, G/nut and Cowpea are 2.5, 1.4, 11.00, 10.0, 1.5 and 0.4 metric tonnes (MT) against potential yield of 4-6, 4.0, 20.0, 20.0, 3.0 and 3.0 MT respectively. The level of mechanisation of farming activities is low where it is estimated that there are only 350 Tractors to serve about 3.3million farmers. There is inadequate capital investment due to low profitability. Prices paid for agricultural product is low and fluctuates throughout the season. There is high rural-urban migration due to absence of basic social infrastructure in rural areas resulting in depletion of labour for agricultural activity. There is also high level of deforestation as a result of unsustainable farming practices, timber and fuel wood collection and in recent part charcoal production.

### **3. Policies to Fully Exploit and Develop the Agricultural Potential of Niger State**

Sustained and accelerated development of agriculture is the key to economic development and poverty reduction in Niger State. The preceding sections shown that the state has considerable agricultural potential, but that it has not been realized for a number of reasons, including structural and technological constraints, inappropriate domestic policies and an unfavourable external economic environment. As a result, poverty has prevailed, undernourishment has been increasing and the poor state of the economy has continued. The challenges facing the state are numerous and there are competing needs to strain its capacity to design and implement effective policies and institutions for agriculture. However, development is a cumulative process, with success in one area opening up opportunities in others. The focus of this section is on the identification of measures to alleviate the supply-side constraints, and to improve agricultural productivity and competitiveness in the framework of a strategy that is poverty-alleviating, sustainable and based on the state comparative advantage. These measures include the following:

#### *3.1 Agricultural Commodity and Land Development Strategy*

This strategy aims at promoting the cultivation of set of crops of comparative advantage to the state and providing land resources and infrastructures to support the value chain of these crops. These would create employment, increase farm productivity and reduce poverty. The implementation of the strategy should include:-

##### *3.1.1 Massive Production and Processing of Rice and Maize (Vitamin A fortified):*

Although National Food Security Production Plan (NFSPP) recognised that Niger

state has comparative advantage in import substitution for the production of rice, sugarcane, tomatoes and fisheries. This paper recommends that the state adopts and encourages intensive production of rice and maize (vitamin A fortified) make Niger State the major supplier of quality rice and maize for Nigeria. The decision of Malaysia to make agriculture the centre of the country development effort and selection of oil palm as the main commodity to develop is a model that has led to general economic development of that country. According to Daramola (2005) Nigeria per capital consumption of rice is 24.5kg per year with demand that is increasing than in most part of Africa due to urbanization, population growth, and increased income level. Rice market monitor (2016) reported that there is about 1-1.5 million Metric Tonne demand - supply gap for rice production in Nigeria market (rice market monitor, 2016). The fadama land of the state is adequate to meet the challenges and the farmers if properly mobilised, motivated with economic returns from rice production will key into the programme and participate fully to make the state achieve its vision. What is required is adequate investment in production, modern processing infrastructure and market access. The state should take full advantage of the National Rice Development Strategy (NRDS) by having a complementary programme to mobilise the farmers for rice production for Nigeria. To achieve this vision there is need to among others articulate deliberate policies and strategies to address the following: formation of farmers' group/cooperative for efficient production of rice in all local governments of the state. Each cooperative should have 10 members that cultivate 1 hectares of land each; each local government should have 25 groups on a yearly basis for five years. This gives 50,000 hectares under cultivation of NFDS recommended varieties after five years of intervention. To support and encourage farmers, the state should provide additional 25% subsidy for fertilizer and agrochemicals in addition to those provided by the National Rice Development Strategy. Thus inputs subsidy to the participating groups is expected to be half ( $\frac{1}{2}$ ) of cost of seed, fertilizer and agrochemicals. Benefiting groups should provide half ( $\frac{1}{2}$ ) of their counterpart fund to show goodwill before input is supplied and a guarantee to supply paddy for processing at competitive market price to reduce incidence of highjack by unintended beneficiaries of subsidy. Public – private partnership should be encouraged in the critical investment needed for processing and storage infrastructure for rice paddy. The current federal government policy is 25% subsidy on rice processing equipment. The infrastructure can also be obtained by the state government but to be operated as a commercial venture.

*3.1.2 Creation of Agricultural Land Development Agency:* The agency should develop a centrally managed small holding farm settlement schemes across the state. Settlers are to have farm of “economic size”, ( 5-10 hectare per settlers), title to the land holdings and operate as mixed farmers having crop and livestock enterprises. It is expected that the settlers will be young men between 21- 45 years who are ready to take farming as a business. They are to be fully supported by government in land development, extension services, input supply, credit facilities and market access. The

agency should also support creation of private commercial farm estate with support by government in form of access and guarantees for loan; and concessions on taxes in the first few years of operation.

*3.1.3 Technology Driven Agricultural Production Strategy:* The three principal means of increasing output are (i) area expansion (ii) changes in output mix, (iii) technical change vary in importance and are a function of the stage reached in growth. Possibilities of area expansion are limited: as more land is cultivated area expansion becomes of declining importance. However, changes in both output mix and technology preserve their importance throughout the development process. It should be noted that neither is effective on its own, but requires a dynamic and flexible sector; – It is necessary to provide appropriate incentives to farmers and to ensure conditions that permit them to respond to the incentives. This involves technical support to correct the defects in farming methods adopted by farmers and institutional support to enhance the capacity of farmers to adopt new methods being propagated.

There is therefore the need to strengthen the capacity of the ministry of agriculture and agricultural development project in provision of technical support to farmers and bring about structural changes in the agricultural sector. Adoption of complementary technology like high yielding varieties, planting at right time, proper spacing, use of adequate quantity of fertilizer and other agro chemicals for all crops planted by farmers should be pursued. Institutional support is critical to the success of technological driven production strategy. It is therefore expected that there will be adequate budgetary provision for the programme to function effectively.

*3.1.4 Creation of Niger State Commodity Board as Produce Aggregator:* Commodity prices have strong influence on supply response of agricultural products. It is in response to fluctuating prices and its effects on agricultural production and economic livelihood of farmers that federal government of Nigeria introduced the policy of Guarantee Minimum Prices (GMP). The policy is a marketing strategy in national food security programme. It is an intervention in the marketing component of agricultural value chain aimed at assisting farmers sell their produce at guarantee price at harvest. The guarantee prices ensure reasonable returns on investment using recommended technology at current prices. These prices are significantly higher than prices paid at harvest and compare favourably with prices at peak period in the preceding season. It is normally determined by a committee headed by the minister of agriculture. The prices and the varieties of crop to be purchased are determined and announced at the beginning of each season.

The commodity board should serve as aggregator for major grains especially rice and maize (Vitamin A fortified). Most food processing industries do not buy grains from suppliers in the open markets because of contaminations of aflatoxin due to poor handling. The board should key into National Food Security Plan as licensed commodity buyers that coordinates guarantee minimum prices for grains and as major suppliers of good grains.. Vision 20-3-3 report stated that the state currently has 5

silos located at Pandogari, Salka, Badeggi, Wushishi and Kutigi (uncompleted) with a combined storage capacity of 12,000 metric tonnes. There is also a 10,000Mt capacity Federal Government Strategic Grain Reserve silo in Minna. These storage infrastructures currently underutilized will be put to good use by the commodity board. Expert opinion suggest that funding for the project can be obtained from the development finance unit of central bank of Nigeria and that these ventures can generate revenue of up to N500Million per month to government.

*3.1.5 Development of Grazing Reserve:* The state should develop the grazing reserves already gazetted which are located in Bobi and Iri. Fund for its development can be obtained as a grant from the N76 Billion grazing reserve fund. These will create a new community with schools, clinic, roads and other infrastructures in addition to creation of employment and other multiplier effects. It will also reduce the farmers- herder's clashes as well as improve the productivity of the livestock in addition to revenue generation for government.

### *3.2 Institutional Support and Development Strategy*

The strategy is to intensify the state institutional support for the farmers through technical, financial and structural support that improves farm productivity and income of farmers. This support services should include research and training, extension services, credits facilities, subsidies on inputs and machineries, and market access.

*3.2.1 Research and Training:* The state has three institutions for training of different cadre of staff in the agricultural sector. These are farm institutes at Nasko, Tegna and Kuta; College of Agriculture, Mokwa and Faculty of Agriculture at Ibrahim Babangida University, Lapai. The graduates of this training institution should form the core of the settlers at proposed centrally managed small farm holdings. The agricultural institutions need to be adequately funded to meet the challenges of research and development needs of modern day agriculture. These institutions should be equipped with adequate training infrastructures to enhance training of graduates with adequate practical exposure.

*3.2.2 Extension Services:* There is a wide extension – farmers ratio in the state. This gap should be bridged with recruitment of more personnel. Existing extension agents should be trained on a continuous basis, monitored to ensure they execute their duties as expected and motivated by payment of good remuneration and provision of facilities that aid effective service delivery. In addition, training and visit, fortnights training, technology review meetings, farmers field school, farmers business school and all other training components of extension services should be adequately financed and monitored for effectiveness to adequately support the technological driven agricultural production strategy.

*3.2.3 Agricultural Credit:* Availability of credit facilities increases likelihood of adoption of new innovation by farmers. The state anchor borrower scheme should be reviewed for effectiveness; current strategy is not working as expected. Private anchor

borrower is been encouraged by development finance agencies. The success of Babangona agricultural services limited in Kano and Kaduna state is a testimony to impact of anchor borrower scheme where carefully handled.

*3.2.4 Subsidies:* Subsidy is an important part of agricultural policy in every part of the world; it should be continued as part of the state policy on agriculture. It should however be carefully implemented to reduce unintended beneficiary of the policy to a minimum. To achieve this aim, fertilizer and other inputs subsidized should be distributed to small holder farmers only with active participation of the extension agent at the village/settlers level. To encourage fish production fingerlings should be distributed to small scale fish farmers at 50% subsidy while large scale farmers should get fingerlings at 25% subsidized rate. Provision of fishing inputs comprising nets, hooks, twine, outboard engines (OBE), ropes, floats should also be at 25% subsidy rate.

#### **4. Funding Options for the Suggested Strategies**

The major source of funding for agricultural production in Nigeria is budgetary allocation. Four percent (4%) of national budget is recommended for agricultural sector and 2% of GDP for agricultural research based on Maputo declaration on comprehensive agricultural development plan for Africa( Ochigbo 2012). Other funding options available for financing the suggested strategies are (i) Youth entrepreneurial scheme (ii) Strategic commodity financing (iv) Small medium enterprise development funds of Central Bank of Nigeria and development finance window of Bank of Agriculture, and Bank of Industry. Interaction with these agencies while preparing of this paper show that less than 20% of funding allotted to the state is subscribed. Other sources include donor agencies such as World Bank, International Fund for Agricultural Development, Africa Development Bank, community-based organisations, non-profit and non-governmental organisations, direct foreign investments, private financial initiative and public- private partnership.

#### **5. Conclusion**

Repositioning agriculture in Niger state to attract youth and run as a business with requisite support and access to market would change the landscape of the agricultural sector. The sector would produce food, enhance income and economic livelihood of farmers, reduce poverty, attract and retain young men and stimulate general economic growth of the state. To achieve this goals, the programme need strong support by government and private sector. The budgetary requirements will be huge but the potential benefit to Niger State in particular and Nigeria in general is enormous.

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## **Halal Economic System: An Explorable Window to Niger State Rapid Economic Development**

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### **Abstract**

*Niger state is one of the largest states in terms of land mass in Nigeria. The land mass covers about 86000 km. Out of this land mass, 80 percent is arable but only 32 percent is currently put to cultivation. Over the years, the state has developmental plans which emphasized the road maps to achieving economic development via empowering Nigerlites by providing a conducive environment for living, through wealth and employment creation opportunities in collaboration with development and public private partners among others. It is found that these road maps however, match the provisions and opportunities that are there in the halal economic system. The study therefore, recommends that the state embraces and embark on halal economic system as an easy channel to economic development and conclude that leadership commitment to plan documents is a pointer to achieving economic development.*

**Keywords:** Economic Development, Economic System, Halal

**JEL Classification:** P21, P27, Z12

### **1. Introduction**

Niger state is among the thirty sixth federating units of Nigeria. Geographically, Niger state is located in Latitude of 3.20' East and longitude 8 and 11.3' north. It is one of the largest states in terms of land mass in Nigeria covering about 86000 km<sup>2</sup> which represent 9.3 percent of the total land mass of the country. Out of this land mass, 80 percent is arable but only 32 percent is currently put to use or cultivation. Furthermore, the state's land mass experiences both rainy and dry seasons farming - about 682000 hectares is irrigable out of which only about 26000 hectares is being put to use annually (Ewugi, Abd-Karim, & Abdul-Hakim, 2014).

Just like all other Nigerian federating units, Niger State's major objective as contained in its development plan documents is to achieve economic development for better life for all in the state. This fact is obvious in its recent development plan documents. The two major most recent development plan documents in the state are the Niger State

Vision 3:2020 plan and the Niger state Development Blueprint (2015 – 2019) plan. These documents actually emphasized strategic priority areas of education, agriculture, infrastructural development, health, sustainable environmental management, equity and social inclusiveness, improved quality of life, enhanced information technology etc.

The plans furthermore, emphasized the road maps to achieving economic development via the aforementioned variables as international and national development organizations, private sectors and even individual philanthropists as vital tools. For instance, it is clearly stated in one of the supportive document to one of development plans that:

*Niger State Government aims to be the 3<sup>rd</sup> developed state Economy in Nigeria by the year 2020. To achieve this, much investment and effective use of its human and financial resources is required.....such opportunities are within the corridor of economic cooperation with the existing and potential development partners, private sectors and philanthropists. There are many International governments and non-governmental organizations that have partnership potentials in forms of kind and cash which the State Government could harness and manage properly as part of its resources towards its economic development (NSPC, 2015).*

Motivationally, these plans with their captivating statements like the aforementioned justifies this research work. Local academic researchers in the state are silent over exploring the axis of halal economic system viz a viz Niger State's development plans with a view to achieving economic development goals of the state.

According to Dubai Islamic Economic Centre (DIEDC) (2014), it's very important, for governments to note that opportunities do exist in the halal economic system, only if governments would encourage innovation, switched into ethical values and economic needs to expand into new markets. To be able to embrace and explore halal economic system, governments, businesses and institutions will need to work together. The halal economics includes: Islamic finance, Halal food industry, Halal fashion, Family-friendly travel and recreation, Media, Halal pharmaceuticals and cosmetics, IT services and digital communication. Although, all the areas are important to an integrated vision of the halal economic system, Islamic finance and the halal foods industry, are the biggest sectors. The sectors are worth 1.5 trillion dollar and 700 billion dollar (estimate) respectively.



Many food economists believed that halal food industry is becoming a major force in global market arena for four established trends. Firstly, Islam is the global contemporary fastest growing religion hence, a global demand force of halal products, the increasing demand for halal products has grown beyond religion to ethical and safety reasons by non-Muslim consumers and, the rising Muslim population and disposable income constitute a demand force in the global market. Finally, there had been greater awareness among Muslims globally on the need and necessity to consume only halal food as against previous halal foods mostly found in few Muslim homes (Elasrag, 2016). These trends have drastically changed market outlook. Nowadays, five star hotels, famous eatery stations, fast food chains all now offer halal food, even airplanes now offer halal food for customers aligning with the new trend in global market because it is the people's choice (Mujar & Hassan, 2014).

The objective of this work therefore, is to amplify stakeholders understanding the benefits of halal economic system with a view to making it a convincing prone utilizable window to Niger state economic development goal. This study is divided in five parts after the introduction: the first part defines halal concept and followed it with a discussion on whether halal economic system could be an economic window for exploration? The third aspect discloses a brief method of the work and the fourth pin points how Niger State could key into the halal paradigm. The fifth aspect dwelled on Niger State's halal economics potential resources which, is followed with a discussions on Niger State's prone accessible root to halal industry. The study's last aspect is conclusion and recommendation.

## **2. What is Halal Economic System?**

The term "halal" refers to Islamic ethics guided by 'halalan tayyib', namely purity, hygiene and healthy living (Soraji, Awang, & Yusoff, 2017). Halal as a Quranic or Arabic word means lawful, allowed, permitted or legal (Elasrag, 2016; Miskam et al., 2017). The name "Halal" has grown beyond the boundaries of permissible products for muslims only, rather it has become a global symbol for quality assurance and lifestyle choices in the world (Elasrag, 2016; Miskam et al., 2017). At the global echelon, Food and Agriculture Organisation (FAO) of the United Nations (UN) has prepared general guidelines for use of the term "Halal" to be adopted by member countries. The term 'halal food' for instance, is defined as legal food under Islamic ethics and should fulfil the criteria of lawfulness by production, origin or nature, processes of production and distribution and not have connection to any ethical illegality.

Halal economic system therefore, is a system based on human cooperation and brotherhood on the framework of consultation and nutritional laws for all humanity (Elasrag, 2016). It can also be defined as "the knowledge and application of injunctions and rules of the Shari'ah that prevent injustice in the acquisition and disposal of material resources in order to provide satisfaction to human beings and enable them perform their obligations to Allah and the society" (Zaman, 1984).

Although, halal economic ethics has been in existence for more than 1400 years, it is interesting to note that recent decades witnessed its global upsurge, championed not only by mainstream Muslim-majority countries, but by the multicultural populations of Southeast Asia and the Muslim diasporas of Europe and North America. The halal market opportunities are so wide across subsectors of the economy. Market opportunities are prevalent in Islamic banking and finance system, cosmetics and personal care, pharmaceuticals, travel and hospitality, lifestyle and fashion, media and recreation and above all the food industry (Elasrag, 2016; Reuters & Standard, 2014)

### *2.1 Could Halal Economic System be an Economic Window for Exploration?*

This knowledge and application of the said system supposed to cover a circumference called a nation. However, halal economic system could safely be in operation without adapting it as national economic system. In other words, halal economics could be embraced by any nation or state or segment of a nation as sector of the economy that operates under an institution.

The following cases are authentic global instances of nations that employ halal system within institutional frame works for globalisation advantage without necessarily modifying their system of government. The biggest Halal food manufacturers and exporters are located in non-Muslims countries like the US, Brazil, Argentina, Australia, India and China. The multinationals from these countries simply grasped the prone advantages and became the Halal export giants. They are estimated to be in control of 90% of the global Halal market. Countries like Brazil, Argentina and New Zealand lead in the export of Halal meat and poultry globally (Elasrag, 2016). Brazil and New Zealand have mixed economies which operate on free market principles while Argentina practices mixed economic system with private freedom, combined with centralized economic planning and government regulation. Yet, these nations lead in Halal meat export.

China practices mixed economy that features both communistic and capitalistic components. Yet, Brunei and China set up three industrial parks in the Southern Guangxi province, one of which is for halal food production (Reuters & Standard, 2014). When Chinese government realised about 200,000 Arabs visits coastal city of Yiwu which is central Zhejiang province (state) every year, it simply made market environment more halal compliant. The government built a 10000 capacity mosque and made halal food available to control and maintain that market segment for economic reasons (Simpfendorfer, 2011).

In other words, these nations simply explored the international market lacuna to generate foreign exchange. They needed not to necessarily change their known economic system. In other words, any country or section of a country or state like Niger state with an ambitious development goal only simply needs to create a window of halal economic system as cheap safe heaven not only to meet up her plans but to achieve economic growth and development.

### 3. Methodology

The method employed in this study is collecting literature that relate to subject matter of discussion – halal economic system. The criteria purely relied on accessibility to literature that relates to the subject matter (Polonsky, Jones, & Kearsley, 1999). In other words, the study tried to identify scholarly quotes, government documents, literate proves in journals, text books and relevant materials on halal economic system to achieve the objective of the study.

### 4. Findings

#### 4.1 How Would Niger State Key into the Halal Paradigm?

It is an open fact that all federating units of Nigeria can source for independent internal generated revenue to boost their monthly allocation from the central government. This therefore, as a matter of policy liberates all states of federation including Niger State to swing round clock for revenue generation to augment and complement their monthly allocations. That is most reason why states make their respective development plans apart from the central government development plans. In other words, Niger State can favourably go into halal economic system by creating ministry of halal economics. The reason is not farfetched, apart from the fact that halal economic system is not of any policy threat to the state, halal opportunities coincide with the key missions of Niger state's recent most development plans. For instance, the mission statements of vision 3:2020 and 2015 – 2019 development plans are as thus respectively:

*To empower Nigerlites by providing a conducive environment for living, through wealth and employment creation opportunities in collaboration with development and public private partners (NSG, 2011).*

*To provide leadership that promotes a democratic and economically promising State.... In doing this, the State Administration shall irrevocably strive to restore the strong societal values and robust institutions that utilizes the talents of Nigerlites using innovative processes and technologies (NSG, 2015).*

In the words of Arancha González in ITC (2015), halal has not only evolved as a new pattern of production and trade, but effectively a new commercial paradigm.

*A global market based on the needs and preferences ...creates opportunities for enterprises, especially in developing markets to take advantage of this estimated US\$ 1 trillion market of (say) the halal food sector. This sector is increasingly attracting the attention of*

*policymakers and the private sector as a sector with increasing growth potential..... a new horizon of opportunity to build the capacity of small and medium-sized enterprises (SMEs) .... While many market sectors are increasingly saturated and highly competitive, the evolving halal market offers a new range of opportunities, giving agile and enterprising SMEs the chance to connect with this new marketplace (ITC, 2015).*

The above statement is a global opportunity expression that is attractive enough to move business minded individuals, institutions and governments into action. In the same manner, Elasrag (2016) described the global status of halal economics to:

*...worth around USD2.3 trillion (excluding Islamic finance). Growing at an estimated annual rate of 20%, the industry is valued at about USD560 billion a year. Thus, making it one of the fastest growing consumer segments in the world.... The halal market is non-exclusive to Muslims, and has gained increasing acceptance among non-Muslim consumers who associate halal with ethical consumerism....it has also become a global symbol for quality assurance and lifestyle choice.*

These descriptions or characteristics of halal economic system in the global arena fit the aforementioned Niger State's development plan missions. To create wealth, generate employment, and collaborates with development partners which are the main characteristics of the missions of Niger state development plans coincides with the prone opportunities in the global halal arena. There is no doubt that a global market with less competition and currently houses demand deficit of about 63 percent which is estimated at USD 63 billion<sup>1</sup> will cheaply absorb a new comer which by its plans is desperate to achieve, wealth creation, employment generation and economically promising state.

#### *4.2 Niger State's Halal Economics Potential Resources*

Niger state is potentially rich in both human and natural resources. Agriculture is the major sector of the economy; its potentials are viable enough to facilitate halal economic system in the state. Its potential includes fisheries, livestock, fruits crops like shea-butter nut and grains. The following therefore, are the major halal economic system potentials:

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<sup>1</sup> Halal Economy: Opportunity and challenges. A Bio-Malaysia and Asian Bio-Economy conference, 2015. Access online at [http://www.biomalaysia.com.my/speakerssliders/day1/session2perlis/BioMalaysia%202015-v4\(17.08.2015\).pdf](http://www.biomalaysia.com.my/speakerssliders/day1/session2perlis/BioMalaysia%202015-v4(17.08.2015).pdf)

- i. Niger state is one of the biggest states in terms of land mass in Nigeria. Its land mass is the second largest after Borno state which covers 6,892,500 hectares, that is, 9.3 percent of the total land area of the country (NBS, 2010). This goes to mean that the state has what it takes to be in modern agriculture.
- ii. Niger State already has established halal formations on the ground. The state joined eleven other northern states in 'sharia implementation' program in 2000. This facilitated formation of specifically Islamic state agencies for the better enforcement of Islamic standards and values (Ndagi, 2012) which are resourceful for the formation of halal economic system. These agencies include Advisory Council of Ulama, a Sharia Commission, Zakat and Endowment Board and even Niger State supply Company is a valuable institution for the state.
- iii. In the 1990s, cattle population in Niger State is put at 1.5million and about 1.7 million poultry i.e. chicken, turkey, etc. These are mainly output of small scale producers with traditional techniques of production. The state however, has the capacity to absorb large scale production for availability of expanse grass land for year-round grazing, favourable weather and abundant water (NSG, 2011). There are over two hundred natural ox-bow lakes and fish ponds, and twenty-three designated Grazing Reserves in the state but currently only two in Babi and Iri are gazetted (Folunsho, 2018).
- iv. The state houses three hydro electricity dams. This apart from serving as national sources of energy, they are potential sources of irrigation for all year round farming.

#### *4.3 Niger State's Prone Accessible Root to Halal Industry*

Halal standard organisations of course still confront problems of unity in front. Traditionally, the Quran and the Sunna (the prophets' words and practices), as well as from Ijma ('a consensus of legal opinion'), and Qiyas ('reasoning by analogy') defines halal (permitted) and haram (prohibited). Yet, there is that lack of one central authority in Islam, the diversity in ethnical back-ground and degree of religiosity and secularity opinions create diverse views on halal worthiness, especially in halal food sector (Kurth & Glasbergen, 2017). However, for Niger state to start or join halal world, it will require to consult with some of the following:

- i. Will first of all, require a policy frame work of operation. This means that the state will require a legal background of operation.
- ii. Consulting Jaiz foundation will be a good start, for AlHuda Centre of Islamic Banking and Economics (CIBE), began an attempt at partnering with Jaiz Foundation on how to establish the first Halal certification agency in Nigeria (Muhammad, 2017).
- iii. Dubai in 2013 broadened up its horizon by establishing the Dubai Islamic Economics (DIEDC), broadened the halal scope beyond the food and beverage. It has extended its scope to cosmetics, pharmaceutical sectors to include art and culture, modest fashion, the digital economy and family-

friendly travel. This also demonstrates the opportunities to engage in the halal-related markets without being a primarily food-producing nation (ITC, 2015).

- iv. Malaysia's Halal industry Development Corporation (HDC), in conjunction with Department of Islamic Development Malaysia (JAKIM) and other relevant agencies, has designed and conducted both national and international training programmes for SMEs in the halal sector. This services include online programmes targeted at increasing awareness and opportunities of halal industry (ITC, 2015).
- v. Consultations with international halal institutions such as Standards and Metrology Institute for Islamic Countries (SMIIC), World Halal Council (WHC), World Halal Food Council (WHFC), etc for linkage and standardization.

In other words, Niger State could consult these aforementioned institutions for link with halal world.

### 5. Recommendation and Conclusion

This study recommends that Niger state should embrace halal industry as that coincides with her developmental goal and *must start* from halal food industry for both internal economy and international potential advantages. Internally, Niger State is one of the largest in land mass in Nigeria – potent for farming as cheap source of employment for the teeming youth population that currently wallows in poverty. Internationally, halal food has prone advantages such as increased global Muslims disposable income (Muslims alone in 2013 spent \$2 trillion on food and lifestyle products<sup>2</sup>) and it's no longer religious consumer food but secular consumption trend across religious bands (Elasrag, 2016). That's to say, market or demand is certain.

Halal food is not any extra ordinary product; rather ethically endorsed food in line with the teachings of Islam. It becomes very attractive when it *wears halal* nomenclature or logo especially in the global market. That is, when consumables are certified by popularly accepted halal institution, they becomes halal product and exportable. Certification confirms and builds people's confidence about degree of ethicality of the content of a consumable. In halal ethics, unacceptable content of a consumable includes alcohol, any substance of pig, blood and the like.

Developmental plans are mere document of descriptions of intentions to better off societal standard of living. These intentions can only be translated to action when it has committed leadership that truly *mean* to act in line with the document of intentions. It is truly not the number of times plans are revised that matter, but commitment to implementing for achieving plan goals is the first pointer to

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<sup>2</sup> Dubai: The capital of the Islamic economy

[http://www.iedcdubai.ae/assets/uploads/files/DIEDC%20powerpoint\\_1464192004.pdf](http://www.iedcdubai.ae/assets/uploads/files/DIEDC%20powerpoint_1464192004.pdf)

development. It is a common fact that what citizens need more is favourable environment to operate. To our mind Niger state has what it takes to achieve great height from her natural prone advantages in the halal industry. All it requires is a little commitment to creating an environment for halal economics.

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## **Ordered Logit Model, Proportional Odds Assumption and Marginal Effects: Demysfying the Derivational steps**

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### **Abstract**

*Ordered models, such as the Ordered Logistic regression model, are used when the dependent variable of a model is categorical and ordinal. However, the literatures on Ordered models often skip the derivational steps of the model, which may make researchers apply the model as a dogma without knowing how the output of the model is expected to be. This study provides a detailed breakdown of the derivational steps of the model; the Proportional Odds assumption; the marginal effects and some practical examples, with a view to helping researchers have a better understanding of the output of the model when used in their studies.*

**Keywords:** Ordered model, derivational steps, researchers

**JEL Classification:** C51, C52, C61

### **1. Introduction**

Econometric models such as Ordered Logit and Ordered Probit models are used when the dependent variable is categorical (with more than two outcomes) and has ranking (Long & Freese, 2006). For instance, in a model whose dependent variable has three outcome categories, such that category 1 is less than category 2, and category 2 is less than category 3, then the parameters of such type of a model can be estimated using an Ordered Logit or Probit model (Long, 1997; Orme & Combs-Orme, 2009). Although both Ordered Logit and Probit models give similar results, some researchers often prefer Ordered Logit model due to the simplicity of its mathematical procedures (Gujarati & Porter, 2009), and hence the focus on it in this study.

The size, not the sign, of the output of an Ordered Logit model is normally a crude estimate, which is not interpretable in its crude form unless it is standardized by transforming it into marginal effects, odd ratios, or predicted probabilities (Long & Freese, 2006). According to Leeper (2017), marginal effect provides the most unified and intuitive way of interpreting discrete outcome models, such as the Ordered Logit model. However, before the output of the model is accepted as being valid, the data must meet the Proportional Odds assumption or Parallel line regression assumption

(McCullaph, 1980). Therefore, in order to fulfill the conditions of the model (Ordered Logit), and to be able to analyze and interpret the output of the model, researchers need to have a clear understanding of the derivational steps of the model (Long, 1997). They also need to have a clear understanding of the Proportional Odds assumption and the different standardization methods, such as the marginal effect (Long, 1997; McCullaph, 1980).

In deriving Ordered Logit model, most of the literatures either skip or fail to explain some ancillary steps (e.g Long, 1997; Cameroon & Trivedi, 2005; Gujarati & Porter, 2009; Long & Freese, 2006), thereby leaving some readers with no option than to apply the model as a dogma. However, this may not assist them in understanding the output of the model and in interpreting the result of their findings. In this study, effort is being made to break down the derivational steps of the Ordered Logit model, Proportional Odds assumption and marginal effects in the simplest form. This is with a view to assisting researchers have full understanding of the model and guide them in interpreting their findings. The article is presented in seven sections. Section one is the introduction, while literature was reviewed in section two. Section three provides the derivational steps of the Ordered Logit model and in section four, the derivation of the Proportional Odds assumption was discussed. Section five is devoted to deriving the marginal effects of the Ordered Logit model, while section six gives practical examples of the items discussed in the study. The conclusion is drawn subsequently in section seven.

## **2. Review of the Literature**

Models are simplified algebraic representations of a scientific theory (Meyer, 1982). It means that models ought to represent theories in a simplified manner, given details of each step and how it was arrived at for a clear understanding of the theory it represents. However, the description of Ordered Logit models given by most econometric text books did not show the derivational steps. For instance, in Long and Freese (2006) the derivational steps of the Ordered Logit model were explained in the following statement: "...substituting.....and using some algebra leads to the standard formula for the predicted probability in the Ordered Logit model". Similarly, in explaining the marginal effect of the model, Long and Freese (2006) only show the formula for the marginal effect without detailed explanation of its derivational steps.

In Cameron and Trivedi (2005), though the derivational steps were explained, the derivational steps of the extreme outcomes were not clearly explained. The derivational steps of the marginal effects were also lumped and not explained in detail. Gujarati and Porta (2009) provided only the introductory treatment of the model, without mathematical explanation. On the other hand, Long (1997) provided one of the most detailed explanations of the derivational steps of the model, however, effort was not made to explain clearly, how the cumulative distribution function (CDF) of the lowest outcome of the model was translated to zero and the highest outcome translated to one. Some simplifications using the lowest common multiple

(LCM) were also applied in the derivational process of the model, which were not reported in the text. Similarly, the derivational steps of the marginal effect of the model were not explained in detail.

### 3. Derivation of the Ordered Logit Model

In this section, the derivational steps of an Ordered Logit model are discussed. In order to understand the derivation, children's health status will be used as an example throughout this study. The children's health status is taken as the dependent variable of the Ordered Logit model. According to the World Health Organization [WHO] (O'donnell et al. 2008), children's health status can be categorized based on their Z-score values. Assuming that the Z-score values for some group of children were obtained, then WHO considers all children in the range of  $Z < -3$  as severely malnourished; those in the range of  $-3 \leq Z < -2$  as moderately malnourished and those in the range of  $-2 \leq Z < +2$  as adequately nourished (Webb & Bhatia, 2005). However, in this study, let's assume that adequately nourished children are in the range of  $Z \geq -2$ . This means that all children in the range of Z-score of -3.1 or less, are severely malnourished; those in the range of Z-score between -3 to -2.1 are moderately malnourished and those in the range of -2 or more are considered as adequately nourished. An example of the Z-score values for some children is shown in Example 1.

**Example 1:** -0.41, -1.31, -0.28, -0.81, -0.98, -0.45, -0.94, -0.44, -1.26, -0.72, -0.82, -0.23, -0.34, -4.3, -3.39, -3.02, -4.08, -5.11, -3.73, -7.88, -3.05, -3.12, -4.88, -3.00, -2.51, -2.62, -2.3, -2.89, 1.97, 1.59.

Assuming that the Z-score value of each child, as shown in Example 1, is represented by

$y^*$ , then  $y^*$  becomes the latent dependent variable in an Ordered Logit model. The  $y^*$  is a latent dependent variable because it would be hidden in the estimation process when estimating the parameters (betas) of the explanatory variables of the model.

However, Example 2 shows the categorized version of the children's Z-scores that was presented in Example 1.

#### Example 2:

$$\begin{aligned} & \left. \begin{array}{l} -4.3, -3.39, -3.02, -4.08, -5.11 \\ -3.73, -7.88, -3.05, -3.12, -4.88, \\ -3.0, -2.51, -2.62, -2.33, -2.89 \end{array} \right\} = \text{Severely malnourished} = 1 \\ & \left. \begin{array}{l} -0.41, -1.31, -0.28, -0.81, -0.98 \\ -0.45, -0.94, -0.44, -1.26, -0.72 \\ -0.82, -0.23, -0.34, 1.59, 1.97 \end{array} \right\} = \text{Adequately nourished} = 3 \end{aligned}$$

It is shown in Example 2 that all children with a Z-score value within the range of -3.1 or less, are severely malnourished and are coded as 1. Those in the range of Z-score between -3 to -2.1 are moderately malnourished and are coded as 2, while those in the range of Z-score of -2 or more are considered as adequately nourished and are coded as 3. Therefore, the coding of the latent dependent variable  $y^*$  into Z-score groups ranked as 1, 2 and 3, gives a dependent variable that is actually observed (not hidden)

in the estimation process. This dependent variable is called the “observed dependent variable” and is represented by  $y$ . Consequently, the measurement equation for the physical health of child  $i$  ( $y_i$ ) using an Ordered Logit model is presented in Equation (1).

$$y_i = M \text{ if } \tau_{M-1} \leq y_i^* < \tau_M, \text{ for } M = 1, 2, \dots, j \dots \dots \dots 1$$

where  $y_i^*$  is the latent physical health status of child  $i$ . The latent physical health values are the measured Z-scores for each child, which are not observed, but are coded as 1, 2 and 3 in order to derive the observed physical health outcomes for each child (i.e  $y_i$ ). The  $\tau$ 's are the cutoff points or the thresholds. The cutoff points define where each outcome begins.  $M$  is the total number of outcomes or categories of the dependent variable of the Ordered model. The total number of cutoff points ( $\tau$ 's) in any Ordered model is always the total number of outcomes ( $M$ ) minus one (i.e  $M - 1$ ).

Figure 1 shows the probability distribution and the Cumulative Distribution Functions (CDF's) of the children's Z-scores. From the figure, it is shown that all children with Z-score values of less than -3 (i.e from  $-\infty$  to -3.1) are grouped under outcome 1. Also, all children with Z-score values of -3 to -2.1 are grouped under outcome 2, while all children with Z-score values of -2 to positive infinity ( $+\infty$ ) are grouped under outcome 3. Therefore, since there are three outcomes ( $M=3$ ), the number of cutoff points ( $\tau$ 's) in this Ordered Logit model will be two (i.e  $M - 1 = 3 - 1 = 2$ ). The cutoff points, as shown in Figure 1, are points  $c$  and  $e$  (i.e  $\tau_1$  and  $\tau_2$ ), which also correspond to -3 for  $\tau_1$  and -2 for  $\tau_2$ .

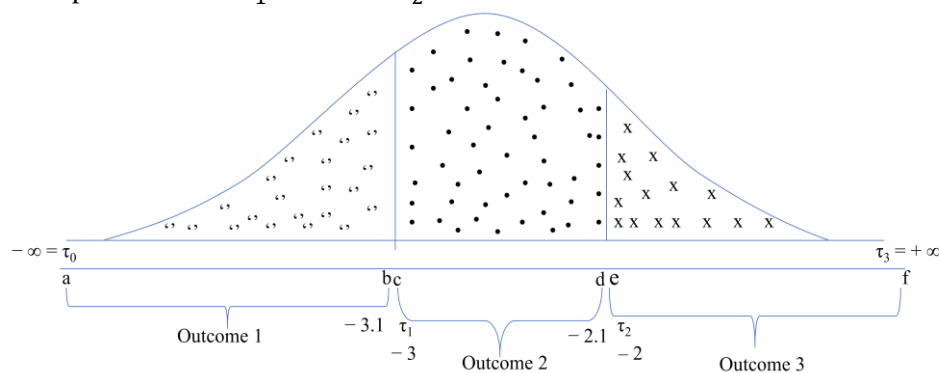


Figure 1: Probability distribution and the CDF's of the children's Z-scores.

The measurement model of Equation (1) is therefore shown in Equation (2).

$$y_i = \begin{cases} 1 & \text{if } -\infty = \tau_0 \leq y^* < \tau_1 \\ 2 & \text{if } \tau_1 \leq y^* < \tau_2 \\ 3 & \text{if } \tau_2 \leq y^* < \tau_3 = +\infty \end{cases} \dots \dots \dots 2$$

In other words, Equation (2) is represented as Equation (3).

$$y_i = \begin{cases} 1 & \text{if } -\infty \leq y^* < -3 \\ 2 & \text{if } -3 \leq y^* < -2 \\ 3 & \text{if } -2 \leq y^* < +\infty \end{cases} \dots\dots\dots 3$$

However, following Long (1997), for child i, and for some set of independent variables, the structural Ordered Logit model is specified in Equation (4).

$$y_i^* = X_i \beta + \varepsilon_i \dots\dots\dots 4$$

where  $X_i$  is the vector of the regressors in the model,  $\beta$  is the vector of the parameters to be estimated while the Logistic random variable in the Ordered Logit model is represented by  $\varepsilon_i$ .

Therefore, the probability of observing outcome 1, which is the severely malnourished health status of the children, is given by Equation (5).

$$\Pr(y_i = 1 | X_i) = \Pr(-\infty = \tau_0 \leq y_i^* < \tau_1 | X_i) \dots\dots\dots 5$$

Equation (5) shows that outcome 1 of the children's health status would be observed when  $y_i^*$  is greater than or equal to  $\tau_0$  (i.e  $-\infty$ ) but less than  $\tau_1$  (i.e less than -3) given  $X_i$ . The  $X_i$  is the set of explanatory variables that affect the health status of child i. Assuming  $y_i^*$  in Equation (4) is substituted into Equation (5), Equation (6) is derived:

$$\Pr(y_i = 1 | X_i) = \Pr(-\infty \leq X_i \beta + \varepsilon_i < \tau_1 | X_i) \dots\dots\dots 6$$

By subtracting  $X_i \beta$  within the inequalities, Equations (7) and (8) are derived:

$$\Pr(y_i = 1 | X_i) = \Pr(-\infty - X_i \beta \leq X_i \beta - X_i \beta + \varepsilon_i < \tau_1 - X_i \beta | X_i) \dots\dots\dots 7$$

$$\Pr(y_i = 1 | X_i) = \Pr(-\infty - X_i \beta \leq \varepsilon_i < \tau_1 - X_i \beta | X_i) \dots\dots\dots 8$$

According to Long (1997), CDF expresses the probability of a variable being less than some value. Therefore, from Equation (8), the CDF evaluated between  $-\infty$  and  $\tau_1$  (i.e between negative infinity and point b in Figure 1) yields the probability that a random variable  $X_i$  lies between the two values ( $-\infty$  and  $\tau_1$ ), as shown in Equations (9) and (10). Literally, this means that when all the Z-score values from negative infinity to a point immediately below the  $\tau_1$  threshold (i.e immediately below point c in Figure 1) are added together, they yield the probability that a particular explanatory variable ( $X_i$ ) would determine the likelihood of child i being in the physical health outcome 1 (i.e severely malnourished health category).

$$\Pr(y_i = 1 | X_i) = \Pr(\varepsilon_i < \tau_1 - X_i \beta | X_i) - \Pr(\varepsilon_i \leq -\infty - X_i \beta) \dots\dots\dots 9$$

Therefore, the probability that a child would fall in outcome 1 is the CDF of all the latent Z-score values of the children that are below the  $\tau_1$  threshold (i.e below point c or -3 in Figure 1), which is shown in the first part [ $\Phi(\tau_1 - X_i \beta)$ ] of Equation (10). Where  $\Phi$  is the symbol of the CDF.

$$\Pr(y_i = 1 | X_i) = \Phi(\tau_1 - X_i \beta) - \Phi(-\infty - X_i \beta) \dots\dots\dots 10$$

However, the second part [ $\Phi(-\infty - X_i \beta)$ ] of Equation (10) disappears in the sense that the CDF of a Logistic function is given as:

$$\text{Logistic CDF } (\Phi) = \frac{1}{1+e^{-z}} \dots\dots\dots 10a$$

where  $Z = \beta_0 + \beta_1 X_1 + \dots + \beta_k X_k$ . In the second part of Equation (9),  $Z = -\infty - X_i \beta$ . Therefore:

$$\text{Logistic CDF } (\Phi) = \frac{1}{1+e^{-(\infty-X_i \beta)}} \dots\dots\dots 10b$$

$$\text{Logistic CDF } (\Phi) = \frac{1}{1+e^{\infty+X_i \beta}} \dots\dots\dots 10c$$

In Equation (10c), one of the components of the divisor, that is the exponent of infinity ( $e^\infty$ ) alone, is sufficient enough to make the outcome of the division almost equal to zero. Therefore, the second part of the Equation (10) disappears, leaving only the first part, as shown by Equation (11). Equation (11) gives the probability that the physical health of child  $i$  would be in the outcome 1 category, and is represented by points  $a$  to  $b$  in Figure 1.

$$\Pr(y_i = 1 | X_i) = \Phi(\tau_1 - X_i \beta) \dots\dots\dots 11$$

Similarly, the probability of selecting outcome 2, which is the moderately malnourished health status of the children, given some set of explanatory variables ( $X_i$ ) is indicated in Equation (12):

$$\Pr(y_i = 2 | X_i) = \Pr(\tau_1 \leq y_i^* < \tau_2 | X_i) \dots\dots\dots 12$$

Equation (12) shows that outcome 2 of the children's health status would be observed, when  $y_i^*$  is greater than or equal to  $\tau_1$ , but less than  $\tau_2$  (i.e. -3 to -2.1 in Figure 1), given  $X_i$ . Assuming  $y_i^*$  in Equation (4) is substituted in Equation (12), we have Equation (13):

$$\Pr(y_i = 2 | X_i) = \Pr(\tau_1 \leq X_i \beta + \varepsilon_i < \tau_2 | X_i) \dots\dots\dots 13$$

By subtracting  $X_i \beta$ , within the inequalities Equations (14) and (15) are obtained:

$$\Pr(y_i = 2 | X_i) = \Pr(\tau_1 - X_i \beta \leq X_i \beta - X_i \beta + \varepsilon_i < \tau_2 - X_i \beta | X_i) \dots\dots\dots 14$$

$$\Pr(y_i = 2 | X_i) = \Pr(\tau_1 - X_i \beta \leq \varepsilon_i < \tau_2 - X_i \beta | X_i) \dots\dots\dots 15$$

Thus, the CDF evaluated between  $\tau_1$  and  $\tau_2$  gives the probability that a random variable  $X_i$  lies between the two values as shown in Equation (16) and (17):

$$\Pr(y_i = 2 | X_i) = \Pr(\varepsilon_i < \tau_2 - X_i \beta | X_i) - \Pr(\varepsilon_i \leq \tau_1 - X_i \beta) \dots\dots\dots 16$$

$$\Pr(y_i = 2 | X_i) = \Phi(\tau_2 - X_i \beta) - \Phi(\tau_1 - X_i \beta) \dots\dots\dots 17$$

Equation (17) gives the probability that the physical health of child  $i$  would be in the outcome 2 category. The first part [ $\Phi(\tau_2 - X_i \beta)$ ] of Equation (17) is represented by points  $a$  to  $d$  of Figure 1. The second part [ $\Phi(\tau_1 - X_i \beta)$ ] of Equation (17) is represented by points  $a$  to  $b$ . Therefore, when  $a$  to  $b$  is subtracted from  $a$  to  $d$ , the balance is  $c$  to  $d$ , which is the outcome 2 of the children's health status as shown by Figure 1.

Moreover, the probability of observing outcome 3, which is the adequately nourished health status, given some set of explanatory variables ( $X_i$ ), is shown by Equation (18):

$$\Pr(y_i = 3 | X_i) = \Pr(\tau_2 \leq y_i^* < \tau_3 | X_i) \dots\dots\dots 18$$

when Equation (4) is substituted into Equation (18), we have Equation (19):

$$\Pr(y_i = 3 | X_i) = \Pr(\tau_2 \leq X_i \beta + \varepsilon_i < \tau_3 | X_i) \dots\dots\dots 19$$

By subtracting  $X_i \beta$ , within the inequality and simplifying, we have Equation (20) and (21):

$$\Pr(y_i = 3 | X_i) = \Pr(\tau_2 - X_i \beta \leq X_i \beta - X_i \beta + \varepsilon_i < \tau_3 - X_i \beta | X_i) \dots\dots\dots 20$$

$$\Pr(y_i = 3 | X_i) = \Pr(\tau_2 - X_i \beta \leq \varepsilon_i < \tau_3 - X_i \beta | X_i) \dots\dots\dots 21$$

Since the probability that a random variable is between two values is the difference between the CDF evaluated at the two values (Long, 1997), Equation (22) is derived from Equation (21), and Equation (23) is obtained by simplifying Equation (22):

$$\Pr(y_i = 3 | X_i) = \Pr(\varepsilon_i < \tau_3 - X_i \beta | X_i) - \Pr(\varepsilon_i \leq \tau_2 - X_i \beta | X_i) \dots\dots\dots 22$$

$$\Pr(y_i = 3 | X_i) = \Phi(\tau_3 - X_i \beta) - \Phi(\tau_2 - X_i \beta) \dots\dots\dots 23$$

Equation (23) gives the probability that the physical health of child  $i$  would be in the outcome 3 category. The first part [ $\Phi(\tau_3 - X_i \beta)$ ] of Equation (23) is represented by points  $a$  to  $f$  in Figure 1, which is the probability distribution of the three outcomes. Therefore, the first part of Equation (23) is equal to 1 since the sum of probabilities in a probability distribution is equal to 1. The second part [ $-\Phi(\tau_2 - X_i \beta)$ ] of Equation (23) is represented by points  $a$  to  $d$ . Therefore, when  $a$  to  $d$  is subtracted from  $a$  to  $f$ , the balance is  $e$  to  $f$ , which is the outcome 3 of the children's health status. By simplifying Equation (23), we have Equation (24), which gives the probability that the physical health of child  $i$  would be in the outcome 3 category.

$$\Pr(y_i = 3 | X_i) = 1 - \Phi(\tau_2 - X_i \beta) \dots\dots\dots 24$$

Consequently, in order to estimate the effect of some set of explanatory variables ( $X$ s) on the the probability of child  $i$  being in severely malnourished health category (outcome 1), moderately malnourished health category (outcome 2) or adequately nourished health status (outcome 3), Equations (11), (17) and (24) can be estimated.

Generally, therefore, Equation (1) can be applied to any  $M$  number of Ordered Logit outcome model. However, the lowest category [ $\Pr(y_i = 1 | X_i)$ ] is always the CDF from negative infinity to a value immediately before the first threshold [i.e  $\Phi(\tau_1 - X_i \beta)$ ]. Also, the highest category is always the CDF of the entire probability distribution less the CDF from negative infinity to a value immediately before the  $M - 1$  threshold [i.e  $1 - \Phi(\tau_{m-1} - X_i \beta)$ ].

#### 4. The Proportional Odds Assumption of the Ordered Models

The parameters,  $\beta$ 's, as well as the threshold parameters,  $\tau$ 's in Equations (11), (17) and (24) can only be estimated using an Ordered Logit model when the data meet the parallel line assumption or proportional odds assumptions (McCullagh, 1980). The parallel line regression assumption states that given a particular set of probabilities of the outcome categories, then the log of the odds must form an arithmetic series for it to be estimated using an Ordered Logit model. According to Fullerton (2009), the first step is that the dependent variable with  $M$  categories is split into  $M - 1$  binary Logit equations of log odds ratios, and then estimate simultaneously using the higher outcomes as the reference category.

In our own example, let us assume that the probability of severely malnourished health status is denoted by  $y_1$ , moderately malnourished health status is denoted by  $y_2$ , and adequately nourished health status is denoted by  $y_3$ . Therefore, since there are three outcomes ( $M = 3$ ), there will be two Logit equations ( $3 - 1 = 2$ ) of log odds ratios. These two Logit equations, according to Fullerton (2009), will be obtained by

finding the ratio of outcome 1 versus 2 and 3, then outcome 1 and 2 versus 3. However, before getting the log odds ratios, there is need to find the odd ratios. The first Logit equation of the odds ratio is shown by Equation (25).

Odds of severely malnourished health:  $\frac{y_1}{y_2+y_3}$  .....25

The odds (probability) of severely malnourished health ( $y_1$ ), is the ratio of  $y_1$  to the rest outcomes (i.e  $y_2 + y_3$ ). In a binary Logit, assuming the probability of  $y_1 = 1$ , then the probability of the rest outcomes will be  $1 - (y_2 + y_3)$ . However, the probability of observing outcome1 (i.e  $y_1 = 1$ ), is a function of the distribution of the error term. According to Gujarati and Porter (2009), the distribution of the error term in a Logitistic model is given by the function shown in Equation (25a):

$$\Pr(y_1 = 1) = f\left(\frac{1}{1+e^{-z}}\right) = \frac{1}{1+e^{-z}} = \frac{1}{1 + \frac{1}{e^z}} \dots\dots\dots 25a$$

Since the LCM of  $1 + \frac{1}{e^z} = \frac{1+e^z}{e^z}$ , therefore, by substituting the denominator of

Equation (25a) with  $\frac{1+e^z}{e^z}$  and operationalizing, we have Equation (25b):

$$\Pr(y_1 = 1) = \frac{1}{\frac{1+e^z}{e^z}} = f\left(\frac{e^z}{1+e^z}\right) \dots\dots\dots 25b$$

Consequently, by substituting  $y_1$  in Equation (25) with  $\frac{e^z}{1+e^z}$ , the denominator of

Equation (25) will be  $1 - \frac{e^z}{1+e^z}$ . But the LCM of  $1 - \frac{e^z}{1+e^z}$  is  $\frac{1}{1+e^z}$ . Therefore,

the odds of severely malnourished health ( $y_1$ ) is computed as shown by Equation (26):

$$\text{Odds of severely malnourished health: } \frac{\frac{e^z}{1+e^z}}{\frac{1}{1+e^z}} = \frac{e^z}{1+e^z} \times \frac{1+e^z}{1} = e^z \dots\dots\dots 26$$

where  $z = \tau_1 - X'\beta$ .

Similarly, the second Logit equation of the odds ratio is given by Equation (27):

Odds of severely and moderately malnourished health:  $\frac{y_1+y_2}{y_3}$  .....27



In a binary Logit, assuming the probability of  $y_1 + y_2 = 1$ , then the probability of the rest outcomes will be  $1 - y_3$ . However, the probability of observing outcome 1 (i.e  $y_1 + y_2 = 1$ ), is a function of the distribution of the error term, which is given by Equation (28) [the steps were skipped since have already been discussed]:

$$\Pr(y_1 + y_2 = 1) = f\left(\frac{e^z}{1 + e^z}\right) \dots\dots\dots 27a$$

Consequently, by substituting  $y_1 + y_2$  in Equation (27) with  $\frac{e^z}{1 + e^z}$ , the denominator of Equation (27) will be  $1 - \frac{e^z}{1 + e^z}$ . But the LCM of  $1 - \frac{e^z}{1 + e^z}$  is  $\frac{1}{1 + e^z}$ . Therefore, the odds of severely and moderately malnourished health ( $y_1+y_2$ ) is computed as shown by Equation (29):

Odds of severely and moderately malnourished health:

$$\frac{\frac{e^z}{1 + e^z}}{\frac{1}{1 + e^z}} = \frac{e^z}{1 + e^z} \times \frac{1 + e^z}{1} = e^z \dots\dots\dots 28$$

where  $z = \tau_2 - X'\beta$ .

The log odds ratios are therefore given in Equation (30) and (31):

$$\log\left(\frac{y_1}{y_2+y_3}\right) = \log(e^{z_1}) = z_1 = \tau_1 - (X_i \beta) = \tau_1 - (\beta_{11}X_{11} + \beta_{21}X_{21} + \dots \dots \beta_{k1}X_{k1}) \dots 30$$

$$\log\left(\frac{y_1+y_2}{y_3}\right) = \log(e^{z_2}) = z_2 = \tau_2 - (X_i \beta) = \tau_2 - (\beta_{12}X_{12} + \beta_{22}X_{22} + \dots \dots \beta_{k2}X_{k2}) \dots 31$$

where  $z_1$  and  $z_2$  are the logistic CDF's, while  $\tau_1 < \tau_2$ .

When the parallel line regression assumption holds, therefore,  $\beta_{11} = \beta_{12}$ ,  $\beta_{21} = \beta_{22}$ , .....  $\beta_{k1} = \beta_{k2}$ . This means that the value of the coefficient of a particular explanatory variable, say  $X_{11}$  (i.e  $\beta_{11}$ ) in Equation (30) should be almost the same with the value of the coefficient of the same explanatory variable (i.e  $\beta_{12}$ ) in Equation (31). Therefore, what should differentiate Equation (30) and (31) should be the  $\tau_i$ . The size of the  $\tau_2$  in Equation (31), which represents higher order category of the physical health (moderately malnourished), should be bigger than the size of  $\tau_1$  in equation (30), which represents the lower order category of the physical health status (severely malnourished). Hence, the log odds ratio forms a sequence, from lower order

categories (outcome 1 versus outcome 2 and 3) to higher order category (outcome 1 and 2 versus outcome 3).

**5. Derivation of the Marginal Effects in an Ordered Logit Model**

Like other nonlinear models, the magnitude of the coefficients of an Ordered Logit model cannot be interpreted in its crude form, unless it is standardized. This is because it expresses the influence of each of the explanatory variable on the latent variable,  $y^*$ , not the observed discrete outcome variable (Long & Freese, 2006). Therefore, in order to get the effect of each one of the explanatory variables on the probability of a child being in any one of the physical health outcomes (outcomes 1, 2 and 3), the marginal effects is obtained as shown in Equations (11), (17) and (24). However, getting the marginal effects of Equations (11), (17) and (24) means that we obtain the first derivatives of the equations with respect to  $X_i$ . Recall that:

Equation (11) =  $\Pr(y_i = 1 | X_i) = \Phi(\tau_1 - X_i \beta)$ .

Equation (17) =  $\Pr(y_i = 2 | X_i) = \Phi(\tau_2 - X_i \beta) - \Phi(\tau_1 - X_i \beta)$

Equation (24) =  $\Pr(y_i = 3 | X_i) = 1 - \Phi(\tau_2 - X_i \beta)$

By inspection, Equation (11) is a product function. The first function is  $\Phi()$ , and the second is  $\tau_1 - X_i \beta$ . Therefore, the derivative of Equation (11) with respect to  $X_i$  (marginal effect) can be obtained using the Chain rule. The Chain rule requires that:

*The derivative of outside function be obtained, leaving the inside function alone and then multiply by the derivative of the inside function.*

The derivative of the outside function in Equation (11) is  $\Phi()^{1-1} = \Phi()^0 = \Phi(1) = \Phi$ . According to the rule, we leave the inside function alone, which means that we have  $\Phi(\tau_1 - X_i \beta)$  after differentiating the outside function, then we multiply by the derivative of the inside function again. The derivative of the inside function with respect to  $X_i$  is  $-\beta$ . Therefore, the derivative of Equation (11) with respect to  $X_i$  is given by Equation (32):

$$\frac{\partial \Pr(y_i = 1 | X_i)}{\partial X_i} = \phi(\tau_1 - X_i \beta) \times -\beta_i = -\beta_i [\phi(\tau_1 - X_i \beta)] \dots \dots \dots 32$$

Similarly, Equations (17) and (24) are also product functions. Therefore, in order to get the marginal effects of outcome 2 and 3, the derivatives of Equations (17) and (24) with respect to  $X_i$  were obtained, using Chain rule, as shown by Equations (33) through (36):

$$\frac{\partial \Pr(y_i = 2 | X_i)}{\partial X_i} = [\phi(\tau_2 - X_i \beta) \times -\beta] - [\phi(\tau_1 - X_i \beta) \times -\beta] \dots \dots \dots 33$$

$$\frac{\partial \Pr(y_i = 2 | X_i)}{\partial X_i} = \beta_i [\phi(\tau_2 - X_i \beta) - \phi(\tau_1 - X_i \beta)] \dots \dots \dots 34$$

$$\frac{\partial \Pr(y_i = 3 | X_i)}{\partial X_i} = -\phi(\tau_2 - X_i \beta) \times -\beta \dots \dots \dots 35$$

$$\frac{\partial \Pr(y_i = 3 | X_i)}{\partial X} = \beta_i \phi(\tau_2 - X_i \beta) \dots \dots \dots 36$$

It is noticed that in Equation (32), which is the marginal effect of each explanatory variable on the probability of a child being severely malnourished ( $y_i = 1 | X_i$ ), the sign of the beta outside the bracket ( $-\beta$ ) is opposite to the sign of the coefficient of  $X_i$  (i.e  $\beta$ ). The negative sign of the marginal effect of the lowest category also implies that a unit increase in the explanatory variable decreases the probability of a child belonging to the lower outcome (outcome 1) of the physical health. On the other hand, in Equation (36), which is the marginal effect of each explanatory variable on the probability of a child being adequately nourished ( $y_i = 3 | X_i$ ), it is observed that the sign of the beta outside the bracket ( $\beta$ ) is the same with the sign of the coefficient of  $X_i$  (i.e  $\beta$ ). This implies that a unit increase in the explanatory variable increases the probability of a child being in the highest category of the physical health. However, the signs of the betas of other outcomes, such as outcome 2 are ambiguous.

## 6. Practical Examples

Assuming that there is a model whose dependent variable is the children's physical health status (*phealth*), which has three categories that are ordered as 1, 2 and 3 for the severely malnourished, moderately malnourished and adequately nourished health, as in our previous example. Assuming also that the model has some set of predictors, which are: *cagiver2*, *cagiver3*, *ecgiver*, *lrem*, *phelthe*, *clction*, *age*, *gender*. Assuming we are to estimate this model using an Ordered Logit model in STATA, then the following command is typed in the command window:

```
ologit phealth cagiver2 cagiver3 ecgiver lrem phelthe clction age gender
```

The result in Table 1 is the output of the model (*ologit phealth cagiver2 cagiver3 ecgiver lrem phelthe clction age gender*). The output in Table 1 is a crude estimate of the model in the sense that it indicates the effects of each of the explanatory variables on the latent physical health of the children (as shown by Equation 4), not the observed physical health [i.e not the ones represented by Equations (11), (17) and (24)]. From the result in Table 1, it could be seen that since the dependent variable of the model has three outcomes ( $M = 3$ ), only two cutoff points (*cut1* and *cut2*) were estimated as shown by point (A) in Table 1. Therefore, the rule that  $\tau = M - 1$ , is observed.

Table 1:

```

Ordered logistic regression          Number of obs   =    1,127
                                   Wald chi2(9)     =    133.64
                                   Prob > chi2      =    0.0000
Log pseudolikelihood = -148.48986  Pseudo R2      =    0.4357

```

phealth	B Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
cagiver2	-4.639935	.5987202	-7.75	0.000	-5.813405	-3.466465
cagiver3	.3898169	.4499802	0.87	0.386	-.4921281	1.271762
ecgiver	.2099331	.0689098	3.05	0.002	.0748724	.3449938
lrem	1.706483	.6808263	2.51	0.012	.3720883	3.040878
phelthe	-5.133709	1.074398	-4.78	0.000	-7.23949	-3.027928
clction	-.0650005	.0881287	-0.74	0.461	-.2377295	.1077285
fincom	2.21e-06	.000049	0.05	0.964	-.0000939	.0000983
age	1.26122	.2460799	5.13	0.000	.7789123	1.743528
gender	-.4742114	.3500913	-1.35	0.176	-1.160378	.2119549
/cut1	21.49194	6.575963			8.603293	34.38059
/cut2	23.46994	6.632449			10.47058	36.4693

It is also shown in Table 1 that although the dependent variable of the model has three outcomes, each of the predictors has only one coefficient (e.g the coefficient of *cagiver2* is only -4.639935; *cagiver3* is only 0.3898169 and *ecgiver* is only 0.2099331). This implies that the coefficient of each of the predictors in the model is assumed to have the same effect on each of the three outcomes of the dependent variable of the model (Proportional Odds Assumption). The effects should only differ across the ranks of the outcomes by the magnitude of the size of the coefficient of the threshold parameters (i.e cutoff points), not by the size of the coefficients of the predictors themselves. However, in order to investigate whether this assumption holds, “brant” test is normally conducted (Brant, 1990). In order to carry out this test, “brant” command is typed in the command window of STATA immediately after *ologit* command, as follows:

```
ologit phealth cagiver2 cagiver3 ecgiver lrem phelthe clction age gender
```

```
brant
```

The result in Table 2 shows that the p-value of “All” (point D in Table 2) is not statistically significant (0.616), which implies that all the variables in the model are jointly not statistically significant. Therefore, it means that there is NO evidence of violation of the Proportional Odds assumption (Brant, 1990).

Table 2

Brant test of parallel regression assumption

	chi2	p>chi2	df
All	7.21	0.616	9
cagiver2	0.00	0.994	1
cagiver3	0.00	0.995	1
ecgiver	1.48	0.224	1
lrem	1.53	0.216	1
phelthe	-0.00	-999.000	1
clction	1.88	0.171	1
fincom	0.14	0.705	1
age	1.60	0.206	1
gender	0.03	0.854	1

A significant test statistic provides evidence that the parallel regression assumption has been violated.

Haven confirmed that the Proportional Odds assumption is not violated, it is ideal to estimate the marginal effect and find out the size of the effect of each of the predictors on the probability of having outcome 1, 2 and 3 of the children's physical health statuses by typing "*margins, dydx(\_all)*" command after *ologit* command in STATA command window, as follows:

```
ologit phealth cagiver2 cagiver3 ecgiver lrem phelthe clction fincom age gender
margins, dydx(_all)
```

The output of the above command is presented in Table 3. The coefficient of *cagiver2* for example, is 0.0432 under outcome 1 (severely malnourished); 0.09 under outcome 2 (moderately malnourished) and 0.133 under outcome 3 (adequately nourished). This means that, a one unit increase in *cagiver2* increases the probability of a child being in the severely malnourished health status by 4.32 percentage points (i.e  $0.0432 \times 100 = 4.32\%$ ); increases the child's likelihood of being in the moderately malnourished health by 9 percentage points (i.e  $0.09 \times 100 = 9\%$ ) and decrease their probability of being in the adequately nourished health category by 13.3 percentage points (i.e  $-0.133 \times 100 = -13.3\%$ ), all things being equal.

Table 3: Marginal effects of the Ordered Logit model of the children health status

Variables	(1) severely malnourished	(2) Moderately Malnourished	(3) Adequately nourished
cagiver2	0.0432*** (0.00527)	0.0900*** (0.0167)	-0.133*** (0.0187)
cagiver3	-0.00363 (0.00413)	-0.00756 (0.00900)	0.0112 (0.0131)
ecgiver	-0.00195*** (0.000668)	-0.00407*** (0.00143)	0.00603*** (0.00203)
lrem	-0.0159** (0.00652)	-0.0331** (0.0145)	0.0490** (0.0205)
phelthe	0.0478*** (0.0121)	0.0996*** (0.0232)	-0.147*** (0.0326)
clction	0.000605 (0.000817)	0.00126 (0.00175)	-0.00187 (0.00256)
fincom	-2.06e-08 (4.57e-07)	-4.28e-08 (9.51e-07)	6.34e-08 (1.41e-06)
age	-0.0117*** (0.00237)	-0.0245*** (0.00569)	0.0362*** (0.00735)
gender	0.00441 (0.00329)	0.00920 (0.00705)	-0.0136 (0.0103)

One thing that is worthy of note is that the sign of a particular coefficient under outcome 1 of the marginal effect (Column 1 of Table 3) is always opposite to the sign of the same coefficient of the crude estimate in Table 1, while the sign of the highest outcome (for instance, outcome 3 in Column 3 of Table 3) is always the same with the sign of the same coefficient in the crude estimate in Table 1. For example, the sign of *cagiver2* in Table 1 is negative ( $cagiver2 = -4.639935$ ) as shown by point (B) of Table 1, but in Column 1 of Table 3, the sign of *cagiver2* is positive (0.0432) as shown by point (E) of Table 3. However the sign of the same variable (*cagiver2*) is negative (-0.133) in the highest outcome (outcome 3 in Column 3 of Table 3) as shown by point (G) of Table 3. Similarly, the sign of *ecgiver* in Table 1 is positive ( $ecgiver = 0.2099331$ ) as shown by point (C) of Table 1, but in Column 1 of Table 3, the sign of *ecgiver* is negative (-0.00195) as shown by point (F) of Table 3. However the sign of the same variable (*ecgiver*) is positive (0.00603) in the highest outcome (outcome 3 in Column 3 of Table 3) as shown by point (H) of Table 3. These examples correspond to Equations (32) and (36) as explained in the derivation section.

## 7. Conclusion

This study has provided a detailed explanation and the derivational steps of the Ordered Logistic regression model, Proportional Odds assumption and the marginal effects in Ordered models. Practical example has also been provided in order to discern how the output of the model from STATA software tallies with the derivational steps discussed. The study thus sheds light on how the model works, thereby helping researches have better understanding of the output of the model when used in their studies.

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## **Sociological Perspective of the Roles and Impact of Nigeria Bank of Industry on Small and Medium Enterprises for National Developments**

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### **Abstract**

*This study seeks to assess the role and impact of Nigeria Bank of Industry towards the small and medium enterprises development in Kano Metropolis. The study used both the quantitative and qualitative method to collect and analyze data. The total of one hundred and ten (110) sample size of small and medium enterprises was selected for the study. The study found that small and medium entrepreneur plays significant role in the development of national economy. It also found that Bank of Industry play significant role in the development of small and medium entrepreneur. The study also discovered that small and medium entrepreneur utilizes effectively the services rendered by the bank of industry and importantly the Bank of Industry is not stringent in rendering assistance to the small and medium entrepreneur. It was recommended that Small and medium entrepreneurs should not take for granted the advantage given to them by the Bank of Industry and that they should utilize the opportunity given to them effectively and efficiently. It has also been recommended that since the nation has focused on the small and medium entrepreneurs as a mechanism through which to achieve industrialization, as such they should be monitored effectively in every of the steps of collection and utilization of the loans*

**Keywords:** Bank of Industry, Development, Small and Medium Entrepreneur

**JEL Classification:** A14

### **1. Introduction:**

It has been argued that for any nation, small and medium enterprises serve as bedrock for launching into a robust economy and transformation of traditional industry (Basil, 2005). History has shown that almost all the present day Grand Multinational Corporations began as either small or medium corporations (Basil, 2005). Primarily, the corporations' growths have been largely attributed to their creativeness of purpose



which can be seen in their reproduction of existing products more cheaply and improving their ability. Japan economy for example was dominated by traditional industries, cottage corporations and small scale firms (Kimino, Saal & Driffield 2007). The compositions of Japan economy was basically small and medium scale enterprises and the corporation were drawing their strength not from the enormous of capital in their disposal but rather from the application of labour (Ujunwa, 2005).

Considering the trend of the national economy much is expected from individuals in terms of provision of job opportunities; self subsistence in food; material production; foreign exchange earnings and production of raw materials (Ujunwa, 2005). It has also been stated that without the development of small and medium scale industries in Nigeria, the nation's desire for industrialization may remain forever at stake (Babajide, 2012). Small and medium scale enterprises have been seen as an important part of what enhances the attainment of meaningful economic development in a developing economy like Nigeria (Evelyn, 2012). In Nigeria, small and medium scale industries constitute large percentage of registered companies and they have been in existence for a very long period of time (Basil, 2005). The Bank of Industry was established with the primary aim of accelerating Nigeria industrialization. The Bank is charged with the responsibility of providing medium and long term finances by way of equity funding, loan and lease financing to small and medium scale enterprises and industrial project (Odey, 2018).

It has become paramount for individuals to contribute to national development and largely this contribution can best be attained through the small and medium enterprises. Small and medium enterprises have been seen as a means of achieving an effective transition from the traditional to the modern industrial sector (United Nation, 1984). Small and medium enterprises provide the basis for the development and growth of local industries. The responsibility of the Bank of Industry is to provide medium and long term finances to small and medium enterprises. This is for the purpose of adding value to local raw materials; generate job opportunity and have the potential for export.

The problems now are what roles does organization such as Bank of Industry played to sustain and maintained the small and medium entrepreneur and what roles do small and medium entrepreneur plays in the national development. If Bank of industry provides assistance to the small and medium enterprises how effective are the small and medium entrepreneurs utilizing the services rendered by the Bank of Industry? How stringent are the policies adopted by the Bank of Industry? This paper assessed the role of Bank of Industry in providing efficient financial resources and assistance to small and medium enterprises. This paper also vis as vis examined how effective the small and medium enterprises utilize the services rendered to them by the Bank of Industry.

## **2. Literature Review**

Small and medium scale enterprises have been defined in different ways by scholars. the Nigerian Bank for Commerce and Industry defined SME's as any company with asset (including working capital but excluding land) not exceeding ₦750,000 and aid employment up to 50 persons and the establishment must be wholly Nigerian owned (Ekhaton, 2002). The Central Bank of Nigeria Monetary Circular No. 25 of 1991 in Shittu (2016) defines small scale enterprises as one whose capital investment does not exceed five million naira (including land and working capital or whose turnover is not more than twenty-five million naira annually). The World Bank Document (Report No. 7114) of 1995 defined Small and Medium enterprise as one whose total fixed asset (excluding land) plus cost of investment do not exceed ten million naira in constant 1988 price and in micro enterprise as one with fixed asset (excluding land) plus cost of the investment prospect below four hundred thousand naira in constant 1988 prices. Onugu (2005) also literally defines small and medium scale enterprises as those with fixed cost of new investment excluding land but not exceeding ten million naira.

Elvidge, C. D., Sutton, P. C., Ghosh, T., Tuttle, B. T., Baugh, K. E., Bhaduri, B., & Bright, E. (2009) were of the view that Small and Medium scale business firms are characterized by the fact that Ownership and management are vested in the same or few individuals; they constitute a little and average quota in the large size market; capitals are made available by the owners and formulations of policies are in the hand of the individual or small groups of entrepreneurs and the owners are basically responsible for the purposeful and pragmatic decision making body on a day-to-day operational basis.

Small and Medium Scale Enterprises (SMSE) are found significantly in every part of Nigeria (Imoughele, 2014). International Finance Corporation study estimated the number of modern sector of Small and Medium scale enterprises in Nigeria at 90,000 in 1972 and 125,000 in 1983, which shows an average annual growth rate of 3.5 percent between 1972 and 1983 (Agwu, 2018). If this identified growth rate had been maintained since 1983, possibly the number of small and medium scale enterprises in Nigeria could have grown significantly. It has been noted that the bulk of the small and medium scale enterprises were food and basic metal industries which accounted for 40 percent and 16 percent respectively (Imoughele, 2014).

SME has been seen as any enterprise with a maximum asset base of N200 million, (excluding land and working capital); a labour size of between 10 and 200 employees; usually small, owner or family managed business offering basic goods and services; and tend to lack organizational and management structures (Aderemi, 2010). The definitions of Small and medium Scale Enterprises (SMSEs) therefore include number of employees, financial strength, sales value, initial capital outlay, relative size, independent ownership and the type of industry.

### *2.1 The Role of Small and Medium Enterprises in the Development of National Economy*

There are four prominent roles performed by SME's that have been identified and they are said to contribute to economic development, they are as follows: First, SMEs provide the training ground for the development and growth of indigenous entrepreneurs; secondly, SME's serve as the transformation of traditional industry which is a springboard for launching into a vibrant modern sector (Basil, 2005). Second, SMEs sector serve as a means of achieving a smooth transition from the traditional to the modern industrial sector (Onugu, 2005). Thirdly, SMEs involve a labour intensity and the utilization of low-level technology for its operation (Imoughele, 2014). Fourth, SMEs have also been described as having the ability to utilize little and available financial resources, which may be idle and untapped by formal organization. Importantly, also the size and scale of their operation which required unsophisticated management, SMEs enhance the conservation of foreign exchange (Mordi, 2002). In a bid to reduce poverty, government encourages economic growth and development by creating conducive environment for the operation of small and medium scale enterprises (Babajide, 2012).

The development of small and medium scale enterprises have been described as an instrument that can be used to generate sustainable development (Aderemi, 2010). It has been noted that small and medium enterprises' roles include employment generation; enhancement of local technology; skill acquisition, output growth and stemming of rural-urban migration (Agwu, 2018). The roles of SME's are said to manifest in various ways and some of them include enhancement of capacity building which serve as an avenue to entrepreneur training; creation of employment opportunities because of the fact that they are characterized by labour intensive operations; serve as major agents for the distribution of the final product of industries; provision of opportunities for the development of local skills and technology acquisition through adaptation and serve as agent of industrial spread and rural development since they survive in less sophisticated industrial infrastructure (Imoughele, 2014).

### *2.2 Assessing the Roles Played by Bank of Industry in the Development of Small and Medium Scale Enterprises*

All over the world, SME's have been described as the most common types of enterprises (Gibb, 1996). In Nigeria, the SMEs have through BOI assisted a lot of entrepreneurs and have created a lot of jobs (Nnanna, 2001). This bank is a product of the merging of federal government financial institutions that saddled with the responsibilities of promoting small and medium enterprises as well as poverty alleviation for the development of a country. Thus, the Nigerian Bank for Commerce and Industry (NBCI), the Nigerian Industrial Development Bank (NIDB), the National Economic Reconstruction were merged to form the Bank of Industry with an initial capital base of ₦50 billion (Ogechukwu, 2006). It is the responsibility of the bank of

industry to promote industrial development through the SME's (Berger, Demirgüç-Kunt, Levine & Haubrich, 2004).

The greatest challenges with the SME, however, have been the fact that many are lagging behind as regard the knowledge of Information Technology (IT) and some other skills that constrained their potentiality for creativity, process improvement, innovation etc (Verona & Ravasi, 2003).

### *2.3 Challenges of Small and Medium Enterprises in Accessing Funds from the Bank of Industry*

The problem of small and medium enterprises is not only the avenue of sourcing funds but importantly accessing the funds (Babajide, 2012). This implied that sometimes there are bureaucratic issues that make assessment of funds difficult. In another argument Mordi (2002), stated that funding should not be seen as a major problem of small and medium scale enterprises. The study further noted that many of the small and medium scale enterprises are not able to differentiate between the owner of the enterprises and the enterprises. A lot of small and medium enterprises managers operate without a particular form of financial accountability and they don't have the knowledge of seeking for equity participation that may uplift the organization to greater heights (Mordi, 2002). That is to say that the problems of SMEs are not limited to the fact that the bank of industry is not willing to assist but also the problem of limited knowledge on the part of those who are suppose to benefit from the bank of industry.

### *2.4 Theoretical Framework Adopted for the Study*

Several theories have been propounded explaining the role of an organization in a society; for the purpose of this study which is Bank of Industry, Durkheim system theory in Gidden (1979) was employed to explain the role of bank of industry as an organization in Nigeria as a society. The theory was propounded by Emile Durkheim in 19<sup>th</sup> century but has been re-employed by several sociologists in various forms

System theory has been described as theoretical perspective that conceptualized organization as comprising various parts and each part contributes to the entire whole for its survival. Changes in any of the contribution will affect the entire whole. This implied that a change in the contribution of an organization to the economic development of a nation will invariably affect other part of the society. The expectation of every stakeholder is that Bank of Industry will contribute to the economic development of a nation, however, because of some factors, Bank of Industry may not be performing to its expectation, as a result of which Bank of Industry will fail to meet the expectation. The positive contribution which Bank of Industry is to be making in its own part to the entire economy of the society will not be there. That implied that system emphasized the need for the contribution of every part to the entire whole.

### **3. Methodology**

The study employed the use of questionnaires for the quantitative and in-depth interview for the qualitative. This study focuses on one hundred and ten (110) selected small and medium enterprises in Kano Metropolis. It employed the use of simple random sampling for the quantitative method and purposive sampling for the qualitative method. The questionnaire was designed on 4-points modified likert scale of: Strongly Disagree; Disagree; Agree and Strongly Agree. The purpose is to compare various opinions of the respondents. The researcher confirmed the validity of the instrument before it was used. The reliability was also examined with Cronbach Alpha technique and it gives reliability coefficients of 0.85 which showed that the questionnaire was reliable. Importantly, also, t-test was employed to measure the significant relationship between the variables.

#### *3.1 Method of Data Analysis*

There are other methods that may be used to analyze the data, however, for the purpose of this study, SPSS (Statistical Packages for Social Sciences) was employed to analyze and process the information obtained from the quantitative data and t-test was employed to examine the significant impact of the variables. Nvivo-10 was utilized in the coding and transcription of the information obtained from In-depth interview.

### **4. Data Analysis and Results**

#### *4.1 Results*

One hundred and ten (110) questionnaires were administered to the selected respondents and they were returned one hundred percent (100%). The respondents were selected small and medium enterprises in Kano Metropolis. The information shows that the selected populations have composition of both male and female. The data show that there are various categories of people who are involved in the small and medium scale entrepreneur. The respondents have not necessarily benefited from the Bank of Industry, but they are also composition of SMEs.

Table 1 present respondents' view on whether small and medium enterprises contribute to the national development, 54.5% strongly agreed; 27.3% agreed; 7.3% strongly disagreed and 10.9% disagreed. The data show that majority of the respondents were of the view that small and medium enterprises contribute to the national development.

On whether with the help from the bank of industry small and medium scale entrepreneur will contribute better to the national development 45.5% strongly agreed; 36.4% agreed; 8.2% strongly disagreed and 10.0% disagreed. This shows that majority of the respondents were of the view that with the help from the Bank of Industry small and medium scale entrepreneur will contribute better to the national development.

Table 1: Examining the roles of small and medium enterprises in the development of national economy

Responses	Strongly Agree	Agree	Disagree	Strongly Disagree	Total
Are you of the opinion that small and medium enterprises contribute to the national development?	60 (54.5%)	30 (27.3%)	12 (10.9%)	08 (7.3%)	110 (100%)
Do you agree that with the help from the bank of industry small and medium scale entrepreneur will contribute better to the national development?	50 (45.5%)	40 (36.4%)	11 (10%)	09 (8.2%)	110 (100%)
Do you agree that small and medium scale enterprises will develop national economy further if they are given more assistance from some other organizations?	55 (50.0%)	40 (36.4%)	09 (8.2%)	06 (10.0%)	110 (100%)

Source: Field Survey (2018)

In terms of whether small and medium scale enterprises will develop national economy further if they are given more assistance from some other organizations, 50.0% strongly agreed; 36.4% agreed; 10.0% strongly disagreed and 8.2% disagreed. The data show that majority are of the view that small and medium scale enterprises will develop national economy further if they are given more assistance from some other organizations.

The above data show that small and medium entrepreneur contribute to the national economy and importantly, with the help from Bank of industry small and medium will further contribute better to the national economy. It also shows that if other organization apart from the Bank of industry gives help to the small and medium entrepreneur they will contribute more to the national economy.

The following responses from the qualitative research also support the above quantitative data:

*The contribution of small and medium entrepreneur to the national economy and development cannot be over emphasized. Many times, it can be seen that they have been serving as the drive to many of the technological development. That is the more reason why the Bank of industry should give assistance to them.*

*Bank of industry cab further encourage the small and medium entrepreneur since they have been contributing to the development of the national economy.*

The above responses show that to large extent any assistance from the Bank of industry will enhance the development of small and medium entrepreneur.

Table 2: Assessing the roles played by Bank of Industry in the development of small and medium scale enterprises.

Responses	Strongly Agree	Agree	Disagree	Strongly Disagree	Total
Bank of industry have being playing major role in the development of small and medium scale enterprises?	30 (27.3%)	35 (31.8%)	15 (13.6%)	30 (27.3%)	110 (100%)
Small and medium enterprise may not be very productive without assistance from an organization like bank of industry?	35 (31.8%)	30 (27.3%)	25 (22.7%)	20 (18.2%)	110 (100%)
Some of the reason why small and medium scale enterprises are doing well is the assistance they get from the bank of industry?	35 (31.8%)	25 (22.7%)	25 (22.7%)	20 (18.2%)	110 (100%)

Source: Field Survey (2018)

Table 2 shows respondents' view on whether Bank of industry have being playing major role in the development of small and medium scale enterprises. 30.0% strongly agreed; 31.8% agreed; 27.3% strongly disagreed and 13.6% disagreed. This shows that there are no unanimous agreements that Bank of Industry contributes to the development of small and medium entrepreneur. This implied that while some agreed some disagreed that Bank of Industry contributes to the development of small and medium entrepreneur.

On whether small and medium enterprise may not be very productive without assistance from an organization like Bank of Industry, 31.8% strongly agreed; 27.3% agreed; 18.2% strongly disagreed and 22.7% disagreed. The data shows that some are of the view that Bank of Industry is very indispensable some are also of the same view that they are not too indispensable.

In term of whether some of the reason's why small and medium scale enterprises are doing well is the assistance they get from the bank of industry, 31.8% strongly agreed; 22.7% agreed; 18.2% strongly disagreed and 22.7% disagreed. This data also shows

that some are of the view that Bank of industry is very indispensable some are also of the same view that they are not too indispensable.

The data above show that Bank of Industry is very vital for the development of small and medium entrepreneur. It show that however, there are mixed reaction as some disagree with the view that the Bank contribution to the development of small and medium entrepreneur. Some were also of the view that the contribution of Bank of Industry is not necessarily the determinant of productivity of small and medium entrepreneur.

The response from the in depth interview shows the followings:

*Bank of industry contribute to the development of small and medium entrepreneurs, however, their contribution is not necessarily the determinant of their success.*

The above data show how Bank of Industry has contributed to the development of small and medium entrepreneur

Table 3: How effective the small and medium enterprises utilized the service rendered by the Bank of Industry

Responses	Strongly Agree	Agree	Disagree	Strongly Disagree	Total
Small and medium entrepreneur utilizes the services rendered by the Bank of industry effectively?	55 (50.0%)	40 (36.4%)	10 (9.1%)	05 (4.5%)	110 (100%)
Small and medium entrepreneur have considerably developed their businesses as a result of the benefit they enjoyed from the Bank of industry?	45 (40.9%)	35 (31.8%)	10 (9.1%)	20 (18.2%)	110 (100%)
Small and medium entrepreneur usually report back to the Bank of industry irrespective of whether the service rendered to them was helpful or not?	40 (36.4%)	33 (30.0%)	19 (17.3%)	18 (16.3%)	110 (100%)

Source: Field Survey (2018)

Table 3 shows respondents' view on how effective the small and medium enterprises utilized the service rendered by the Bank of Industry, 50.0% strongly agreed; 36.4%



agreed; 4.5% strongly disagreed and 18.2% disagreed on the effective use of the services rendered by the Bank of Industry. This shows that majority of the respondents were of the view that the small and medium enterprises utilized the service rendered by the Bank of Industry effectively.

On the issue of whether Small and medium entrepreneur have considerably developed their businesses as a result of the benefit they enjoyed from the Bank of industry 40.9% strongly agreed; 31.8% agreed; 18.2% strongly disagreed and 9.1% disagreed. These show that vast number of the respondents were of the view that Small and medium entrepreneurs have considerably developed their businesses as a result of the benefit they enjoyed from the Bank of Industry.

In terms of whether the Small and medium entrepreneur have used the opportunity to seek for assistance whenever they are in need from the Bank of Industry to develop their businesses, 45.5% strongly agreed; 27.3% agreed; 13.6% strongly disagreed and 13.6% disagreed.. This shows that many of the respondents were of the view that the Small and medium entrepreneur have used the opportunity to seek for assistance whenever they are in need from the Bank of Industry to develop their businesses

On the issue of whether Small and medium entrepreneur usually report back to the Bank of Industry whatever the outcome of the service rendered to them 36.4% strongly agreed; 30.0% agreed; 16.3% strongly disagreed and 17.3% disagreed. This shows that many of the respondents were of the view that the small and medium entrepreneurs usually report back to the Bank of Industry the outcome of the service rendered to them.

The data above shows how effective the small and medium enterprises utilized the service rendered by the Bank of Industry, it shows that small and medium entrepreneur have considerably developed their businesses as a result of the benefit they enjoyed from the Bank of Industry; it also shows that the Small and medium entrepreneur have used the opportunity to seek for assistance whenever they are in need from the Bank of Industry to develop their businesses and it revealed that Small and medium entrepreneur usually report back to the Bank of Industry whatever the outcome of the service rendered to them.

Table 4 shows respondents' view on whether the policies adopted by the Bank of Industry before rendering assistance to the small and medium entrepreneur are not too stringent 31.8% strongly agreed; 27.3% agreed; 22.7% strongly disagreed and 18.2% disagreed. This shows that the policies adopted by the Bank of Industry before rendering assistance to the small and medium entrepreneur are not too stringent.

On whether Bank of industry shows some bias or sentiment before rendering assistance to the small and medium entrepreneur, 43.8% strongly agreed; 35.9% agreed; 7.8% strongly disagreed and 12.5% disagreed. The data show that majority are of the view that Bank of Industry shows some bias or sentiment before rendering assistance to the small and medium entrepreneur.

Table 4: How small and medium enterprises coped with the policies adopted by the Bank of Industry

Responses	Strongly Agree	Agree	Disagree	Strongly Disagree	Total
The policies adopted by the Bank of Industry before rendering assistance to the small and medium entrepreneur are not too stringent?	35 (31.8%)	30 (27.3%)	20 (18.2%)	25 (22.7%)	110 (100%)
Bank of industry shows some bias or sentiment before rendering assistance to the small and medium entrepreneur?	37 (43.8%)	36 (35.9%)	20 (12.5%)	17 (7.8%)	110 (100%)
The condition given by the Bank of industry before given loan to the small and medium entrepreneur is not too difficult to attain?	40 (36.4%)	33 (30.0%)	19 (16.3%)	18 (17.3%)	110 (100%)

Source: Field Survey (2018)

In term of whether Small and medium entrepreneur usually find it easy to access loan, if they have fulfilled the requirements, 17.3% strongly agreed; 21.8% agreed; 34.5% strongly disagreed and 26.4% disagreed. This data shows small and medium entrepreneur usually find it easy to access loan

On whether the condition given by the Bank of Industry before given loan to the small and medium entrepreneur is not too difficult to attained, 36.4% strongly agreed; 30.0% agreed; 16.3% strongly disagreed and 17.3% disagreed. The data implied that the conditions are not too difficult to attained

The data above show that the policies adopted by the Bank of Industry before rendering assistance to the small and medium entrepreneur are not too stringent, it shows that Bank of Industry shows some bias or sentiment before rendering assistance to the small and medium entrepreneur and this might be as a result of some certain rules which must be strictly adhered to. It also shows that small and medium entrepreneur usually find it easy to access loan if they have fulfilled the necessary requirement. Finally the data revealed that the condition given by the Bank of Industry before given loan to the small and medium entrepreneur is not too difficult to attained

The response from the in depth interview also shows the followings:

*Bank of industry contribute to the development of small and medium entrepreneurs, however, small and medium entrepreneur must show the dedication and commitment before they will give the necessary assistance.*

*Bank of industry gives conditions that are very lenient when it has to do with given loan and assistance. However, small and medium entrepreneur must be able to fulfill the requirements before any assistance is rendered.*

The responses above corroborate the information from the quantitative data

#### *4.2 Discussion of Findings*

This section highlighted the findings of the study. Basically, the study seeks to examine the Nigeria Bank of Industry: The roles and its impact on small and medium enterprises developments.

The summary of  $t$  – test result indicates that small and medium enterprises played significant role in the development of national economy. The coefficient of  $t$  – test of 2.864 with degree of freedom of 7 is significant at 5% level of significant. It found that with the help from the bank of industry, small and medium scale entrepreneur will contribute better to the development of national economy. It discovered that small and medium scale enterprises will develop national economy further if they are given more assistance from some other organizations. This is consistent with the findings of Mordi (2000), Babajide (2012) and Basil (2005).

The summary of  $t$  – test result signified that Bank of Industry played significant role in the development of small and medium scale enterprises. The coefficient of  $t$  – test of 3.258 with degree of freedom of 7 is significant at 5% level. It indicated that Small and medium enterprise may not be very productive without assistance from an organization like Bank of Industry. The result of the study also indicated that the reason why some small and medium scale enterprises are doing well is the assistance they get from the bank of industry. These are in consistence with the findings of Nnanna (2001) and Obitayo (2001).

The study also shows that small and medium entrepreneurs utilize the services rendered by the Bank of Industry effectively and that small and medium entrepreneurs have considerably developed their businesses as a result of the benefit they enjoyed from the Bank of Industry. This is also in consistence with the findings of Babajide (2012) and Obitayo (2001).

The study also found that the policies adopted by the Bank of Industry before rendering assistance to the small and medium entrepreneur are not too stringent. The study, however, shows that Bank of Industry shows some bias or sentiment before rendering assistance to the small and medium entrepreneur. This may be as a result of the fact that Bank of Industry has some prerequisite to fulfill before any one is given

loan or any form assistance. The study further indicates that small and medium entrepreneurs usually find it easy to access loan, if they have fulfilled the requirements. This is consistent with the findings of Babajide (2012) and Mordi (2002)

### **5. Conclusion and Recommendations**

It is worthwhile to conclude this study by basically identifying the fact that Bank of Industry played significant roles on the developments of small and medium enterprises. This implied that small and medium enterprises contributed significantly to the national development through the contributions made to them by the Bank of Industry. This is not to say that there are no short falls on the part of the Bank of Industry and the small and medium enterprises. It is on this note that the following recommendations are given: Small and medium entrepreneurs should not take for granted the advantage given to them by the Bank of Industry. They should utilize the opportunity effectively and efficiently. Bank of Industry is an organization established to serve the purpose of helping the growth of small and medium enterprises as such the process and procedures for accessing loan or assistance should be friendly to the small and medium entrepreneurs. Accessibility of loan to small and medium entrepreneurs should be major priority of the Bank of Industry. Since the nation has focused on the small and medium entrepreneur as a mechanism through which to achieve industrialization, they should be monitored effectively in every of the steps of collection and utilization of the loans.

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## **Evaluation of the Effects of National Poverty Eradication Programme (NAPEP) on the Wellbeing of Rural Dwellers in Niger State**

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### **Abstract**

*This paper is a genuine effort to evaluate the effects of National Poverty Eradication Programme (NAPEP) on the wellbeing of the rural dwellers in Niger State. It focuses on rural infrastructures and rural economic development. Data for the study were generated from both primary and secondary sources using the instruments of questionnaire interview and observation. A sample of 150 respondents was selected from the target population in Lavun, Shiroro and Agwara Local Government using simple random sampling techniques. The study revealed that NAPEP has not developed rural infrastructures, has not economically benefited the rural populace and its activities and interventions excluded the rural poor and concluded that NAPEP has not enhanced the wellbeing of the rural dwellers it was therefore recommended that the rural poor should be involved in the activates of NAPEP; Agencies and ministries with poverty alleviation objective should collaborate with NAPEP in providing rural infrastructures. Also, credit facilities should be given to the rural populace to enhance their economic wellbeing.*

**Keywords:** NAPEP, Poverty, Rural Infrastructure, Rural Economic Development, Wellbeing.

**JEL Classification:** I32

### **1. Introduction**

Poverty stirs a lot of misgiving and has a devastating influence on its victims by reducing their social and psychological prestige. Indeed the wave of poverty, economic backwardness; dearth of infrastructure, health problems, unemployment; and natural disaster in rural and urban areas have aggravated the problems of rural dwellers around the world. Consequently, one of the major issues in development is how to tackle rural poverty. Rural areas present problems that are paradoxical of its natural resource endowment. The inhabitants tend to live at the margin of existence and opportunities as most rural communities lack portable water, electricity, healthcare, educational and recreational facilities and motor able roads.

Attempts to put rural areas on the course of development in Nigeria over the past decades have not yielded much impact. Conditions have continued to worsen and poverty has become a major issue in the rural areas inspite of their potentials in agricultural productivity. A common thread that runs through the various perceptions of “poverty” connotes material and non-material deprivation and lack of control over resources to meet essential needs. If the incidence of poverty runs counter to the development aspiration, its alleviation or eradication becomes a worth-while endeavor in any socio-economic system irrespective of ideology and structural/organizational nomenclature (Sadiya, 2013). Poverty alleviation has become a prime focus of economic policy, policy research, and analysis and development management. The need becomes particularly compelling in developing countries where poverty is most dehumanizing (Obadan et al., 2003).

A number of government programmes have been put in place to improve basic services. Such programme includes Better Life for Rural Women, Directorate for Food, Roads and Rural Infrastructures; Operation Feed the Nation; Family Support Programme; Family Economic and Vicegerent Programme, Poverty Allivation Programme to mention just a few. All these programmes put together are meant to provide a catalytic impetus for the take-off and subsequent advancement of the rural areas towards: Linking item to national economic system increasing rural household income and providing basic socio-economic and physical infrastructure thereby contributing to the wellbeing of the rural dwellers

In looking at poverty in Nigeria, according to the Federal Office of Statistics, incidence of poverty in Nigeria in 1960 was about 15 percent but between 1980 and 1985 and between 1992 and 1996, it increased sharply. In 1980 it had grown to 28 percent and by 1985 the extent of poverty was about 46 percent although it dropped to 43 percent in 1992. However by 1996, poverty incidence in the country was 66 percent or 76.6 million Nigerians out of a population of 110 million. Again, in 2004 it fluctuate to 54.4% and by 2012 it was 72.6% (Mohammed, 2014)

These alarming indicators prompted the Obasanjo administration to review the existing poverty alleviation schemes with a view to harmonizing them and improving on them. To facilitate this need, all poverty eradication institutions and programmes were streamlined and rationalized and a comprehensive structure for coordinating and monitoring the activities of the core poverty eradication ministries and agencies was established. This structure as approved by the Federal Executive Council (FEC) is the National Poverty Eradication Programme (NAPEP). The justification for this study emanate from the fact that inspite of the existence of poverty alleviation programmes instituted by various governments in Nigeria NAPEP inclusive, poverty incidence is still high hence the paper investigates and assesses the effect of NAPEP on the wellbeing of the rural dwellers of Niger State.

The problem investigated in the study revolves around the fact that in spite of the existence of all the institutional mechanisms and funds availability; does NAPEP



improve the wellbeing of the rural dwellers in Niger State? This raised pertinent questions as to what extent does the infrastructure component of NAPEP improved wellbeing of the rural dwellers. And also to what extent does the economic activities component of NAPEP also improved the wellbeing of the rural dwellers as well as what factors inhibit the success of NAPEP in enhancing the wellbeing of the rural dwellers.

Centrally, the objectives of the study are to examine the effects of NAPEP's activities on the wellbeing of the rural dwellers. However; the specific objectives of the study include: to determine the extent to which infrastructure component of NAPEP improved the wellbeing of the rural dwellers, to find out the extent to which economic activities of NAPEP improve the wellbeing of the rural dwellers and examine the factors inhibiting the success of NAPEP in enhancing the wellbeing of the rural dwellers. Although various researches were conducted on the impact of NAPEP such as Asaju (2011), Muhammad (2009) Isah (2008) and Lawal (2013). This study is unique for its emphasis on rural dwellers. The study is significant to policy makers' development partners, researchers and the public. It also covers the time frame 2004-2014 and limited to Lavun, Shiroro and Agwara local government areas of Niger State. It also covered infrastructure and economic component of NAPEP. This paper is divided into four sections, section one is the introduction, section two contains conceptual and theoretical framework, section three contains discussions of result and findings while section four concludes the paper with policy recommendation.

## **2. Literature Review**

Theoretical framework of the study is derived from the work of Rensts Likert, (1972) Linking – pin-model which to a large extent depicts representation and participation in an organization. The model is based on the principle of supportive relationship whereby it is assumed that every thought and action by any member of the organization is done with a view that it is meant for the benefit of the whole organization or system. According to Rensis Linkert Liking pin-model, party's patrory decision making procedure in planning and implementing activities or programme in a society promotes coordination. He is of the view that the government structure would consist of linking pin model of people in groups and not of individuals. Vertical and horizontal relationship is assured to be the order of relationship, which will invariably promote blending or mashing of activities of the organization into a harmonious whole.

Furthermore, according to this model the national coordinating body of NAPEP links-up vertically with the other federal ministries and agencies; hereby the state government on the other hand links-up with the people at local government level. This is to promote overlapping relationship between the national implementing body, federal ministries, state governments, local governments, and the people at the local level. Linking-pin theory is relevant to, this research as the theoretical framework for the fact that effective administration of NAPEP requires inter-twine correlation ship

among the implementation officers, the staff, various institutions of NAPEP and other relevant public and private organizations that complement the programme.

Poverty connotes many things i.e. lack of material well-being, insecurity, low self-confidence, psychological distress, unpredictability, lack of freedom of choice and action and inability to believe in one self (Narayan 2000). Poverty can either be absolute or relative or both (Sanyal, 1991; Schubert, 1994). Poverty is said to be absolute when people fall below the level of income that is necessary for bare subsistence, while relative poverty relates to the living standards that prevail elsewhere in the community in which they live.

Poverty measurements attempt to identify those who are poor. The most frequently used measurements are (i) the head count poverty index given by the percentage of the population that live in the household with a per capital, consumption below the poverty line (ii) poverty gap index which reflects how far the average poor persons income diverge from the poverty line, and (iii) the squared poverty gap which shows the means of the squared proportion rate squared poverty gap which reflects the severity of poverty (see Grouter and Braithwaite 1998).

The UNDP has recently advocated the use of Human Development Index (HDI) and Capacity Poverty Measure (CPM). Human Development Index entails the combination of three elements in the measures of poverty. This includes life expectancy at birth (Longevity); educational attainment; and improvement in standard of living, proxy by per capita income. Whereas, capacity poverty measure focuses on the percentage of the people who lack basic or minimally essential human abilities needed to jump start one form income poverty to a sustainable human development.

There are factors that cause poverty. These factors include structural causes such as limited resources, location disadvantage, lack of skills and other factors that are inherent in the social and political set-up (Yahie 1993). Other factors are transitional factors that are mainly due to structural adjustment reforms and changes in domestic economic policies that may result in price changes, unemployment and so on. In addition, transition poverty can be caused by environmental degradation, natural calamities such as drought, flood and man-made disasters such as wars.

The main factors that cause poverty in Sub-Saharan Africa include: inadequate access to employment opportunities, inadequate physical assets, such as land and capital and minimal access to credit by the poor (See Obadan 1997, World Bank 1996). Other causes include inadequate access to markets where the poor can sell their goods and services; low endowment of human capital; inadequate access to assistance for those living at the margin, and those victimized by transitory poverty and lack of participation, that is to draw the poor into design of development programmes that affect their lives.

Urbanization is also identified as one of the causes of poverty. Poverty in most urban cities can be linked to the inner urban decay caused by prevalence of poor urban

public facilities as most infrastructure assets have been allowed to run down through lack of maintenance and investment. Consequence of poverty can be deep and widespread; Hauff and Kruse (1994) highlighted three major consequences, which include consequences for the people affected leading to physical and psychological misery. Then, there is consequences for the national economics of countries affected which arise from the formation of slums in cities, and finally Consequences for the political and social development of the countries affected leading to mass poverty.

Social development is concerned with the transformation of society in its totality, making human the focus of the development effort and seeking to develop its potentialities in a total sense. More specifically, it aims ultimately at the maximum improvement of the material, cultural, social and political aspects. Social development embraces programmes and activities, which enhance the capacities of members of society to fulfill existing and changing social Soles expectations and accomplish their various personal goals. It entails the democratization of the development process and the orientation of development effort to the needs and interest of the masses. It ensures equitable sharing in the benefits and burdens of development, the recovery of self-confidence and delineation (ACARTSD, 1980).

More concretely, social development involves comprehensive human resources development; raising living standards and quality of life, improving health and human welfare, ensuring social justice and equality, and providing adequate social security for all segments of the population (ECA, 1985). Unfortunately, Africa lacks behind in terms of social development. Families and individuals in absolute poverty are found in Sub-Sahara Africa and the greatest concentration are in the least developed countries of Africa. Economic development on the other hand entails economic improvement; it includes advancing technology to increase the productivity of labour. It involves the complete modernization of peasant society into an industrial one. Social and economic development is therefore a multidimensional process involving changes in structures, attitudes and institutions as well as the acceleration of economic growth, the reduction of inequality and the eradication of absolute poverty. It is change and advancement. It implies progress and economic advancement. It involves raising people's income and consumptions levels through relevant economic growth process (Tadoro, 1977; Mohammed, 1991).

In addition, in recognition of several factors which had crippled the past policy efforts at poverty alleviation in Nigeria such as inadequate involvement of stakeholders, poor management and implementation arrangements among others, NAPEP was equally created and made to incorporate all the stakeholders namely, the federal, state, local government, civil society research institutions, organized private sectors and concerned individuals (Okoye and Onykwu, 2007). The overall objectives of the programme were to eradicate extreme poverty in Nigeria through monitoring and coordination of all poverty eradication efforts. Furthermore, these tasks were to be

actualized through the established National Poverty Eradication Council (NAPEC) (Okoye and Onyukwu, 2007).

The mandate of NAPEP is to monitor and coordinate all poverty eradication efforts in order to harmonize and ensure better delivery, maximum impact and effective utilization of available resources (Okoye and Onyukwu 2007). In order to ensure effective poverty eradication, the government arranged NAPEP into four schemes. These include Youth Empowerment Scheme (YES) which deals with capacity acquisition, mandatory attachment, productivity improvement, credit delivery, technology development and enterprise promotion. There is also Rural Infrastructure Development Scheme (RIDS), which entails that the equality has to do with the provision of portable and irrigation water transport (rural and urban), rural energy and power supply.

Others include Social Welfare Services Scheme (SOWESS) which deals with intervention in special education, primary health care services, establishment and maintenance of recreational centers, public awareness facilities, youth and student hostels, development, environmental protection facilities, food security, provision of agricultural input, provision of micro and macro credits delivery, rural telecommunication facilities, provision of mass transit and maintenance culture. The last is National Resources Development and Conservation Scheme (NRDCS) which also deals with the harnessing of agriculture, water, solid minerals resources, conservation of land and space particularly for the convenient and effective utilization by small scale operators and the immediate community (Okoye and Onyukwu, 2007).

Apart from the above, NAPEP also has an organizational structure. At the top of the scheme is the National Poverty Eradication Council (NAPEC). It coordinates all poverty all poverty reduction related activities and also ensures that the activities involved are centrally planned and coordinated in ways that make them complement one another. In terms of institutional structure, NAPEP data and information flow upwards from the local government level to the state coordinating committee and up to national coordination committee. (Okoye and Onyukwu, 2007; Nwanolue and Iwuoha, 2012).

### **3. Methodology**

The study adopted the survey research design as well as generation of data from both primary and secondary sources. Three methods of data collection was utilized namely observation, interview and questionnaire. The target population for the study consists of NAPEP beneficiaries and members of the local government monitoring committee from the three selected local governments. The total population is seven hundred and fifty (750), a sample parameter of 20% was used to determine the sample of one hundred and fifty (150) using purposeful and simple random sampling techniques. Data was analyzed using both descriptive and inferential statistics. Frequently tables, simple percentages were the descriptive tools while the Chi-square statistics was the inferential tool employed.

#### 4. Data Presentation, Discussion of Results and Findings

##### 4.1 Administration of Instrument/Demographic Characteristics of Respondents

A total of one hundred and fifty (150) questionnaires were administered to the respondents, out of which one hundred and twenty (120) questionnaires were returned given a rate of returns of 80%. Out of the one hundred and twenty questionnaires returned; only one hundred (100) questionnaires were duly completed given a validity rate of 67%. The analysis of data is based on 100 respondents.

The demographic data of respondents were presented on table 4.1 below:

Table 4.1 Demographic profile of Respondents

S/No	Variables	No. of Respondents	Percentage
1	Gender		
	Male	60	60%
	Female	40	40%
	Total	100	100%
2	Age		
	Less than 21 years	10	10%
	21-30years	30	30%
	31-40 years	40	40%
	41-50years	15	15%
	Total	100	100%
3	Marital Status		
	Single	35	35%
	Married	50	50%
	Divorced	10	10%
	Separated	5	5%
	Total	100	100%
	Highest Educational		
	FSLC	20	20%

S/No	Variables	No. of Respondents	Percentage
	SSCE	35	35%
	NCE/OND	30	30%
	University Agree	15	15%
	Total	100	100%

Source: Survey Research 2017

From table 4.1 above, 60 respondents representing 60% are male, 40 are female representing 40% also, majority of respondents about 70 representing 70% are within the age 21-40years also, 50respondents representing 50% are married and 35 are singled 20 representing 35%, 20 respondents representing 20% have primary education, 35 respondents representing 35% have secondary education, 45 respondents representing 35% have post-secondary education. The analysis above indicate that the respondents cut across all sexes, are within active years and are enlightened to understood the importance of government programmes.

#### 4.2 Index of Poverty in Niger State

It is expected that NAPEP intervention will improve the wellbeing of the rural dwellers in Niger State by reducing poverty. Data obtained from National Bureau of Statistics indicated that in 1996 when NAPEP was not established the incidence of poverty is 52.9. it is expected that when NAPEP was established in 2001 it is expected that poverty incidence should below, but observation shows that in 2002, the incidence of poverty in Niger State is 34.0, in 2004 it was increased to 63.90, 2006, the incidence is 61.4, in 2008 it was 29.9. in 2010 and 2012, the incidence of poverty in Niger State stood at 52.9 and 63.90 respectively. This analysis means that poverty level before and after NAPEP establishment has no improvement, rather it even deteriorated meaning that the wellbeing of the rural dwellers was not addressed.

#### 4.3 NAPEP and Wellbeing of the Rural Dwellers

Four issues were discussed below to evaluate the relationship between NAPEP and wellbeing of the rural dwellers in Niger State. This includes, NAPEP interventions/activities rural infrastructures, economic empowerment, success factors and solutions.

##### 4.3.1 NAPEP activities/interventions

From above table, 50 respondents representing 50% attested that NAPEP activities and programme are not well known to the rural people, 60 respondents representing 60% further reconfirmed that the rural people are not involved. Also 70 respondents representing 70% claimed that the youth empowerment interventions did not address the problem of the rural people and also 68% opined that rural infrastructure development intervention has not infected positively on the rural area. On the whole,

as high as 80 respondents representing 80% believed that NAPEP activities and interventions has not actually alleviate poverty in the rural areas.

Table 4.3 Respondent opinion on NAPEP programme Intervention and activities for wellbeing of rural dwellers

S/NO	NAPEP Interventions/Activities	SA	A	U	D	SD
1	NAPEP activities and interventions is well known in your rural areas	10 (10%)	20 (20%)	-	20 (20%)	50 (50%)
2	NAPEP intervention programmes and activities actually involved the rural poor	2 (2%)	8 (8%)	2 (2%)	28 (28%)	60 (60%)
3	NAPEP youth empowerment interventions address the problem of rural people.					
4	NAPEP rural infrastructure development interventions impacted positively on the rural areas.	12 (12%)	8 (8%)	2 (2%)	10 (10%)	68 (68%)
5	NAPEP activities and interventions actually alleviate rural poverty	5 (5%)	2 (2%)	-	13 (13%)	80 (80%)

Source: Survey Research 2017

The results in the below table indicate that majority of the respondents are of the opinion that NAPEP has not provided and developed rural infrastructures in the rural areas for their wellbeing. 60 respondents representing (60%) claimed schools were not

Table 4.4 Infrastructure provisions and wellbeing of the rural dwellers

S/No	NAPEP Interventions/Activities	SA	A	U	D	SD
1	Schools	20 (20%)	10- (10%)	2 (2%)	8 (8%)	60 (60%)
2	Hospitals/Dispensaries	10 (10%)	15 (15%)	-	5 (5%)	70 (70%)
3	Electricity Supply	5 (5%)	6 (6%)	2 (2%)	37 (37%)	50 (50%)
4	Pipe home water/Boreholes	20 (20%)	10 (10%)	5 (5%)	25 (25%)	40 (40%)
5	Accessible Roads	15 (15%)	23 (23%)	2 (2%)	15 (15%)	45 (45%)

Source: Survey Research 2017

provided and developed; 70 respondents representing (70%) claimed on hospitals/dispensary 50 respondents representing 50% lay emphasis on electricity supply, 40 respondents representing (40%) on pipe home water and boreholes, while 45 respondents representing 45% lay their claims on absence of accessible roads.

#### 4.3.2 Economic Empowerment and Wellbeing of the Rural Dwellers

Table 4.5 Respondents opinion on effects of NAPEP on economic development for Wellbeing of the rural dwellers

S/No	NAPEP has provided the following benefits for rural economic development towards rural poverty alleviation.	SA	A	U	D	SD
1	Establishment of poultry farms	2 (2%)	4 (4%)	- -	34 (34%)	60 (60%)
2	Created jobs for the unemployed rural dwellers	10 (10%)	8 (8%)	1 (1%)	2 92%	78 (78%)
3	Provided training on skill acquisition	24 (24%)	16 (16%)	- -	10 (10%)	50 (50%)
4	Provided credit facilities to start up small business	8 8%)	4 (4%)	- -	18 (18%)	70 (70%)
5	Make the rural people self-reliant	6 (6%)	4 (4%)	2 (2%)	8 (8%)	80 (80%)

Source: Survey Research 2017

From the above table, majority of the respondents testified that NAPEP has not provided any economic benefit to the rural people for their wellbeing. Here; 60 respondents representing 60% claimed NAPEP has not established poultry farms, 78 respondents representing 78% said NAPEP has not created jobs for the unemployed, 50 respondents represent 50% claimed no training was provided on skill acquisition. 70 respondents representing 70% opined that credit facilities are not given to start up small business and as high as 80 respondents representing 80% opined that NAPEP has not made the rural people self-reliant.

Table 4.6 Factors Inhibiting NAPEP success

S/No	Factors Inhibiting NAPEP Success
1	Inadequate funding
2	Political interference
3	Poor monitoring
4	Corruption
5	Poor selection criteria
6	Inadequate facilities

Source: Survey Research 2017



One of the main factors opined by majority of the respondents was the issue of funding. They argued that NAPEP has insufficient fund to effectively carry out its mandates of poverty reduction among the targeted population. However significant number of the respondents also identified another factor which they expressed as poor monitoring of activities as one of the factor inhibiting NAPPE's success. Another factors mentioned by the respondents was the issue of hijacking of the programme meant for the poor by the elites. This was mostly expressed as Political Interference in the management of NAPEP by the government functionaries and some politicians also constituted a barrier to the programmes implementation.

However, a good number of the respondents have the view that corrupt practices among the key stakeholders in the management of the programme served as another factor. Also poor criteria in the selection of beneficiaries also serve as a factor inhibiting the implementation of the programme. The facilities needed for effective undertaking of some businesses were grossly inadequate in the selected rural areas. This was expressed by a good number of the respondents as an issue constituting barrier to poverty alleviation in the study areas.

#### *4.4 Respondents' Views on Solutions to the Factors Inhibiting NAPEP's Success on Rural Poverty Alleviation*

Respondents were also asked to proffer suggestions on how to overcome the poverty alleviation barriers in their local governments. The responses generated show that very high percentage of the respondents argued that funding should be improved or in other words, the government should increase allocation given to the programme. Other donor agencies and counterparts in funding should also be encouraged by the NAPEP officials through judicious and transparent management of the fund.

However, some of the respondents mentioned that there should be effective monitoring of how NAPEP operations are being conducted. Activities of some elites, especially the political elites who showed interest on the programme should be checked in order to ensure that they block the room for them to hijack the programme. Another solution offered by the respondents was that undue political interference in the activities of the body should be avoided by the government. The agency should be allowed to function based on its guidelines without interference by the powerful executive. Strong punishments should also be imposed on anybody found with any corrupt practices as well as accountability should be ensured in the sue of the resources meant for the pgoramme. This would minimize the room for corrupt practices as suggested by some of the respondents. Other solutions offered by the respondents were that credibility and transparency should be ensured in selecting beneficiaries to the programme and adequate infrastructures that were necessary for any effective business undertaking in the rural areas should be provided by the government.

#### 4.5 Testing of Hypothesis

Ho: There is no significant relationship between NAPEP's activities and wellbeing of the rural dwellers. From the above, the dependent variable is wellbeing of the rural dwellers while the independent variable is NAPEP's activities. Here, the response of residents was cross tabulated using the SPSS package for chi-square test. The output is provided below:

Table 4.7: Test of Association

	Chi-Square Tests		
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	231.4	16	.000
Likelihood Ratio	403.141	16	.000
Linear-by-Linear Association	186.42	1	.000
N of Valid Cases	100		

Source: Survey Research, 2017

From the computer output above, hypothesis testing procedures are presented below; Calculated value: which is Pearson Chi-square from the table above is equal to 231.426

Degree of freedom (df) =16

Level of significance ( $\alpha$ ) =0.05

Critical or tabulated value at 16 \*DF) and 0.05 ( $\alpha$ ) value is equal to 26.296.

#### 4.6 Decision Rule

Accept null hypothesis ( $H_0$ ) against the alternate hypothesis ( $H_1$ ) If  $X^2$  calculated value is less than  $X^2$  critical (tabulated) value. Reject null hypothesis ( $H_0$ ) in favour of alternate hypotheses if otherwise.

From the above, the calculated value is greater than critical value as such; we reject the  $H_0$  and conclude there is a significant relationship between NAPEP activities and rural electric development for poverty alleviation. This means that the more NAPEP programmes and intervention is high the better for rural economic development for the wellbeing of the rural dwellers.

#### 4.7 Findings of the Study

Based on the presentation, analysis and results discussed above, the following are the major findings of this study:-

- (i) It was revealed by the study that NAPEP activities and interventions in Niger State has excluded the poor persons in the rural areas.
- (ii) It was also found out that rural infrastructures in Niger State has long been neglected. As a result, the rural populace has limited access to services such

as schools, health centres, access to safe drinking water. All these perpetuate rural poverty.

- (iii) It was also revealed in the study that NAPEP has not benefited the rural areas economically in terms of creating jobs, providing micro credit facilities and provision of training on skills acquisition.
- (iv) The study also revealed inadequate funding, corruption, political interference; ineffective monitoring as some of the factors inhibiting the success of NAPEP in alleviating rural poverty in Niger State.
- (v)

### **5. Conclusions**

This research was principally aimed at evaluating the effect of National Poverty Eradication Programme NAPEP on the wellbeing of rural dwellers, focusing on Niger State. It was argued that NAPEP's activities and interventions have not contributed to the wellbeing of rural dwellers in terms of its programme. In fact, considering the high poverty incidence in Niger State before and after NAPEP's creation, it is easy to conclude that, NAPEP as the agency of the government with the sole aim of coordinating all poverty alleviation efforts has failed. Hence the study recommends the following:-

- i. The rural community should be involved in the design and formulation and decision making in the type of intervention NAPEP should do in the rural areas.
- ii. On infrastructures, various ministries and agencies whose activities are poverty alleviation related should collaborate with NAPEP to develop the rural areas.
- iii. NAPEP should provide enough credit facilities that will enhance the economic empowerment of the rural areas.
- iv. NAPEP should create jobs, train the rural people on the business skills for setting up cottage industries limited can make them self-reliant and thus alleviate poverty.

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## Teacher Turnover in Primary Schools: An Assessment of Promotion Factor

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### Abstract

*This study assessed the extent to which irregular promotion influence teachers' turnover in Dawakin-kudu and Tarauni LGEAs. The instruments used for the primary data were administration of questionnaires and interviews. 297 responses from the questionnaires were used; interviews were also conducted on 20 members of the LGEAs' management and SUBEB head quarter. The secondary sources of data used in this study include publications such as annual reports, journals, conference papers, gazettes, circulars, unpublished dissertations as well as internet data. Both descriptive and inferential statistics were used in presenting and analyzing the data for the study. The study found a significant relationship between promotion and teachers' turnover. The study recommends that a concerted effort should be made by the LGEAs to ensure regular promotion for its teachers to dissuade teachers' turnover.*

**Key Words:** Promotion, Turnover, teachers and loyalty.

**JEL Classification:** M12

### 1. Introduction

Teachers' turnover has become a global challenge to educational development over the years. The movement of teachers outside teaching profession is turbulent issue irrespective of continents, countries, regions or communities but the menace is more pervasive to the teachers at primary schools level (Abdulkadir, 2018). One of the most critical functions that the management of an organization should perform is that of getting its employees motivated, stimulated and enticed to work positively towards the actualization and realization of predetermined goals and objectives upon which the organization is established (Dess & Shaw 2012; Armstrong 2011).

Mobley (1982) gave the meaning of employee turnover as the discontinuance of membership in an organization by the person who received monetary compensation from the organization. Bliss (2007) has defined turnover as the movement of

employees out of the organization. According to Ingersoll (2002) in the USA teacher scarcity is as a result of turnover, which is eminent in many States. In South Africa the mass exodus or movement of teachers being recruited are said to be leaving the profession for greener financial pastures in countries like Britain. It is unlikely that dispirited, under-motivated and dissatisfied teachers will be effective and committed instructors for a long period of time and the quality of teaching is hurt by the loss of these experienced teachers and raises the costs of recruiting and training new teachers as echoed by (Ongori, 2007). In Britain teacher turnover is reported as a national crisis. Issa and Adebola (2014) also reveal that the situation is worsening in Sweden, Germany and New Zealand as far as teacher turnover is concerned.

In the developing countries the problem is comparatively serious. Reports in countries such as South Africa, Zambia, New Guinea and Malawi indicated that the problem had almost reached a catastrophic stage (Xaba, 2003). The president of the Gambian Teachers' union reports a massive exit of teachers from the profession due to amongst other reasons, a lack of adequate salaries, allowances, housing and promotion (Xaba, 2003).

In Nigeria, labour turnover has been a common phenomenon in many organizations over the years, even so fundamental is the fact that labour turnover has badly affected one of the most important sector of the nation; the education sector most especially at primary school level,( Issa & Adebola 2014). According to the report by The Labour Force Survey conducted quarterly by the National Bureau of Statistics (2014) the number of personnel who left the establishment as a result of Resignation, Retirement, Retrenchment, Dismissal and Death by suitable manpower categories have reached about 20% across the nation in 2012. The reports show that education sector especially at primary level is worst hit by the trend. This of course is very alarming considering the importance attached to education in national development.

In Kano state, teacher turnover among the primary school teachers have assumed an alarming rate in the past years. According to report from the office of Planning, Research and Statistics of Kano State Universal Basic Education Board, (KNSUBEB) between 2011 to 2016, over 11254 primary school teachers across the forty four (44) Local Government Education Authorities (LGEAs) in Kano state have applied for transfer of service from SUBEB to other ministry agencies and parastatals in the state with tertiary institutions in the state having the highest proportion of applicants. It is against this background that this study is targeted at assessing factor of promotion and how it influence teacher turnover in Dawakin-Kudu and Tarauni Local Education Authorities of Kano state from 2011 to 2016.

Teachers' turnover is a serious issue militating against every school at all level be it public or private. For the effective teaching and learning in the schools, it is pertinent to retain its skilled labour force. Dawakin-Kudu and Tarauni Local Government Education Authorities (LGEAs) were established agencies under the Kano state Universal Education Board (KNSUBEB) and specifically shouldered with the

responsibility of ensuring better management and control of Primary education at local government level. The authorities were responsible for the appointment, compensation, training, promotion, discipline, transfer, as well as ensuring good condition of service to all teaching and non-teaching staff as enshrined in SUBEB Law of 2005.

However, over the years, it appears that in Dawakin-Kudu and Tarauni local education authorities were affected by incidence of employee turnover from both teaching and non-teaching staff. Dawakin-Kudu and Tarauni LGEAs (2016) Annual Report shows that from 2011 to 2015, over 453 staffers have resigned their appointment and took new employment where they have higher pay and regular promotion, while in Tarauni LGEA, the number has reached 607. In the same vein, over 741 and 857 employees applied for transfer of service in Dawakin-Kudu and Tarauni LGEAs respectively. There was only one promotion exercise from 2011 to 2016 in Dawakin-Kudu and Tarauni LGEAs, and a substantial number of staffers are in dire need to be promoted in these LGEAs. The SUBEB chairman recently revealed that no fewer than 40,000 thousand teachers were in need to be promoted as a result of skipping of some years without promotion (NUT Bulletin, 2016).

It is regrettable however, to point out that the most cited reason for this trend is associated with irregular promotion. Concerted effort were made by the LGEAs to prepare promotion brief annually but all their efforts remained futile, yet employee turnover keeps increasing in Dawakin-Kudu and Tarauni LGEAs of Kano State. It is in the light of the above that one fundamental question that this research work wants to ask is how has promotion influence employee turnover in Dawakin-Kudu and Tarauni LGEAs of Kano state? The main objective of this study is to assess why promotion influence teachers turnover in Dawakin-kudu and Tarauni LGEAs. Specifically, the study assessed the factor of promotion and how it relates with teachers turnover.

## **2. Literature Review**

Durbin (2000) and Meyer (2001) also said that employee's turnover may be due to a particular cause but they can also be an indication of more fundamental organizational problems. According to Grobler (2006) and Nel (2008), the term is used to encompass all leavers, both voluntary and involuntary including those who resign, retire or are made redundant. This scenario may be described as overall or crude employee turnover because it covered voluntary and involuntary turnover while it fails to give the causes of turnover explicitly. Grobber (2006) view controllable staff turnover as resignations and dismissals, and define resignation as the ending of an employment contract by the employee. This definition depicts that there are turnover that are controllable and therefore unable to identify uncontrollable turnover such as death, retirement etc.

Employees' turnover is a much studied phenomenon (Shaw, 1998).But there is no standard reason why people leave organizations. Employee turnover is the rotation of



workers around the labour market; between firms, jobs and occupations; and between the states of employment and unemployment (Abassi&Hollman, 2000). Employee turnover can be interpreted as a leave or departure of intellectual capital from the employing organization (Johnson, 2000).

The term “turnover” is defined by Price (1977) as: the ratio of the number of organizational members who have left during the period being considered divided by the average number of people in that organization during the period. This definition depicts that turnover is only measured by the percentage of staff who leave organization without considering the resourcefulness of those who are leaving, while in a real sense the term employee turnover is beyond quantitative measurement but qualitative measurement is more important. Frequently, managers perceived turnover as the entire process associated with filling a vacancy: Each time a position is vacated, either voluntarily or involuntarily, a new employee must be hired and trained. This replacement cycle is known as turnover (Woods, 1995). The definition is inadequate because it views turnover as recruitment process for replacing those that have left instead of looking it as how vacant existed.

Although, there is no standard framework for understanding the employees’ turnover process as whole, a wide range of factors have been found useful in interpreting employee turnover Kevin, Joan and Adrian (2004) It was found that employee goal setting (Medlin and Green 2009); career growth (Hamel and Breen, 2007), work environment (Cardoso and Monfardini, 2008; Hansen, 2008 and Burke and Hsieh, 2006), job satisfaction (Palazzo and Kleiner 2002; Garcia and Kleiner 2001; Hannay and Northam 2000 and Stein, K. 1996), training and development (Walsh and Taylor 2007; Shaw et al., 1998; Huselid, 1995) are the foremost decisive factors and very strong predictors of employee turnover. Employees’ turnover tends to be higher in environments where employees feel they are taken advantage of, where they feel undervalued or ignored, and where they feel helpless or unimportant. Clearly, if managers are impersonal, arbitrary and demanding, there is a greater risk of turnover (Hom & Griffeth, 2001).

Allen (2000) pointed out that employees turnover can be expensive, although the actual costs are difficult to estimate. To get indication, organizations can start adding up the most obvious expenses: those of advertising, recruitment and supervisory time. In simpler terms, promotion refers to upward movement in present job leading to greater responsibilities, higher status and better salary. Promotion may be temporary or permanent depending upon the organizational requirement. According to Clothier and Spriegel (2007) “promotion is the transfer of an employee to a job which pays more money or one that carries some preferred status.” In this definition promotion attached with monetary value while in real sense promotion is beyond monetary value rather career progression.

In the corporate sector employee promotions doesn't make much difference as that of in government sector. In the government, the word promotion is the ultimate desire for

an employee for the service rendered by him in the organization and this is the only way for an employee career development in the government sector. Promotion is the ultimate motivating factor for any employee because moves employee forward in hierarchy of concern organization added with additional responsibility, higher respect, honour, with increase in grade pay and allowances.

Heathfield (2016) defined promotion in the following: A promotion is the advancement of an employee's rank, salary, duties, and/or designation within an organization. Promotions can also carry increases in benefits, privileges, and prestige, although in some cases the promotion changes designation only. A promotion is the advancement of an employee's rank, salary, duties and/or designation within an organization. Promotions are often a result of good employee performance and/or loyalty (usually via seniority). The opposite of a promotion is a demotion (Heathfield, 2016). This above definition of promotion is comprehensive because it encompasses career progression and increase of salary but absence of promotion does not mean demotion rather status quo. The advancement of an employee from one job position to another job position that has a higher salary range, a higher level job title, and, often, more and higher level job responsibilities in an organization, is called a promotion Chand (2016).

Sometimes a promotion results in an employee taking on responsibility for managing or overseeing the work of other employees. Decision-making authority tends to rise with a promotion as well. Promotion means elevation to a higher job accompanied by increased pay and privileges. It is an upward advancement of an employee in an organization, which commands better pay, better status, higher opportunities, higher responsibilities and better working environment (Chand, 2016). Promotion provides motivation and job satisfaction to all personnel. Quite often, industrial unrest, frustration and negative feeling among the employees are on account of matters concerned with promotion. A sound promotion policy is essential in all types of organizations. It is purely a managerial decision in which trade unions have no role to play. "A promotion is the transfer of an employee to a job which pays more money or one that carries some preferred status (Scott and Clothier, 2007).

"Promotion is the advancement of an employee to a better job-better in terms of greater responsibilities, more prestige or status, greater skill and especially, increased rate of pay or salary (Pigors and Myers, 1981)" "A promotion involves a change from one job to another that is better in terms of status and responsibilities (Flippo, 1961). Promotion implies upgrading of an employee to a higher post involving increase in rank and responsibilities. Generally increase in pay also accompanies promotion but it is not an essential ingredient. A 'dry promotion' can also be given which would mean that the person being promoted does not get any monetary benefit.

George (2013) pointed out that career progress creates stress on employee's understandings of the worth of his or her career prospects. Obstacles in career development can appear at any time during an employee's employment period which

serves as stressor for them. These stressors can include an array of problems like being stuck at a position, without any hopes of progress or threats of downsizing (Smith and Cooper, 1994). Career growth is much more important than salary in Europe or America but it is counted equivalent to salary in Asian context. "Moving Up or Moving Out" counts career growth as basic for turnover (Geoege, 2013). High employee turnover could also be due to no potential opportunity for advancements or promotions. Employees prefer other companies which may provide them with higher posts and increased compensation packages (Cascio and Bodedreau, 1987).

Different types of promotions are discussed below as submitted by Yorder, et al (1958); (a) Up or Out Promotion: In this case, an employee either earns a promotion or seeks employment elsewhere. Out promotion usually leads to termination of employee and joining some other organization in a better position. (b) Dry Promotion: In this type, promotion is given in lieu of increase in salary. For example, when a university professor is made Head of the Department, there is no increase in salary. (c) Paper promotion: Paper promotion happens on seniority of employee in government sector having different departments. Paper promotion is an employee promotion given to the employee belonging to the parent department, but indeed working in another department on transfer, on request of employee or due to exigency of work. Paper promoted employee draws salary pertaining to job in another Department, but not according to promotion's job in the parent Department.

Promotion is given on the basis of seniority or merit or a combination of both. Let us discuss each one as a basis of promotion. Seniority as a basis: It implies relative length of service in the same organization. The advantages of this are: relatively easy to measure, simple to understand and operate, reduces labour turnover and provides sense of satisfaction to senior employees. It has also certain disadvantages: beyond a certain age a person may not learn, performance and potential of an employee is not recognized, it kills ambition and zeal to improve performance. Merit as a basis: Merit implies the knowledge, skills and performance record of an employee. The advantages are: motivates competent employees to work hard, helps to maintain efficiency by recognizing talent and performance. It also suffers from certain disadvantages like: difficulty in judging merit, merit indicates past achievement, may not denote future potential and old employees feel insecure (Scot and Clothier, 2007). Seniority-cum-Merit as basis: As both seniority and merit as basis suffer from certain limitations, therefore, a sound promotion policy should be based on a combination of both seniority and merit. A proper balance between the two can be maintained by different ways: minimum length of service may be prescribed, relative weight age may be assigned to seniority and merit and employees with a minimum performance record and qualifications are treated eligible for promotion, seniority is used to choose from the eligible candidates.

## *2.2 Empirical Perspectives of the Related Studies*

Ampomah and Cudjo (2015) conducted study on the Effects of Employee turnover on organizations with reference to the Electricity Company of Ghana (ECG). The research design used in this study was the quantitative approach, through the use of structured questionnaires in collecting data. The study found out that lack of promotion was the primary cause of employee turnover in ECG. Mbah and Ikemefuna (2012) concentrated on job satisfaction and employee turnover intentions. The study used both primary and secondary data with variables such as employee initiatives, autonomy, individual competence, self-approach, etc. reduce employee turnover. They found Less supervision, clarity of roles, and functions and so on reduce rate of turnover intention. Pay package alone cannot enhance employee satisfaction.

Khan and Aleem (2014) in their work “impact of job satisfaction on employee turnover: An empirical study of autonomous medical institutions of Pakistan”. They used both primary and secondary sources of data, and findings suggested that the variable like pay, promotion, working conditions and nature of work are prominent for the job satisfaction level and employees. It is suggested that management should take into account of the factors such as pay, promotion, work in conditions and nature of work in order to minimize the turnover level of the employees. This study analysed impact of job satisfaction on employee turnover in the medical institutions in Pakistan, which also provided gap for our study since their study centred on medical institutions, our research centred on educational institutions specifically primary schools in Dawakin- kudu and Tarauni LGEAs. Kosi, Sulemana, Bonteng and Mensah (2015) The study investigated the influence of motivation and job satisfaction on teachers’ intention to quit teaching in public senior high schools in Tamale Metropolis, Ghana. Data were collected using self-reported questionnaires. The results revealed that job satisfaction made the most significant but negative contribution to intention to quit. Motivation made the least but significant contribution to intention to quit. It is recommended that training and development programmes as well as offering of more extrinsic motivation variables by all stakeholders in the education sector is required to retain more teachers in public schools.

Shukla and Sinha (2013) conducted study on Turnover in banking sector: Empirical evidence. This research looked at extent of influence of various factors on employee turnover in urban and semi urban banks. The research was aimed at achieving the following objectives: identify the key factors of employee turnover; determine the extent to which the identified factors are influencing employees’ turnover. The study found out the following factors have significantly influenced employee turnover in banking sector: Work Environment, Job Stress, Compensation (Salary), Employee relationship with management, Career Growth. Issa and Adebola (2014) Conducted research on the implication of employee turnover in Nigerian Higher Education. The question of the relationship between turnover and productivity is the focus of the research and ask the question “is the productivity slowdown due to a high turnover rate of workers? Is high turnover rate an indicator of poor performance?” It was found that an institution with low turnover rate may still experience low productivity. It was

discovered that low turnover is not an indication of high performance and productivity. The research also revealed that turnover intention can also slow productivity and turnover is high in academic staff compared to non-academic staff. It is therefore recommended that an exit interview should be conducted for any staff leaving the service of the institution with a view to determining the immediate and remote causes of leaving the service.

This study came at fore when most of the researchers of employee turnover focused the attention of their study in the private sectors. The phenomenon of employee turnover is more pervasive in the public sector where all the indicators of the employee turnover are more apprehensible and have more serious challenges in carrying out public services. The study adopted Effort Reward Imbalance (ERI) model profounded by Siegrist (1986) According to Siegrist (1996) the core prediction of the ERI model is that employees who are persistently exposed to high effort (costs) and low rewards (gains) conditions at work will suffer from detrimental psychosocial effects characterized by low reciprocity possibly leading to emotional strain and stress-related physiological reactions. The ERI Model is based on the proposition that benefits that an employee derives from work are dependent upon a communal relationship between effort exerted and rewards gained at work (Van Vegchel, *et al* 2005). Thus there is a correlation between the effort exerted by an employee and the reward they expect to gain from the work engagement. “The model of effort-reward imbalance (ERI) claims that failed reciprocity in terms of high efforts spent and low rewards received in turn is likely to elicit recurrent negative emotions and sustained stress responses in exposed people” (Siegrist 2012). An imbalance in the form of high effort and low reward will ultimately result in stress.

Siegrist’s model suggests that there are two different kinds of effort. The physical extrinsic effort an employee puts into their work due to physical demands and the more internal intrinsic effort that is termed over-commitment. Kinman and Jones (2008) postulate that effort reward imbalance occurs more frequently in employees who are overcommitted to their work. Those employees who care much about their work are more likely to experience ERI than those employees showing very little or no commitment towards their job. About 10 and 40 per cent of the labour force experience some amount of effort-reward imbalance (Siegrist, 2001). This is a very significant portion of the workforce thus if unchecked ERI can have very significant detrimental effects on the employees and the organizations that they work for. Siegrist (1996) postulates that rewards are distributed to employees as money esteem and job security. Money includes financial and non-financial benefits an employee may be awarded as part of their salary. Esteem involves the respect and support awarded the employee at their workplace and security encompasses job security and career opportunities like promotion. Rewards are perceived to be a key work stressor in the ERI model (JuarezGarcia, 2015).

The teacher effort in this study is loyalty, hard work, ability, skills, adaptability, trust in superior among others. While the reward is promotion, the imbalance is absence or irregular promotion. The reward imbalance is what lead to teacher turnover. The relevant of the model to this study can be more comprehend in the diagram below.

Efforts	Reward	Imbalance	Consequence
<ul style="list-style-type: none"> <li>• Loyalty</li> <li>• Teacher Turnover</li> </ul>		Promotion	Absence or irregular
<ul style="list-style-type: none"> <li>• Hard work</li> <li>• Skills</li> <li>• Ability</li> <li>• etc.</li> </ul>		promotion	

*Source: Researcher's application of ERI Model By Siegrist, (2017)*

### 3. Methodology

The study employs a survey research design, the population of the study comprised Dawakin-kudu and Tarauni LGEAs as well as KNSUBEB head quarter with total 3700 population. Krecie and Morgan (1970) sample size table was used in determining the sample size of the respondents where Dawakin-kudu LGEA has 1510 population size and 141 as sample size, Tarauni LGEA has 1912 population size and 179 as sample size, SUBEB head quarter has 278 population size and 26 as sample size (Krecie and Morgan 1970). Multi-stage sampling was used in this study. The sources are both primary and secondary data the primary data include questionnaire and interview while secondary sources include text books, journals, internet etc. The study used both descriptive statistics and inferential statistics in describing and analysing the data. Linear regression was used as a tool for analysis.

#### 4. Results and Discussion

The rate of return of the questionnaires by each category of respondents under study was presented in table 4.1 below.

Table 4.1 Rate of Return of Questionnaires

Questionnaires	Number	Percent
Administered	346	100%
Retrieved	318	91.9%
Unreturned	28	8.1%
Valid	297	85.5%
Invalid	21	6.1%
Total	346	100%

Source: Researcher's Survey, 2017

#### 4.2 Data presentation on Hypothesis

Analysis of the data collected for hypothesis two which states that, "There is no significant relationship between promotion and employee turnover in Dawakin- kudu and Tarauni LGEAs of Kano state. The data collected were presented and analyzed as follows:

Table 4.2: Promotion is regular and when due

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagreed	80	26.9	26.9	26.9
Disagreed	120	40.4	40.4	67.3
Valid Undecided	9	3.0	3.0	70.4
Agreed	53	17.8	17.8	88.2
Strongly Agreed	35	11.8	11.8	100.0
Total	297	100.0	100.0	

Source: Researcher's Survey, 2017

The table 4.2 presents the opinions that 'Promotion is regular and when due. 80(26.9%) strongly disagreed, 120(40.4%) disagreed, 9(3.0) they are uncertain, 53(17.8%) agreed, while 35(11.8%) of the total respondents strongly agreed. Findings revealed that 200(67.3) constituting majority of the respondents disagreed that promotion is regular and when due. In Complementing the responses from the questionnaires, the interviews conducted to Management of the LGEAs and SUBEB

head quarter shows that majority of the responses admitted that promotion is not regular and when due.

Table 4.3: Promotion of employees in this organization motivate workers in this organization

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagreed	23	7.7	7.7	7.7
Disagreed	47	15.8	15.8	23.6
Undecided	6	2.0	2.0	25.6
Agreed	126	42.4	42.4	68.0
Strongly Agreed	95	32.0	32.0	100.0
Total	297	100.0	100.0	

Source: Researcher's Survey, 2017

The table 4.3 which presents the views that 'Promotion of employees in this organization motivates workers and can reduce employees' turnover'. 23(7.7%) strongly disagreed, 47(15.8%) disagreed, 6(2.0%) undecided, 126(42.4) agreed, while 95(32.0%) of the total respondents strongly agreed. The study found out that majority of the responses which constituted 221(74.4%) agreed that promotion of employees motivates workers and reduces turnover. However, the respondents' interview goes along the line with questionnaires views where majority of the respondents from LGEAs and SUBEB management agreed that promotion of employees motivates workers. Therefore, the interviewees and the questionnaires responses indicates that promotion of employees motivates workers and reduces employees' turnover in the LGEAs

Table 4.4: The more employees are promoted, the more loyal they become to the organization

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagreed	36	12.1	12.1	12.1
Disagreed	43	14.5	14.5	26.6
Undecided	26	8.8	8.8	35.4
Agreed	116	39.1	39.1	74.4
Strongly Agreed	76	25.6	25.6	100.0
Total	297	100.0	100.0	

Source: Researcher's Survey, 2017



The above table 4.4: indicates that the views of the respondents which clearly stated that ‘the more employees are promoted, the more loyal they become to the organization’. 36(12.1%) strongly disagreed, 43(14.5) disagreed, 26(8.8%) undecided, while 116(39.1%) agreed, 76(25.6) strongly agreed that the more employees are promoted, the more loyal they become to the organization. Findings revealed that the majority of the questionnaires respondents which constituted 192(64%.7) agreed that the more employees are promoted the more loyal they become to the organization. However, the responses from the interviews affirmed the views collected from the questionnaires where the majority of the interviewees agreed that ‘the more employees are promoted the more loyal they become to the organization. Therefore, both the opinions of questionnaires and interviews affirmed that the more employees are promoted the more likely to be loyal to the organization.

Table 4.5: The current promotion system will retain employee with the organization

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagreed	63	21.2	21.2	21.2
Disagreed	180	60.6	60.6	81.8
Undecided	11	3.7	3.7	85.5
Valid Agreed	41	13.8	13.8	99.3
Strongly Agreed	2	.7	.7	100.0
Total	297	100.0	100.0	

Source: Researcher's Survey, 2017

The table 4.5 above shows the responses that the current promotion system will retain employees with the organization. 63(21.2%) strongly disagreed, 180(60.6%) disagreed, 11(3.7%) undecided, 41(13.8%) agreed, 2(.7%) strongly agreed. Findings revealed that 243(81.8%) which constituted majority of the respondents disagreed that the current promotion system will retain employees in the organization. Complementing the above findings from the questionnaires, the interviews conducted on LGEAs and SUBEB Management shows that, majority of the respondents are in line with questionnaires findings which shows that the current promotion system will not augur well in ensuring retention in the LGEAs. Therefore, from the result of the above findings the current promotion system will not reduce employee turnover in the LGEAs.

#### 4.2.1 Test of Hypothesis

The null hypothesis tested states that: “There is no significant relationship between Promotion and employee turnover. The independent variable is ‘Promotion’ while the dependent variable is ‘Teacher Turnover’. The study wants to see the relationship between independent variable and dependent variable. For the purpose of performing

regression analysis operation on the computer for the hypothesis, responses on the above tables produced the output presented on tables below:

Table 4.9 Regression Result

Dependent Variable: Teacher Turnover	Coefficients
(Constant)	-3.745*** (0.143)
Promotion (IV)	29.330*** (0.034)
F-Stat	860.265***
R <sup>2</sup>	0.863

Notes: Standard errors are in parentheses, P values: significance \*10%; \*\*5%; \*\*\*1%

Tables 4.6, 4.7, 4.8 and 4.9 presented simple regression analysis with Promotion as predictor (IV) and teacher turnover as criterion (DV). The result shows that a significant regression model was found (**F = 860,265, p < .05**). The  $P < 0.05$  indicating that promotion has significant relationship with teacher turnover with 95% confidence level, thus, alternate hypothesis is therefore accepted while null hypothesis is rejected.

#### 4.2.2 Decision Rule

We accept the null hypothesis where the probability value (Sig.) of a particular independent variable is greater than 0.05 and we reject the null hypothesis if the probability value (Sig.) is lower than 0.05.

#### 4.3 Discussion of Findings

The study revealed that there is significant relationship between promotion and teacher turnover, Promotion was not regular and when due throughout the years under review, this constituted serious enigma in the LGEAs service. Most of the workers that sought for transfer of service or resigned their jobs to take another job elsewhere cited lack of promotion as one of the reasons for their exit. It is noted that from 2011 to 2016 there was only one promotion exercise in 2013 in Dawakin-kudu and Tarauni LGEAs and the entire teaching and non-teaching staff of SUBEB, Kano.

In Dawakin-kudu LGEA, 1428 teaching and non-teaching staff were not promoted from 2014 to 2016 who are due for promotion but they were not promoted, the same problem in Tarauni LGEA were 1842 staff were not promoted from 2014 to 2016. It was revealed by the SUBEB chairman that no fewer than 40,000 teachers that need to be promoted (NUT Bulletin, 2016). This has happened as a result of accumulated promotion of the previous years.

In complementing this assertion the data collected as depicted in table 4.2 shows that majority of the respondents disagreed that there were regular promotion. While table

4.3 shows that majority of the responses agreed that promotion motivates workers to ensure their retention. Furthermore, the interviews responses disclosed that there were no regular promotion in Dawakin-kudu and Tarauni LGEAs which significantly discourages loyalty and commitment to service. This finding is in tandem with that of Ampomah and Cudjor (2015) in their work the effect of employee turnover on organization in the Electricity Company of Ghana which revealed that lack of promotion was the primary cause of employee turnover.

### 5. Conclusion and Recommendations

The study assessed promotion on teacher turnover in primary schools of Dawakin-kudu and Tarauni LGEAs in Kano state. The study came on board when there are issues militating against promotion of teachers in primary schools of Kano state. The data was presented and analysed as well as hypothesis was tested. The study concluded that the level of teacher turnover in Dawakin-kudu and Tarauni LGEAs of Kano state in the period under study is alarming. The study was conducted when majority of the teachers are bitterly complaints about irregular promotion in the entire state.

Deliberate and Concerted effort should be made to ensure promotion is regular and as when due. Regular promotion will reduce teachers' turnover and ensure employees' loyalty (Retention) in Dawakin-kudu and Tarauni LGEAs and Kano State at large.

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## **Evaluating the Use of Pricing Model to Win Customers in Manufacturing Industries: Evidence from Nigerian Bottling Companies**

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### **Abstract**

*Pricing model is one of the major marketing strategies to win customers' patronage in manufacturing companies. Manufacturers/entrepreneurs often used pricing model to penetrate market with both new and existing products. This study aims to evaluate the use of pricing model in winning customers confidence in patronizing goods/products manufactured by enterprising companies, gathering evidences from Nigerian Bottling Companies. The study intends to investigate the relationship between dynamic pricing model, cost-oriented pricing model, penetration pricing model and customers' patronage. The study is premised on quantitative analysis where Statistical Package for Social Sciences (SPSS) is used to analyze data elicited from respondents. The findings of the study revealed that there exist a significant relationship between the three independent and dependent variables. The study therefore concludes that manufacturing companies should intensify efforts to adopt the use of different pricing models to win more customers for their products. Furthermore, the researchers recommend that pricing models should be part of strategic policy of manufacturing companies in order to attract more customers/consumers for their products. This will definitely bring industrial growth and efficiency in the manufacturing companies.*

**Keywords:** Pricing Models, Winning Customers, Manufacturing Companies.

**JEL Classification:** E22

### **1. Introduction**

Price control, simply put can be defined as restrictions on prices of goods and services in a market. There used to be two primary forms of price control, namely price ceiling and price floor. Price ceiling is seen as the maximum price charged due to the curve of demand and supply, while price floor is the minimum charged in the market. Price control is directly proportionate to company revenue because it is a significant determinant to survival of the company in so many ways. To fix price of goods and services, there ought to be good price mechanism for customers/consumers to

purchase goods and services. Price of goods and services is a major parameter that affects company revenue significantly. Therefore, companies must not make mistake in fixing the price of every product in the company. In setting the price, companies must take into cognizance the manufacturing cost, the market place, competition, market condition, brand and quality of products. The concept of pricing model is used by manufacturers/entrepreneurs to determine the sales price of goods produced by manufacturing companies. It is referred to price tag placed as sales price on goods to be sold to consumers. To a layman, it is the amount of money paid on goods and/or services that consumers intend to buy.

A good pricing strategy is a strategy that strikes balance between the price floor (the price below which the organization ends up in losses) and the price ceiling (price at which the organization experiences a non-demand situation). Rick (2009) stated that pricing models refer to methods companies use to fix the sale price of their products and/or services. Companies often base their sales price on production, labor and advertising expenses, and equally add a certain percentage as their profit on products. Therefore, companies without good pricing model techniques may be losing its potential customers/consumers in the market.

Price control uses to pose a serious challenge to companies, especially when the equilibrium is to be reached between the seller (company) and the buyer (customers/consumers). There is need for industries cum manufacturing companies to often determine their price control based on the curve of supply and demand in order to arrive at the equilibrium of price control.

### *1.1 Statement of the Problem*

Pricing model is generally a problem in manufacturing industries because most of them are fixing sales price arbitrarily. It is more problematic when manufacturing companies want to set price for the first time. This often happens when companies bid for new contract. Pricing is equally a problem when market variables are demanding for change in sales price, most especially when the price are tight to market demand, cost, customers/consumers and competitors prices. Re-pricing may be triggered by inflation as well. Pricing can also be a problem when customers initiate a price change, manufacturing companies may have to decide whether to change its own prices and if so by how much. This is because an increase/decrease in competitor's price will automatically affect the price of other companies who dealing with similar goods.

Price control is often not determined by the curve of supply and demand in the market, which is what is responsible for failure of many price strategies on goods and services. The economic force of demand and supply need to be taken into consideration before adopting price strategy for goods and services. Most often, prices of goods and services are being arbitrarily, which may not be economically right for price control in the market. Therefore, manufacturers should always use force of supply and demand to fix price of goods and services in the market.

Besides, many researchers are conducting investigations on marketing strategies without considering pricing model as one of the major marketing strategy to penetrate the market. Focusing on marketing strategies without considering pricing models is bringing up research issues on price control on goods and services. The research gap created by previous studies on marketing strategies with little or no emphasize on price control informed the decision on this study. The researcher therefore carefully chooses to evaluate the pricing models to win customers in manufacturing companies.

### *1.2 Research Questions*

Research questions are clearly set out with respect to the relationship between identified independent variables, that is, dynamic pricing model, cost-oriented pricing model, binomial option pricing model and winning customers/consumers to patronize companies' products in Nigeria. The research questions therefore are stated below as:

1. To what extent does dynamic pricing model help in winning customers/consumers in patronizing manufacturing companies' products?
2. To what extent does cost-oriented pricing model help in winning customers/consumers in patronizing manufacturing companies' products?
3. To what extent does penetration pricing model help in winning customers/consumers in patronizing manufacturing companies' products?

### *1.3 Research Objectives*

In order to answer the research questions correctly, the following research objectives are set to be achieved in the study. Thus:

1. To examine the effectiveness of dynamic pricing model in winning customers/consumers in patronizing manufacturing companies products.
2. To assess the effectiveness of the cost-oriented pricing model in winning customers in patronizing manufacturing companies products.
3. To evaluate the effectiveness of penetration pricing model in winning customers in patronizing manufacturing companies products.

### *1.4 Research Hypothesis*

Three hypotheses are developed for the study. Thus:

**H<sub>1</sub>:** Dynamic pricing model is effective in winning customers in manufacturing industry.

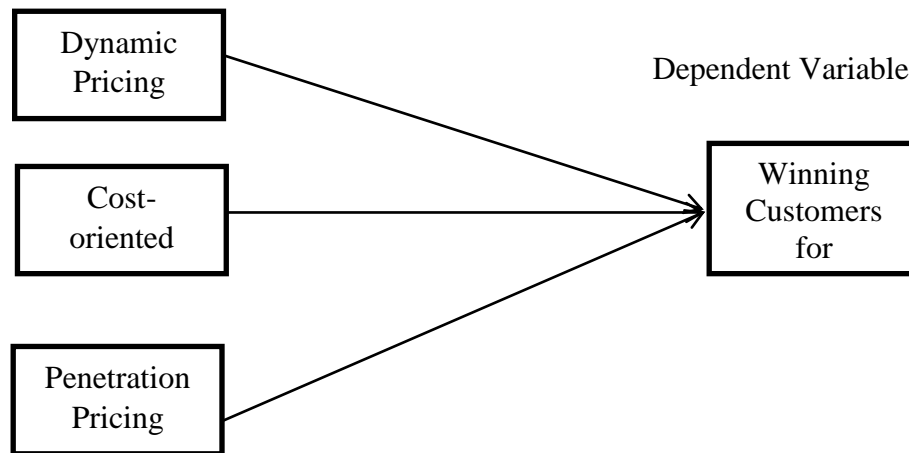
**H<sub>2</sub>:** Cost-oriented pricing model is effective in winning customers in manufacturing industry.

**H<sub>3</sub>:** Penetration pricing model is effective in winning customers in manufacturing industry.

### *1.5 Conceptual Research Model*

Independent Variables





**Figure 1: Conceptual Research Model**

## 2. Review of Related Literature

### 2.1 Using Marketing-Mix Strategy to Win Customers

Strategy for winning customers in business organizations evolves from marketing mix. Marketing mix is not a scientific theory, but merely a conceptual framework that identifies the principal decision to woo customers/consumers into buying goods and services in the market. The tools can be used to develop both long-term strategies and short-term tactical programmes for winning customers (Palmer, 2004). The marketing mix strategy has dominated marketing thought, research and practice. Marketing mix has been extremely influential in informing the development of both marketing theory and practice (Möller, 2006).

Marketing mix makes marketing strategies easy to handle, allows the separation of marketing from other activities of the firm and the delegation of marketing tasks to specialists. The components of the marketing mix can change a firm's competitive position (Grönroos, 1994). The marketing mix strategy has two important benefits. First, it is a tool used to realize the manager's job in marketing promotion. The second benefit is that it helps to reveal other dimensions of the marketing manager's job. Managers have to allocate available resources among various demands, and the marketing manager will in turn allocate these available resources among the various competitive devices of the marketing mix. In doing so, it helps to instill the marketing philosophy in business organization (Low and Tan, 1995).

Frey (1961) suggested that marketing variables should be divided into two parts, viz-a-viz: the offering (product, packaging, brand, price and service) and the methods and tools (distribution channels, personal selling, advertising, sales promotion and publicity). On the other hand, Lazer and Kelly (1962) posited that three elements of

marketing mix, namely, the goods and services mix, the distribution mix and the communication mix. McCarthy (1964) refined Borden's (1965) idea further by defining the marketing mix as a combination of all of the factors at a marketing manager's command to satisfy the target market. The scholar regrouped Borden's 12 elements to four elements or 4Ps, namely product, price, promotion and place at a marketing manager's command to satisfy the target market.

The product must be available in the right place, at the right time and in the right quantity, while keeping storage, inventory and distribution costs to an acceptable level. The place where customers buy a product and the means of distributing the products to the place, and it must be appropriate and convenient for the customer/consumers. Place also means ways of displaying the products to customer groups, this could be referred to as a shop window. On the other hand, Cole (1996) defined promotional mix as the means use in bringing customers from a state of relative unawareness to a state of actively adopting the product. It is a medium of communicating with individuals, groups and/or organizations to directly or indirectly facilitate exchange of informing and persuading one or more audience to accept business organization's products. Ross (2001) opined that promotional mix is the total marketing communication strategy of a particular product. Adebisi (2006) defined promotional mix as any marketing effort whose function is to inform or persuade potential consumers about the merit a product possesses for the purpose of inducing a consumer to either start buying or continue to purchase the firm's product.

On another clime, there is no point in developing a product or service that no one wants to buy, yet many businesses decide what to offer first, and then hope to find a market for it afterwards. Successful companies find out what customers need or want and then develop the right product with the right level of quality to meet their expectations, both now and in the future (Volker, 2015). Product refers to the goods and services offered by the organization. So, product can be described as a bundle of benefits which a marketer offers to the consumer for a price. Besides, pricing is the element of the marketing mix that generates revenue in manufacturing companies (Volker, 2015). Price is the consideration in terms of money paid by consumers for the bundle of benefits he/she derives by using the product/ service (Baker 1995). In simple terms, it is the exchange value of goods and services in terms of money. Pricing (determination of price to be charged) is another important element of marketing mix and it plays a crucial role in the success of a product in the market. If the price fixed is high, it is likely to have an adverse effect on the sales volume, and if it is low, it will adversely affect the profitability. Hence, it has to be fixed after taking various aspects into consideration. After product, pricing plays a key role in the marketing mix. The reason for this importance is that where the rest of the elements of the marketing mix are cost generators, price is a source of income and profits (Alexander, 2010).

### *2.2 Concept of Dynamic Pricing Model*

Dynamic pricing refers to real-time pricing. It is a pricing strategy in which businesses set flexible prices for products or services based on current market demands (Tucker, 2013). Businesses do change sales price based market algorithms that often consider competitor pricing, supply and demand, and other external factors in the market. Dynamic pricing is a common practice in several industries such as hospitality, travel, entertainment, and retail. Each industry takes a slightly different approach to re-pricing based on its needs and the demand for the product. Because of dynamism of dynamic pricing model, the sales price of products could be changed in the market based on number of market variables. Market nowadays, is more complex and competitive to the extent that customers have gained more power to determine the price of products when other economic variables are put into consideration. There is a strong paradigm shift towards using dynamic pricing model in fixing the sales price of goods and services in the market.

### *2.3 Concept of Cost-Oriented Pricing Model*

In practice, there are many ways of arriving at the sales price of goods and services, but economists postulated the basic two methods are cost-oriented and demand-oriented price determination (Markin, 1994). Costs provide a floor/limit where prices can go on one hand, and it is logical that prices should be built on precise cost analysis (Balshlow, 1999). Cost-oriented pricing is not as simple or full-proof as it seems at first glance (Rom, 1994). The analytical tool for using cost-oriented pricing model and management judgment is required to arrive at accurate sales price of goods and services.

Cost-oriented pricing model always go with cost-plus approach, which entails that total cost includes a variety of costs and output changes (Lnitt, 1994). Any other method using costs as basis for determining sales price must make allowances for these variations. Cost-oriented pricing model is premised on six types of costs, namely, fixed cost, total fixed cost, variable cost, total variable cost, average cost and total cost.

### *2.4 Concept of Penetration Pricing Model*

Penetration pricing is a model employed by manufacturing companies to structure the pricing of its products in order to win more customers in the market. The model works well with products that are consumed quickly, like groceries, but not so well with products that are not consumed quickly, like cars. Staton (1991) opined that in penetration pricing, a lower initial price is set to reach the market immediately. The scholar further stated that penetration pricing model is likely to be more satisfactory than skimming when the following variables exist. Thus, the quality sold is highly sensitive to price, that is the product has high elastic demand, substantial reduction in unit production and marketing cost pass through large-scale operations and when the product is expected to face a very strong competition soon after it is introduced to the market.

Kotler (1999) identified two (2) penetration pricing model, that is, rapid penetration pricing model and slow penetration pricing model. A rapid penetration pricing model consists of launching the product at a low price and spending heavily on promotion. This pricing model promises to bring about faster market penetration and the largest market share. The scholar further posited that this could be achieved when the market is large, the market is unaware of the product, and most buyers are price sensitive. Lastly, the slow penetration pricing model is when the marketing strategy backfires, and there is price war in the market where other competitors lower their prices. This may force the manufacturing companies using penetration pricing model to lower its price too.

### *2.5 Conceptual Literature Review*

Bulow and Klemperer (2012) used a model to test the consumer gains from price controls through formulas that measure consumer surplus. The results indicate that it is not likely that consumer surplus will enhance price control. Hargreaves (1947) equally argues that the effects of price controls are influenced by arrays of goods. The scholar later suggested that efficiency of price control on raw materials and final products are not the same. Gorter and Hilderbrand (1951) posited that price control is often suppressed by inflation. The scholar went further to state that price stability is directly proportionate to consumer cash balance. Thus, the continued increase in the consumer cash balance is constrained by the limited supply, which implies grey economy, increase in inflation, and which may eventually lead to price control system collapses.

Danzen, Patricia, Richard and Liang (2004) analyzed the price control on pharmaceutical drugs across 25b countries as a contributor to delays in the launch of new drugs. The delay is perceived to cause significant losses to pharmaceutical companies and may affect returns on investment. The study concludes that the differences across countries reflect differences in the range of products and dosage forms and their relative weights in utilization and price differences for specific products. The study further states that price regulation negatively affects the timing and occurrence of launch of drugs. Hogendom (2003) tactically demonstrates how companies, using electric companies often raise prices of goods and services, and divide the resulting profits. The study equally shows that price control regulation does not prevent collusion but may even contribute to monopoly behavior.

## **3. Research Methodology**

### *3.1 Research Design*

Research design is a blueprint that guides the researcher(s) to investigate and analyze the elicited data from respondents (Salihu, 2011). According to Onwumere (2005), research design is a format that researcher employs in order to systematically apply the scientific method in the investigation of problem. It provides the glue that holds the research project together. The research design in this study is premised on survey design where structured closed ended questionnaire is used to elicit information from

respondents. The study area is Nigerian bottling company in Minna. Copies of questionnaire are distributed directly by the researchers in order to a good return rate.

### 3.2 Population and Sample of the Study

A population is defined as the totality of all possible observations or outcomes. According to Rafiu (2007), population is a set of existing units (people, objects, events or the like) that the researcher wishes to study. Polit and Hungler (1999) opine that population is an aggregate or totality of all the objects, subjects or members that conform to a set of specification. The study population comprises of forty (40) major distributors in Minna metropolis operating with Coca Cola Bottling Company, Minna. A sample on the other hand is defined as a limited number of elements/subjects selected from population, using fair representation. The whole population in the study is used because the researcher found it convenient to administer questionnaire on all the respondents.

### 3.3 Instrument for Data Collection

The instrument for data collection is structured questionnaire. The questionnaire is made up of five (5) sections (A-E). Section A seeks information on demographical data of the respondents. Section B seeks information on wining customers in manufacturing industries. Section C seeks information on dynamic pricing model. Section D seeks information on cost-oriented pricing model. Section E seeks information on penetration pricing model. All items from section B to section E are based on a five point Likert Scale Rating of Strongly Agree (SA), Agree (A), Undecided (UN), Disagree (D) and Strongly Disagree (SD).

### 3.4 Method of Data Analysis

Data collected is analyzed based on the responses obtained from respondents using Statistical Package of Social Science (SPSS). The statistical tool for analysis is multiple regression analysis. This is used to test the hypothesis formulated by the researchers. The model for the study is given below as:

$$Y = \alpha + b_1 X_1 + b_2 X_2 + b_3 X_3$$

Where:

Y is the value of the Dependent variable (Y),

$\alpha$  (Alpha) is the Constant or intercept

$b_1$  is the Slope (Beta coefficient) for  $X_1$

$X_1$  First independent variable that is explaining the variance in Y

$b_2$  is the Slope (Beta coefficient) for  $X_2$

$X_2$  Second independent variable that is explaining the variance in Y

$b_3$  is the Slope (Beta coefficient) for  $X_3$

$X_3$  Third independent variable that is explaining the variance in Y

### 3.5 Data Analysis and Discussion of Findings

Table 1 below shows the descriptive statistics of the respondents where minimum, maximum mean and standard deviation of the respondents are given. Thus:

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
IPS	40	1.00	3.00	2.0650	.77179
DPM	40	1.00	3.00	2.3050	.72605
COP	40	1.00	3.20	2.2150	.72944
PPM	40	1.00	3.00	2.1800	.74531
N (listwise)	40				

Source: Researcher Survey

Multiple regression analysis is obtained as follow:  $Y = -0.619 + 0.217 + 0.732 + -0.052$ . The graph plot for the model is given as:

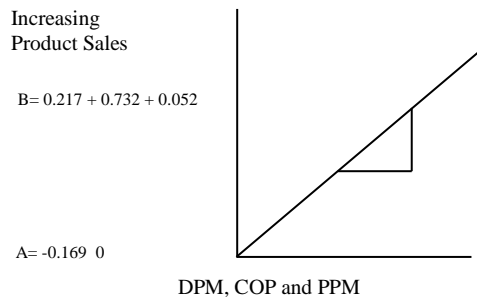


Table 2: Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	PPM, COP, DPM <sup>b</sup>	.	Enter

Note: a. Dependent Variable: IPS; b. All requested variables entered

Table 2 shows that all the independent variables are entered. This shows the relationship can be evaluated.

Table 3 gives the coefficient of correlation ( $r$ ) as 0.922, implying high positive relationship of up to 92% between the independent and dependent variables.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.922 <sup>a</sup>	0.850	0.837	0.31144

Note: a. Predictors: (Constant), PPM, COP, DPM; b. Dependent Variable: IPS

## **4.0 Testing of Hypothesis**

### *4.1 Test of Hypothesis One ( $H_1$ )*

#### *4.1.1 Hypotheses One*

$H_1$ : Dynamic pricing model is effective in winning customers in manufacturing industry.

#### *4.1.2 Interpretation*

The correlation value has shown that the level of significance is 0.00, which is smaller than the alpha value of 0.05. This means the result is significant.

#### *4.1.3 Decision Rule*

Since  $P_{sig} < P_{value}$  (0.05). Hence, the alternative ( $H_1$ ) is accepted. This means that dynamic pricing model is effective in winning customers in manufacturing industry.

### *4.2 Test of Hypothesis Two ( $H_2$ )*

#### *4.2.1 Hypothesis Two*

$H_2$ : - Cost oriented pricing model is effective in winning customers in manufacturing industry.

#### *4.2.2 Interpretation*

The correlation value has shown that the level of significance is 0.00, which is smaller than the alpha value of 0.05. This means the result is significant.

#### *4.2.3 Decision Rule*

Since  $P_{sig} < P_{value}$  (0.05). Hence, the alternative ( $H_2$ ) is accepted. This means that cost-oriented pricing model is effective in winning customers in manufacturing industry.

### *4.3 Test of Hypothesis Three ( $H_3$ )*

#### *4.3.1 Hypothesis Three*

$H_3$ : - Penetration pricing model is effective in winning customers in manufacturing industry.

#### *4.3.2 Interpretation*

The correlation value has shown that the level of significance is 0.00, which is smaller than the alpha value of 0.05. This means the result is significant.

#### *4.3.3 Decision Rule*

Since  $P_{sig} < P_{value}$  (0.05). Hence, the alternative ( $H_3$ ) is accepted. This means that penetration pricing model is effective in winning customers in manufacturing industry.

### *4.4 Discussion of Findings*

Data collected from primary source were compiled, processed, presented, analyzed and interpreted in order to answer the research questions and achieve the research

objectives. The findings of the study revealed that pricing models are highly significant to winning customers/consumers in manufacturing companies. It seems pricing model is a core marketing strategy in winning customers/consumers in any business organization. It was equally revealed in the study that pricing model takes creativity, time, research, good record keeping and flexibility in the strategic management of business organizations. Business organizations need to balance the costs of producing a product with competition and the perceptions of target customers/consumers to select the right product's sales price. Lastly, it was discovered that effective pricing model technique has a significant impact on sales increment in business organization, and the results of tested hypotheses are accepted because the three independent variables are highly significant to winning customers/consumers in manufacturing companies.

### **5. Conclusion and Recommendations**

Dynamic pricing model, Cost-oriented pricing model and penetration pricing model are good pricing model strategies to winning customers/consumers in manufacturing companies. Customers/consumers are kings when it comes to taking steps that affect customers/consumers, therefore management of companies/industries must be very careful when setting the price of products. Sales price that customers/consumers must be willing to pay becomes inevitable. The findings of the study revealed that there exist significant relationships between the three independent variables and price control irrespective of other market forces. And this finding agree with other studies by Higendom (2003), Danzen, et al. (2004 and Bulow and Klemperer (2012).

Price control can easily be realized through the use of good pricing model. In other studies, sales prices are set considering law of demand and supply, prestige pricing model, bait pricing model, odd-even pricing model, full-line pricing model, etc. It is strongly revealed in this study that the three considered pricing models are efficient and effective if winning customers' patronage is the focus. Lastly, it is revealed in this study that efficient pricing models have positive significant impact on winning customers' patronage, which eventually leads to acceptance of the three formulated alternative hypotheses.

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## **The Solid Mineral Sector and Economic Diversification in Nigeria**

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### **Abstract**

*The research studied the diversification of Nigeria economy through solid mineral sector. The objectives of the study are; to examine the effect of policy guidelines on solid mineral mining to economic diversification of Nigerian, to explain Government neglect of the solid mineral sector which affects economic diversification of Nigerian, and also it studied how ethnicity affects the production of solid mineral to economic diversification of Nigeria. One hundred and thirty five (135) questionnaires were administered in Zamfara and Taraba states to generate data and one hundred (100) were returned successfully within one year. The following hypotheses were formulated: policy on artisanal mining has no direct relationship with economic diversification of Nigeria, funding of the solid mineral sector does not positively affect economic diversification of Nigeria. The researcher used parametric  $-z$  test at significant level of 0.05% to accept or reject the hypotheses and Probit analysis to confirm results. A survey design was adopted in analyzing the hypotheses which led to the findings; that funding was greatly retarding the mining of solid mineral in Nigeria and lack of necessary laws and policies also affects solid mineral mining in Nigeria. Estheticism also contributed adversely on solid mineral mining to economic diversification. In conclusion, it was discovered that poor funding, ethnic sentiment and inadequate laws and policies of government were some of the factors that militate against development of solid minerals and hence diversification of the Nigeria economy. In view of the observations the following recommendations were given by the researcher: that adequate science data relating to solid mineral should be generated by the government to determine the actual capacity of solid mineral in Nigeria, to recover the cost implication, government should issue sale licenses to*

*investors on the sector at a reasonable price, government should employ Professionals to add value to solid minerals education and investment. Those interested in the solid mineral mining sector should be encouraged by the government by providing an enabling environment on the area of tax reduction, security, infrastructural facility etc.*

**Keywords:** Development, Diversification, Mining, Solid Mineral, Economic

**JEL Classification:** Q56

### **1. Introduction**

The team of this work is the diversification of Nigeria economy through solid minerals aimed at achieving economic growth and development. Today, Nigeria economy needs to be diversified based on the oil glut in the oil market that has affected price downwards. This situation has contributed that effective implementation of Nigeria budget could no more be sustained. But early in 1970s - 1980s, Nigeria was experiencing a boom economy that even made her to give out loan and aid to some poor countries of the world even sponsored apartheid in South Africa. The boom days was the period Nigeria was playing key role in Economic contribution to the world market of which solid minerals was one of the contributors. That by 1940s Nigeria was one of the major producers of tin, columbite and coal in the world. If Nigeria had sustained her productive capacity (boom) in agriculture and solid minerals till today, Nigeria would have been one of the best economies in Africa. The discovery of oil in 1956 shifted the government's interest from agricultural based economy to oil based economy with little or no interest to the former. With the discovery of oil and price of oil continue to skyrocket to the benefit of oil producing nations, government decided to shift attention from agriculture and solid minerals to oil.

The mining law which was codified under the act of 1999 is handled by the ministry of solid minerals development. The mining in Nigeria is fully occupied by agencies owned by state. In view of this, the general output of agriculture and indeed solid minerals continue to reduce. The solid mineral as separate from liquid mineral is exploited from its natural form in the solid state underground. Okezie (2016) stated that it is the natural deposit of solid state minerals under the ground which are usually mined by individuals, states or Federal government. The liquid minerals are also mined, but are naturally found in liquid or semi liquid forms. There is no doubt that Nigeria is confronted with a huge financial burden partly caused by reduced federation revenues which have been largely sourced from the proceeds of crude oil sales

The reduction in global crude oil prices is not expected to reverse at least in the short run, thus the need to diversify the economy towards improving other sources of revenue. One key sector which offers great potential in achieving this is the solid minerals sector. The solid minerals sector, according to *Nwaob (2011)*, had been

targeted by the previous administration to contribute 5% to GDP by 2015 and 10% to the National treasury by 2020. According to Karande and Kulkarni (2016) the government has achieved 100% aerial geo-physical survey of the country, the data is available at the ministry of mines and steel for the development of would be miners. However, this does not provide reliable details of the estimated quantity of the nation's solid minerals which can only be achieved by more detailed geo-science data gathering. The solid minerals industry is affected by the following problems;

*Funding-* Funding is one of the factors that affects the gathering of geo-science data, so as to determine the actual value of solid minerals in Nigeria. Okezie (2016) stated that funding is one of the greatest problems in the mining industry especially in the solid minerals sector. Due to lack of funding adequate survey of solid mineral sector were not carried out. The existing licenses are worth just the mineral titles without any reliable information on existing quantity and mining licenses in Nigeria cannot be used as collateral for loans as done in advanced economies. There is urgent need for detailed geo-science data gathering to be done so as to assign value to these licenses. The government should make it possible to use solid mineral licenses as collateral for borrowing money from banks as applied from other advanced economies.

*Power-* The current power development drive and resultant privatization embarked upon by the government cannot be done without considering other sectors the industry will rely to achieve growth in the economy. Kearney and Bensaheb (2017), observed that federal government intends to develop commercial generation through hydro, coal and liquid natural resources to assist in the production of solid mineral, this should be implemented adequately hence some equipment required heavy power supply to mobilize the equipment in to work. According, Henry (2014), who projected that the roadmap to the development of solid minerals, that coal can generate about 30% capacity. Power supply should be extended to rural areas because solid mineral mining always available in the rural areas.

*Transportation-* A well developed mining industry thrives on well established transportation network, which supports the movement of equipment to mining sites and the evacuation of minerals for sale and export. There are currently a number of infrastructural development initiatives in road and rail, being embarked upon by the Federal and State governments. These however do not take into consideration planned linkage with existing or intended mining sites. Infrastructure is a major element for the success of any mining industry. The federal government needs to look in to a holistic view regarding infrastructure development and mining sector plan, and execute in synergy with other sectors (Hyde and Jenkins, 2016). Africa mines 90% of the diamond marketed in the world market, 81% of cobalt, 62% of platinum, 70% of gold, 50% of magnesium and chromium, and 30% of copper. Africa also produces 66% of world cocoa, 66% of sisal, 95% of groundnut and 25% of coffee beans and cotton (Hyde and Jenkins, 2016). There are rich reserves of coal, oil and iron ore in Africa (Chukwujekwu, 2005). United Nation (2014) notes that despite the abundant

natural resources in Africa, Africa contributes only 2% of the total industrial output of the world's market economies. Although this statistics may have changed, but does not disprove the fact that Africa contributes far beyond expectation in the world's industrial output. With the abundant resources, African countries should rank amongst the richest and most developed nations. Unfortunately, possession of abundant natural resources does not determine the greatness of a nation.

*Professionals-* In today's globalizing based economy, Nigeria should provide adequate manpower to improve production in the solid mineral mining industry. According to Hyde and Jenkins (2016) the major determinant of greatness is the available pool of knowledge, talent and creativity adequately applied in delivering goods, processes and services. Mogbo (2016) noted that there are potentially great nations endowed with abundant natural resources, but are underdeveloped as a result of lack of professionals in the industry, yet some nations like Japan and Israel are potentially poor in natural resource, but have developed industries because they had pool of professionals in all fields. They are potentially great but underdeveloped countries are regular suppliers of raw materials to the developed nations; who add values to the resources and resupply them at higher cost. Thus the economies of the underdeveloped countries are manipulated, controlled and determined by the developed nations. Nigeria is counted as one of the countries richly endowed with natural raw materials including solid minerals and its raw materials can be attested to be healthy, abundant and supporting multiple uses Kearney and Bensaheb (2017). They are capable of providing an enviable quality of life for citizens and visitors if properly harnessed and utilized. They can attract and sustain business and tourism that translate into economic wealth. However, Lamido (2015) notes that Nigeria was one of the 50 richest countries globally in the 70s, but now one of the 25 poorest countries in the world (Daily Independent, 2013; Information Nigeria, 2013). Nigeria, the ninth largest producer and sixth largest exporter of crude oil, is still hosting the third largest number of poor people in the world after China and India (Ehinomen and Adeleke (2012). Jim-Yong-Kim (2014) claims that two-thirds of the world's extreme poor are concentrated in just five countries – India, China, Nigeria, Bangladesh, and the Democratic Republic of Congo. It is difficult to imagine that poverty in Nigeria is in the mist of plenty. No gainsaying Nigeria lack the productive human capital to tap its abundant solid mineral resources and translate such to economic wealth. There is therefore great need to build up Nigeria's indigenous technology that will enhance healthy harnessing and utilization of the natural resources such that the future is sustained.

*Security-* Adequate security should be provided by the Government to the solid minerals miners. The issue of security threat in Nigeria has affected the major areas of solid mineral mining in the economy, therefore contributions of solid minerals to our nation have continue to decline greatly (Henry, 2014). Therefore, issue of security must be top on the list. Other problems include, adequate policy framework to encourage miners, good road for easy access to sites and government to establish

adequate marketing board that will be ready to work with miners for easy exportation to other countries of the world (Lamido, 2015). With these measures, Nigeria will improve on her production in solid minerals sector.

### *1.1 Statement of the Problem*

The issue of solid mineral development in Nigeria has come of age. The government cannot be said to utterly neglect solid mineral, but lack of commitment to really tackle the issue of poor policy to check artisanal mining which has undermine growth of the sector. Several states look the other way round as the locals engage in unauthorized mining. Besides, funding of the sector has not been effective which has left the sector to exploiters. Also, ethnicity has a key role in the poor development of the sector as many clans do not want clear cut development of the solid minerals in their zones without particularly settling them financially. The ownership of land system also play a set back to the sector.

### *1.2 Objectives of the Study*

The following objectives are raised for the study:

1. To examine the effect policy guidelines on mining to economic diversification of Nigerian
2. To explain Government neglect of the solid mineral sector which affects economic diversification of Nigerian.
3. To study how ethnicity affects the production of solid mineral to economic diversification of Nigeria

### *1.3 Research Questions*

The following research questions are raised for the study:

1. What effect has government policy on solid mineral mining in economic diversification of Nigeria?
2. How does funding of the solid mineral sector affect economic diversification of Nigeria?
3. What is the effect of ethnicity in the mining of solid mineral and economic diversification of Nigerians?

### *1.4 Hypotheses*

The following hypotheses are formulated for the study:

1. a) Policy on artisanal mining has no direct relationship with economic diversification of Nigerian.  
b) Policy on artisanal mining has direct relationship with economic diversification of Nigeria
2. a) Funding of the solid mineral sector does not positively affect economic diversification of Nigerian.  
b) Funding of the solid mineral sector has direct effect to economic diversification of Nigeria.
3. a) Ethnicity does not directly affect economic diversification of Nigerian.

b) Ethnicity does directly affect economic diversification of Nigeria.

### 1.5 Significance of the Study

The study shall benefit many people in Nigeria, especially the people in solid mineral producing areas as they assess the issues raised in the study to set aright ethnocentric feelings that militate against rural development. The study shall also be of benefit to researchers as they shall see good recommendations here to proffer solution to troubled solid mineral areas. Government shall also benefit from the study in seeing how to really develop the solid mineral sector.

## 2. Review of Related Literature

### 2.1 Conceptual Framework

Notable locations and quantity (Tones) of Solid Minerals in Nigeria

S/No.	Resources	Quantity	States
1	Talc,	Over 40 million tones	Niger, Osun, Kogi, Ogun, Kaduna Ebonyi, Abia, Edo and Benue states
2	Gypsum	Over one billion	all over Nigeria.
3	Iron ore	4 billion tones	Kogi, Edo, Delta, Enugu, Niger, FCT Ogun and Abia states
4	Lead/Zinc	10 million tons	Over eight States (not mentioned)
5	Bentonite	700 million tons	Taraba and Bauchi
6	Gold	–	Mambilla Plateau in Taraba and Niger State
7	Bitumen	42 billion tons	Scattered everywhere in Nigeria
8	Coal	Nearly 3 billion tons	indicated resource and over 600 million tons proven reserves
9	Salt	1.5 million tons	Benue Spring salt, Plateau and Ebonyi
10	Gemstones	–	In almost all states in Southern Nigeria
11	Kaolin	3 billion tons,	Abundantly found in all the Northern States
12	Dolomite	Over 4 billion tones	Kwara and Oyo states
13	Tourmaline	–	Almost all states of the Federation
14	Quartz	–	All Eastern states and Middle Belt
15	Phosphate	Over 5 trillion tones	Ebonyi, Enugu, Abia Imo, Delta, Benue and Kogi states
16	Molybdenum	Over 3 billion tones	Abia, Edo and kwara States
17	Emerald	Over 3 billion tones	Taraba, Edo, Adamawa, Abia and Nasarawa states
18	Sapphire	Over 2 trillion tones	Nassarawa and Benue States

S/No.	Resources	Quantity	States
19	Lignite	Over 5 billion tones	Nasarawa, Zamfara, Abia and Sokoto states
20	Silver	Over 1 billion tones	Sokoto, Borno, Nassarawa and Zamfara states
21	Zinc	Over 4 billion tones	Ebonyi, Abia, Zamfara, Nassarawa, Taraba and Kogi states
22	Granite	Over 6 trillion tones	All the states
23	Galena	Over 4 billion tones	Nassarawa, Abia, Plateau, Kogi and Kwara states
24	Columbite	Over 2 billion tones	Plateau
25	Tin	Over 3 billion tones	Plateau and Nassarawa states
26	Diamond	Over 2 billion tones	Taraba, Zamfara, Sokoto, Niger and Nassarawa
27	Aluminium	Over 1 billion tones	Akwa Ibom, Abia, Rivers and Cross River
28	Magnesium	Over 2 million tones	Adamawa, Nassarawa, Gombe and Bauchi states
29	Manganese	Over 500,000 tones	Borno and Nasarawa states
30	Kyanite	Over 3 million tones	Kaduna, Nassarawa, Niger and Bauchi states
31	Wolframite	Over 1 million tones	Kaduna, Niger, Kebbi, Sokoto and Zamfara states
32	Limestone	Over 3 trillion tones	All the states
33	Barytes	Over 3 trillion tones	All Northern states
34	Lead	Over 5 million tones	Ebonyi, Enugu, Abia, Imo, Delta and Benue states
35	Clay	Over 5 trillion tones	All the states
36	Feldspar	Over 3 trillion	Nassarawa, Bauchi, Gombe and Adamawa states
37	Rutile	Over 3 million tones	Southern states
38	Diatomite	Over 2 million tones	Taraba, Niger, Borno, Nassarawa and Plateau states
39	Lithium	Over 3 billion tones	Nassarawa state
40	Coke	Over 2 million tones	Enugu, Abia, Kogi, Imo, Edo, Plateau and Nassarawa States



S/No.	Resources	Quantity	States
41	Tantalites	Over 3 millions	Zamfara, Nassarawa, Bornu, Plateau states.
42	Bitumen	Over 5 trillion tones	Enugu, Abia, Imo, Anambra, Kogi, Plateau, Edo, Kwara and Ebonyi states.
43	Uranium	Over 1million tones	Bornu, Yobe, Gombe, Adamawa, Taraba, Nassarawa, Plateau, Bauchi and Abia

### 2.2 Problems of Solid Mineral Development in Nigeria

The following were identified as problems to mining industry in Nigeria

*Security-* Security is regarded as a serious threat to the production of solid mineral in Nigeria. But the very recent achievements by the previous administration in terms of security, especially efforts against terrorism should be sustained (Amadiogwu, 2017). The north central, north-east and North West regions are known to have some of the country's major solid mineral deposits. But due to the persistent plague of terrorism and tribal conflicts, exploration of solid minerals activity in these areas has been temporally suspended. Fernandes and Moscovitch (2017) noted foreign entrants into the mining sector have been discouraged due to lack of security in these areas, if terrorism is put to an end in these regions and other major areas in the country it will indicate an increase in mining activities.

*Policy-* Policy on artisanal mining in Nigeria has not been encouraging. Goodhar and Laitmn (2016) recorded that policy on artisanal mining is less than 0.5% of GDP formulation from the entire policy guide line on mining industry in Nigeria, which indicate that this figure is solely from the formal mining sector. The majority of artisanal mining sector is largely from informal sector and is based on the use of crude equipment and extremely dangerous working practices. It is estimated that about 80% to 85% of current mining activities in Nigeria is via artisanal and small scale mining (Enejere, 2017). Furthermore, the sales of channel surveys is largely unofficial and embedded with smuggling and distribution cartels leading to loss of revenue from taxes, loss of revenue from royalties and exposure of miners to uncontrolled risks (Edugbanya, 2014). The evacuation of this mining product cannot be controlled by government thereby causing environmental degradation, erosion and excessive pollution, amongst other negative effects. Therefore government should conduct adequate census on artisanal and small scale mining and put them in their records for proper policy frame work.

*Training and equipment supply.*

*Funding-* that is provision of funds to improve production and possible absorption by bigger companies

*Enlightenment on safe mining practices*

Government should respond to the following:

- 1) Establishment of a marketing board for solid minerals. The absence of solid mineral buying centers and lapidaries has enabled the flourishing of illegal sale cartels out of the country, with resultant loss of solid minerals revenue from taxes and royalties (Ejindu, 2017). As a matter of urgency, the government should establish various mineral buying centers and lapidaries across the relevant zones in the country.
- 2) States or local governments should be encouraged to domicile solid mineral production on the ones that are discovered in their state or local government. States and local government, including private sector can collaborate to produce solid minerals in the country.
- 3) The government should apply a derivation formula that will be beneficial to the states and local governments so as to improve production of solid minerals sector.

Establishment of a solid mineral development bank will provide investor friendly loans, specifically designed to cater for the various stages of the mining life cycle (Chew, 2017). These will have interest rates and repayment terms specifically designed around the mining life cycle, making funding more accessible to miners, and repayment terms more reflective of the realities in the mining industry. Furthermore, the government can provide special incentives for solid mineral development banks, or commercial banks having special packages for the solid mineral sector (Chew, 2015).

### *2.3 Achievements made so far in the solid mineral mining in Nigeria.*

The past administration made a lot of achievements which the current administration anchored upon to move forward. All we advice is to consolidate on these achievements done by previous governments and improve on them. Those achievements including continuation and completion of projects already embarked upon (Chew, 2016).

- 1) Establishment of the Nigerian Mining Cadastre office: this office supervises solid minerals mining in Nigeria and report to the Federal government.
- 2) They have presented a Road map for the development of the sector
- 3) Airborne geophysical survey of the entire country,
- 4) Waiver of customs and import duties for plant, machinery and equipment imported for mining operations
- 5) Provision of about three to five years tax holiday as applicable to solid mineral miners
- 6) Free transferability of funds and permission to retain and use earned foreign exchange, and competitive tax rate.

It is expected that that the solid minerals and agricultural sectors in Nigeria would provide if properly utilized employment, foreign exchange, and increase in output. In terms of her rich agricultural heritage, Nigeria contributes significantly in the world export of agro material like cocoa, rubber, cashew nuts/kernel etc. Other agro materials in abundance are cereal, cassava, yam, tomatoes, onions palm, ginger, gum

Arabic and sesame. Raw Material Research and Development Council – RMRDC (2016) reported that Nigeria is endowed with a variety of solid minerals many of which are yet to be exploited.

#### *2.4 Theoretical Framework*

The work is based on Byrd et al. (2016) theory of solid mineral mining in developing countries. Byrd et al. (2016) asserted that the basic principles of solid mineral mining are:

1. Economic Exploration
2. Economic Exploitation
3. Amenable Legal Environment
4. Contusive Ethnic Environment

In the economic exploration, the cost of exploration must be necessarily less than the benefit to be derived, otherwise, the venture is not worth it and the cost of exploiting of the minerals must also not exceed the benefit to be derived (Byrd et al., 2016). The legal environment must be such that the government in question must be willing to cooperate with the exploiters and explorers, while the land owners in ethnic nationalities must be willing to allow efficient mining in their zones. This theory brings out the problems encountered by miners of both solid and liquid minerals in Nigeria, and so, it is adopted by this study.

#### *2.5 Empirical Studies in line with the Objectives of the Study*

Ngwama (2011) studied the factors that affect solid mineral development in Nigeria. The study was performed on a total of 699 local wards in Zamfara and Taraba States who were classified as artisanal miners. Social reasons include illiteracy 26.9%, parental uncaring (27%) locals showing no interest in adhering to ethics of mining (41.6%), low income generation (19.3%), and societal recluses (19.6%). Terrific poverty was a result in 33.3%; religious fanaticism (45.9%) and the study also identified 63.7% of locals to be hyperactive, inattentive and disruptive in community peace. Most frequent psychological disorders include poverty phobia (68.8%), anxiety (49.4%), anger (32.5%), fear (43.2%) and learning disability (37.9%). The most prevalent health disorders often noticed by illegal miners in the local areas included visual disorders (23.5%), asthma (14.9%), and anemia (15.2%), and hearing deficiency (8.2%).

Akongwale (2013) studied the role of police guide lines on solid minerals in economic diversification of Nigeria which is in line with the objective of this research. Both qualitative and quantitative (descriptive) analyses were employed. The study showed that the solid mineral sector in Nigeria has the potential to contribute immensely to the economy of Nigeria. It revealed that the development of the solid mineral sector in Nigeria could help to combat poverty, via creation of jobs by given it forward linkage with other sectors of the economy. Most importantly it will help to alleviate some of the problems associated with “enclave “nature of the Nigeria economy as also observed in this work that made Nigeria economy to be vulnerable to fluctuations in

the world oil prices. The research concluded that the realization of this potentials need to strengthen the Nigeria's existing solid mineral development policy and creating an enabling environment for private sector to take a lead in the industry.

Adekeye (2010), in his study on the impact of conflict and ethnicity the effects on the production of solid mineral to economic diversification of Nigeria which is in line with the objective two of this work. The study also employed qualitative and quantitative (descriptive) analysis which reveals that there is much more to gain from the development of mining in the solid mineral sector than is currently organized and there is much to lose from the non development of the sector. The gains will include creation of jobs, foreign exchange earnings, and provision of infrastructures etc to the economy. The result reveals that conflicts, terrorism and ethnicity should be taken care of by the government and that adequate security should be provided at the mining sites so as to protect life and property/equipment or mining instrument.

Agba (2015) studied the government neglect to mining of solid minerals. The work employed qualitative and quantitative (descriptive) analysis to resolve problem. The study reveals that Nigeria stands to benefit from the development of solid minerals sector if adequately developed. The paper concludes that adequate environment must be provided for miners and private sector to participate actively in the production of solid minerals in Nigeria.

### *2.6 Gaps in Review of Related Literature*

The study on the reviewer of literature did not clearly point out the issue of tribal sentiments and sectional interests that make the local to refuse government- licensed miners to step into their enclaves. They see solid mineral in their zones as their God-given natural deposits as theirs and theirs alone. This study shall evaluate these areas.

## **3. Methodology**

### *3.1 Research Design*

A research design is a plan or blueprint, which specifies how data relating to a given problem should be collected and analyzed (Castrogiovanni, 2016). On this basis a survey, causal-comparative research design was used to compare the relationship between solid mineral development and economic diversification. Survey research is aimed at collecting data on a particular problem from a sample in order to get an estimated dimension of the problem in a large population.

### *3.2 Area of the Study*

The study was carried out among the local miners of solid mineral in Zamfara and Taraba States.

### *3.3 Population of the Study*

The target population is the collection of lead miners in Zamfara State and local Diamond miners in Gembu Taraba State.

### 3.4 Sample and Sampling Techniques

The sample of this study comprised of randomly selected local miners in Zamfara and Taraba states. A total of 100 local miners were selected for the study.

Sample size calculation from the entire population (Rural,).

$$\text{sample size } (n) = \frac{\frac{Z^2 P(1-p)}{e^2}}{1 + \left( \frac{Z^2 P(1-P)}{e^2 N} \right)}$$

Where

Z = is normal probability score

P = is the probability of success

E = is the margin of error

N = is the population size

From statistics table  $Z_{\alpha/2} = 1.96$ ,  $P = 0.5$ ,  $e = 0.05$  that is 5% and  $N = 210$  artisanal miners from Zamfara and Taraba state. From the above formula we arrived at sample size of 135 (one hundred and thirty five). 135 (One hundred and thirty five) questionnaires were designed and sent to miners in both areas 100 were returned successfully.

### 3.5 Research Instrumentation

The researcher used questionnaire to generate data from members of the target population. The questionnaire was structured along:

SA = Strongly Agree, weighted 5

A= Agree, weighted 4

D= Disagree, weighted 3

SD= Strongly Disagree, weighted 2

NAD= Neither Agree nor Disagree, weighted 1

### 3.6 Validity of the instrument

The questionnaire was validated by experts from the ministry of solid mineral.

### 3.7 Method of Administration of Research Instrument

The researcher administered the questionnaire and achievement test very strictly complying with the ethics of research as there was coercion the right to the respondents' privacy was respected. Local interpreters were used to get the required message across since almost all the local miners are illiterate.

### 3.8 Method for Data Analysis

The researchers used parametric mean of responses in answering the research questions, while the hypotheses were tested using parametric Z- tests at significance level of 0.05. To accept each hypothesis, the rule is:

Accept null hypothesis if and only if table value is greater than calculated value, reject otherwise.

Sum of weights =  $5 + 4 + 3 + 2 + 1 = 15$

Mean of weights = 15 divided by 5 = 3 =  $\mu$

Sum of Scores =  $\sum fw$  divided by  $\sum f =$

To accept each questionnaire item, the rule is:

$\times$  must be greater than  $\mu$ , otherwise, it is rejected.

Hypothesis is tested using the Parametric Formula:

$Z = (\bar{x} - \mu) / ((\text{standard deviation}(s) / \sqrt{n}))$

Where  $n = \sum f$  and  $f =$  frequency.

Probit model

Using, the probit model to confirm the policy on artisanal mining, funding of solid mineral

$Y = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + e_1$

Where

$Y =$  Gross domestic product (GDP)

$b_0 =$  constant

$b_1, b_2, b_3 =$  Coefficients / multiplier of  $x_1, x_2, x_3$

$X_1 =$  policy on artisanal mining

$x_2 =$  Funding of solid minerals

$x_3 =$  Ethnicity in the solid mineral sector

$e_1 =$  Error term

$H_0$ : Policies on artisanal mining, funding of the solid minerals sectors and ethnicity in the solid minerals have no significant influence on economic diversification of Nigerian economy (GDP)

#### 4. Data Presentation and Analysis

##### 4.1.1 Presentation of Research Question 1: What effect has poor policy on artisanal mining on economic diversification of Nigerian economy?

This is addressed from the responses from the following questionnaire items

Table 4.1: Responses from the Research Question 1

S/N	Questionnaire Items	w	SA	A	D	S	NA	$\sum f$	$\sum fw$	Weighted mean	Decision
			5	4	3	2	1				
1	None	10	6	4	10	-	12	556	4.63	Agree	
		0					0				
2	Average	50	5	1	7	3	12	497	4.14	Agree	
		0	0				0				
3	Very great	10	1	5	-	5	12	560	4.67	Agree	
		0	0				0				
4	Little influences	70	3	2	3	15	12	497	4.14	Agree	
		0	0				0				
5	Very little influences	10	5	5	5	5	12	550	4.58	Agree	
		0					0				

Table 4.1 shows the response of the respondents on presentation of research question 1: What effect has poor policy on artisanal mining on economic diversification of Nigerian economy. From the responses above, it is deducible that artisanal mining which is illegal is really a problem in Nigeria because the locals and many other internal factors hinder the progress of mining. Also it is shown that the respondents responded positively high that the effect of poor policy on artisanal mining on economic diversification of Nigerian economy has *very great* influence with mean 4.67.

#### 4.1.2 Presentation of Research Question 2: How does poor funding of the solid mineral sector affect economic diversification of Nigerian economy?

This is addressed from the responses from the following questionnaire items

Table 4.2: Responses from the Research Question 2

S/ N	Questionnaire Items	W f	SA	A	D	S D	NA D	$\sum f$	$\sum f$ w	Weighted mean	Decision
			5	4	3	2	1				
1	By highly limiting miners	11	0	1	0	-	-	12	590	4.91	Agree
2	Highly limiting relevant soil tests	80	0	2	1	0	-	12	510	4.25	Agree
3	Moderately endorsing artisanal mining	60	0	4	4	5	11	12	493	4.11	Agree
4	Bringing in crooks in the mining field	40	0	5	1	20	-	12	470	3.91	Agree
5	By all of the above	2	3	5	10	100		12	137	1.14	Disagree

Table 4.2 shows the response of the respondents on how poor funding of the solid mineral sector affect economic diversification of Nigerian economy. From the table it is shown that the respondents responded high that funding greatly limits and affects miners mining of solid minerals with weighted mean 4.91 anywhere not only in Nigeria. But the snag is that no committed government efforts are made so far to encourage local miners by funding them.

#### 4.1.3 Presentation of Research Question 3: How does ethnicity in the solid mineral enclaves affect economic diversification of Nigerian economy?

This is addressed from the responses from the following questionnaire items.

Table 4.3 shows the response of the respondents on how ethnicity in the solid mineral enclaves affects economic diversification of Nigerian economy. The result from the table shows that the miners (respondents) in the area responded politely high that ethnicity discouraging external investors with weighted mean 5.00. Thus it infers that ethnic influences hinder mining by hindering investors both local and foreign.

Table 4.3: Responses from the Research Question 3

S/ N	Questionnaire Items	W F	SA	A	D	SD	NAD	$\Sigma f$	$\Sigma fw$	Weighted mean	Decision
			5	4	3	2	1				
1	By discouraging external investors	120	-	-	-	-	-	120	600	5.00	Agree
2	By eliciting great resistance to mining ventures	90	-	12	10	8	8	120	514	4.28	Agree
3	By encouraging infringements into the mining process	60	40	20	-	-	-	120	440	3.66	Agree
4	By making armatures take over mining	3	2	5	5	110	110	120	158	1.25	Disagree
5	By necessitating loss of patronage	-	-	10	-	110	110	120	140	1.16	Disagree



#### 4.2 Test of Hypotheses

The results from the probit model tables below justify the claim.

Table 4.4: Goodness of Fit

Dependent Variable: GDP	Value	df	Value/df
Deviance	0.000	12	0.000
Scaled Deviance	0.000	12	
Pearson Chi-Square	0.000	12	0.000
Scaled Pearson Chi-Square	0.000	12	
Log Likelihood <sup>b</sup>	0.000		
Akaike's Information Criterion (AIC)	16.000		
Finite Sample Corrected AIC (AICC)	.		
Bayesian Information Criterion (BIC)	12.876		
Consistent AIC (CAIC)	20.876		

*Note: Model: (Threshold), Policy, Funding, Ethnicity; a. Information criteria are in smaller-is-better form; b. The full log likelihood function is displayed and used in computing information criteria*

The result from the table 4.1 shows the degree of the dispersions of GDP as a result of the following factors poor policy on artisanal mining, poor funding of the solid mineral sector and ethnicity in the area of solid mineral. From the table if value/ (degree of freedom) are less than one (i.e value/df < 1) implies under dispersion. From the table since value/df = 0.000 implies under dispersion of the dependent variable GDP.

Table 4.5 Omnibus Test

Likelihood Ratio Chi-Square	df	Sig.
16.094	4	0.003

*Note: Dependent Variable: GDP; Model: (Threshold), Policy, Funding, Ethnicity; a. Compares the fitted model against the thresholds-only model.*

The result from table 4.5 shows the Omnibus test which shows the adequacy of the probit model testing the influence of poor policy, poor funding and ethnicity on the dependent variable economic diversification of Nigerian economy (GDP). From the table since sig value = 0.003 is less than 0.05 level of significance infers that the model is significant and adequate.

Table 4.6 shows the parameter estimates of ordinal probit model for the following factors poor policy on artisanal mining, poor funding of the solid mineral sector and ethnicity in the area of solid mineral on economic diversification of Nigerian economy (GDP). From the table p-value (sig value) = 0.000 infers significance. It is shown that the independent variables poor policy, poor funding and ethnicity have significant influence on economic diversification of Nigerian economy (GDP) since their respective p-values (sig values) are less than 0.05.

Table 4.6: Parameter Estimates for Ordinal Probit Model

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi- Square	Df	Sig.
Threshold [GDP=988234]	-	.3757	-	-17.109	2256.265	1	.000
[GDP=22333002]	17.846	.1686	18.582	-5.602	1238.628	1	.000
[GDP=45065784]	-5.932	.1686	5.602	6.263	1238.628	1	.000
[GDP=60968298]	5.932	.3757	17.109	18.582	2256.265	1	.000
[POLICY=4.1400]	-	.2380	-	-11.419	2494.570	1	.000
[POLICY=4.5800]	11.886	.2380	12.352	12.352	2494.570	1	.000
[POLICY=4.6300]	11.886	.4085	24.879	-23.278	3474.101	1	.000
[POLICY=4.6700]	24.079	.	.	.	.	.	.
[FUNDING=1.1400]	0 <sup>a</sup>	.	.	.	.	.	.
[FUNDING=3.9100]	0 <sup>a</sup>	.5295	34.927	37.002	4613.717	1	.000
[FUNDING=4.1100]	35.964	.	.	.	.	.	.
[FUNDING=4.2500]	0 <sup>a</sup>	.	.	.	.	.	.
[FUNDING=4.9100]	0 <sup>a</sup>	.	.	.	.	.	.
[ETHNICITY=1.1600]	0 <sup>a</sup>	.	.	.	.	.	.
[ETHNICITY=1.2500]	0 <sup>a</sup>	.	.	.	.	.	.
[ETHNICITY=3.6600]	0 <sup>a</sup>	.	.	.	.	.	.
[ETHNICITY=4.2800]	0 <sup>a</sup>	.	.	.	.	.	.
[ETHNICITY=5.0000]	0 <sup>a</sup>	.	.	.	.	.	.
(Scale)	1 <sup>b</sup>						

Note: Dependent Variable: GDP; Model: (Threshold), Policy, Funding, Ethnicity; a. Set to zero because this parameter is redundant; b. Fixed at the displayed value

#### 4.3 Discussion of Results in Line with Objectives of the Study:

The study discovered that funding greatly retards mining of solid minerals in Nigeria. This is in tandem with the view of Bankole and Ogunsakin (2017) that poor funding has limited solid mineral mining in Nigeria. The study discovered that ethnic politics greatly limits mining of solid mineral in Nigeria. This agrees with the view of Bronfenbrenne (2011) that the major setback to local mining of solid minerals in Nigeria is ethnic politics. The study discovered that lack of necessary laws on meaningful mining militates against solid mineral mining in Nigeria. This agrees with

the view of Bello (2017) that Nigeria lacks relevant laws to properly regulate mining of solid minerals in Nigeria.

### **5. Conclusion and Recommendations**

It is one thing to have potentials and another to develop the potentials. That a nation is richly endowed with natural raw materials is not a guarantee that the nation is rich especially when the resources are underutilized or mismanaged. Africa is richly blessed with raw materials yet most African countries are still poor, particularly Nigeria. This is due mainly to their inability to develop technologies that can tap their resources. It is no more in doubt that the greatness of a nation is closely linked to its technological capabilities. These have enabled them to harness their natural resources and those of other nations. However, acquiring technical knowledge is a cumulative process so national technological competence cannot be changed rapidly. Blue prints accompanying turnkey projects are no more than road maps; the buyers must travel the road alone by their efforts. Technical knowledge is largely tacit and specific, so it can only be mastered by painstaking learning.

Government should invest in geo-science data gathering on mining of solid minerals, recouping invested costs and margins from sale of licenses. Government should fund data gathering by employing professionals, and pricing the mining licenses according to the estimated quantity delineated, and mineral type involved. Intending miners should be willing to purchase an expensive license if it can be used as collateral for loans.

Private companies specializing in data gathering can be licensed to perform the geo-science data gathering, and be given exclusive right over data gathered. Coal mining should be developed for commercial export and foreign exchange shall be earned. There is, therefore, a need to develop a master plan for roads and rail for federal and state adoption. All identified mining locations should be considered when drafting this master plan, and it should be made mandatory for adoption by any level of government embarking on infrastructure development. Government should further strengthen the Mining Cadastre office through funding and training, complete the planned privatization of the Ajaokuta steel rolling plant, conduct the bitumen licensing round, complete the rehabilitation of National Iron Ore Mining Company, complete the structuring of a legal and regulatory framework for the steel sector; amongst other current projects being run by the previous administration. Government should re-establish the milestones of the roadmap for the development of the solid minerals and metals sector. Government should needs to re-establish the milestones for the roadmap and take necessary action to ensure achievement of the set goals. The current roadmap appears to have been treated as a theoretical exercise by either not setting realistic targets or not working to achieve them. Government should establish Solid Mineral development Bank to finance solid mineral mining in Nigeria.

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## Does Women Freedom of Movement Enhance Access to Credit?

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### Abstract

*This study looks at how freedom of movement aids women access to micro credit facilities. The study used structured questionnaire to randomly select 383 respondents within Minna Metropolis, and employed Exploratory Factor Analysis (EFA) and Logistic regression. Finding shows that freedom of movement and educational level positively influence women access to credit, while age and family size negatively influence women access to credit. The study therefore recommends an awareness campaign will make the husbands to be more understanding on issues of micro credit*

**Keywords: Credit, Freedom, Movement, Women,**

**JEL classification: I13**

### 1. Introduction

In building a stronger economy, the role of women cannot be de-emphasis. Women are to be appreciated when it comes to household management as they tend to enhance the economic well-being of within and outside their homes (Awe, 1990). Given this exalt status, women responsibilities and contributions to household are enormous. Despite their roles in society, with almost 68.3 million (representing half of the entire country's population) from 140 million, only few percentage of women are engaged in both formal and informal sector of economy (NPC, 2006). Though, majority of women have their potential yet to be appropriately utilized, which hinder their access to certain possession of property and freedom of movement for broader economic gains. Looking inwards into women freedom of movement, majority of women ability to move around for business purposes is limited, but only higher when attain certain

level of education (Daniyan, Badru & Alfa, 2016). Aside education, social norms in terms of woman marital status also limit their ability to move around as their movement is always curtailed by their husbands (Okeke, 2000). This deprivation continues to exist in job and income opportunities as well as their participation in the developmental process, which has affected their access to micro credits facilities.

Increase in women access to credit might likely increase their contribution towards household income (Biswas, 2008). Thus, micro financial services provided to women can be developmental and also efficient tool of alleviating poverty (CGAP, 2003; Robinson, 2001; Yunus, 1999). Women empowerment through freedom of movement is therefore paramount for the poverty liberation and significant involvement of entrepreneurship development. One basic question is that, does women freedom of movement enhance their economic opportunities in terms of access to micro credits? This forms the focal point of this study by investigating the women freedom of movement on micro credits accessibility.

## **2. Literature Review**

Mobility of women is one of the major characteristics of women empowerment (Afrin, Islam & Ahmed, 2008). Greater freedom of mobility leads to women participation in credit program (Ahmed 2018; Mahmood, 2011). Several empirical studies have discussed the issue of empowerment and micro credit in a broader way (Asher & Haider, 2015; Onay & Ozer 2011; Salia & Mbwambo, 2014; Sanders & Schnabel, 2006). Study by Mahmood (2011) examine microfinance impact on women empowerment in Pakistan, the result from 37 observations show that credit provided to women enable them to expand their businesses. Similar studies were carried out in Pakistan by Weber and Ahmad (2014), they used loan cycle to explore the link between microfinance and women empowerment, finding shows that microfinance has impact on women freedom as the loan cycle was found to greatly affected the female borrowers. Also, Salia and Mbwambo (2014) examine whether microcredit participation has any effect on the performance of women owned microenterprises in Tanzania, findings from Independent t-test result entails women borrowers' performed significantly better than those of non-borrowers in terms of total sales and net business worth especially when they have access to move around. But study by Onay and Ozer (2011) in Turkey investigates the nature of changes of Turkish women in terms of their involvement in microcredit projects, the result shows that women do experience difficulties in obtaining loan especially if they restricted in terms of movement, but less when a woman has acquired certain level of education. This made the study of Azikiwe (1992) to opine that education always serve as a catalyst for women improvement. Ndu (2002) stated that the best tool for positive changes in people way of life is education. Women accessibility to standard formal education gives them sense of belonging and individualism (Alfa, 2012; Lockhead & Verspoor, 1992). Phiri (1992) states that level of education enable women to take control of their personal life and equal participation. Sanders and Schnabel (2006) further states that education usually leads to economic societal freedom.

However, aside education even marital status of a woman equally restricts their freedom of movement. Study by Kithae et al. (2013) determines the effect of Legal, legislative and financial factors on performance of women enterprises in the micro and small enterprise sector of Kenya. The study found most married women do not have access to loans due to restrictions impose by most of their husbands on freedom of movement. But Okpukpara, (2009) examined the determinants of loan acquisition to rural enterprise in Nigeria. The study found huge bureaucratic network and confidence by husbands to be the factors responsible for low women participation. Thus, a small number of business women depend on their husband as the breadwinner (Anyanwu, 2004). Wives income been controlled by their spouses (Omorodion, 2007). Women in family tend to have limited control in their family based on gender hierarchy within household (Chen, 2004). However, study by Asher and Haider (2015) concentrated on the effect of microcredit on women familial empowerment in Pakistan, they found family size due influence women empowerment. But women with sustainable income despite their size of family do have access to micro credit; studies by Gabriel, Lenain and Reynaud (2017) viewed income as a major determinant and positively associated with women entrepreneurship; although, Tang, Guan and Jin (2010) emphasis more on age and found age to predict access to credit in china.

### 3. Methodology

In investigating women freedom of mobility on micro credits accessibility, this study used a primary data obtained from Minna metropolises of Niger State through the use of structured questionnaire. Minna is chosen because it is the largest city in the state with all accesses to socio-economic activities. Minna has a female population of 96,886 with highest number of microfinance banks notably Ajaye-Jebwo, Endwell, FUT Minna, and Minna microfinance (Brinkhoff, 2017: ND, 2018). A sample size of 383 women was randomly drawn from the population using Isreal (2009) Sample size selection criteria. The variables used in this study consist of access to credit, freedom of movement, marital status, educational level, and other characteristics such as age, family size, income as used in the previous studies (Kithae et al., 2013; Mahmood, 2011; Mbwambo, 2014; Ndu, 2002). In measuring women freedom of movement, eight construct where used with a five-point Likert scale ranging from 1=never; 2=rarely; 3=occasionally; 4=frequently; 5=very frequently. Exploratory Factor Analysis (EFA) was used to identify the factors that influence women freedom of movement. Also factor structure and scale reliability of the indicator tool was used to empirically test the reliability of the data (Edwards et al., 2008). To achieve the objective, a logistic regression was employed as used by Alfa (2012) due to binary response of the respondents. The logistics model is written as:

$$\Pr (y = 1/x) = \beta_0 + \beta X_i \dots\dots\dots 1$$

Where  $\Pr (y = 1/x)$  is the Probability of the outcome,  $y$  denotes the response,  $X_i$  entails vector of explanatory variables, while  $\beta_0$  signifies intercept of the equation, and  $\beta$  are the vector of the parameters to be estimated. The empirical model is specified as follows:



$$\text{Pr} (\text{Cri} = 1/0)_i = \alpha + \beta_1\text{Fmi} + \beta_2\text{Msi} + \beta_3\text{Edi} + \beta_4\text{Agi} + \beta_5\text{Ini} + \beta_6\text{FlySi} + \mu_i \dots 2$$

Where  $\text{Pr} (\text{Cri} = 1/0)_i$  is the probability of access to credit,  $\alpha$  refers to the constant parameter of the equation  $\beta_s$  shows the coefficient of the independent variables,  $\text{fmi}$  represent freedom of movement,  $\text{Edi}$  indicates level of education,  $\text{Agi}$  is the age,  $\text{Ini}$  indicates income,  $\text{FlySi}$  represents family size, and  $\mu_i$  is the Error term.

#### 4. Results

The study used both descriptive and inferential statistics to analyse the data. George and Malley (2003) suggested that any value below 0.5 is unacceptable. This Cronbach's alpha reliability used in this study to test the internal steadiness for the dimension used is 0.713 as seen in Table 1 below. The result of the Cronbach Alpha is within the acceptable region as it falls within the range of 0 to 1.

Table 1: Descriptive Statistics of Reliability

Measure	Number of Items	Cronbach's Alpha
Freedom of Movement	8	0.713

The Exploratory Factor Analysis (EFA) was used to determine the construct, because the model facilitates the covariance's of the constructs (Kahn, 2006). The Kaiser (1960) eigenvalues criteria was adopted with eigenvalues less than 1.0 were dropped, whereas items with loading factor less than 0.30 were removed from the process.

Table 2: Factor Loading Associated with Freedom of Movement Scale

Measure	Mean	SD	Factor Loading 1
Do you go outside of the home without permission of your husband?	2.44	1.66	0.732
Do you go to visit relatives?	2.20	1.22	0.470
Do you go outside of the home alone?	2.02	1.29	0.532
Do you go outside the village alone?	1.45	0.92	
Do you go outside the Sub- district alone?	1.89	1.35	0.565
Do you go outside the district alone?	2.04	1.39	0.795
Do you go to health centre alone?	1.49	0.89	
Do you go to bank alone?	1.65	0.91	0.532
Eigenvalues			1.49
Kaiser-Meyer-Olkin = 0.767			

The result in Table 2 above shows the EFA for freedom of movement, two items did not load into the construct such as 'do you go outside the village alone?' and 'do you go to health centre alone?'. However, the remaining six construct were fully loaded given the Kaiser-Meyer-Olkin (KMO) value to be 0.767 which is above the cut-off 0.50.

Table 3: Descriptive Statistics

Variable	Mean	Std. Dev.
Credit	0.19	0.39
Freedom of Movement	3.75	0.89
Age	0.69	0.46
Marital Status	0.55	0.50
Educational Level	0.58	0.49
Income Level	248.0	145.0
Family Size	1.19	0.14

Source: Field Survey, 2018

The descriptive result in Table 3 shows the mean of access to credit to be 0.19 with a standard deviation of 0.39; this indicates that only few women have access to credit. Freedom of movement has a mean of 3.75 and standard deviation of 0.89; this signifies most women go outside alone. The mean of the respondent's age is 0.69 with a variation of 0.46; this shows that majority of women are elderly enough in terms of age. For marital status, the average is 0.55 with a variation of 0.50, this means majority of them are married with less women being single (not married, divorced or widow). The education level of the women has the mean of 0.58 and standard difference of 0.49; this shows that majority of women have at least elementary knowledge of western education. The mean for income level is 24.80 with a standard difference of 14.50; this indicates that majority of women earn at least ₦248 per day. The result for family size has the mean of 1.19 and standard deviation of 0.14; this means that majority of the family are more than three.

The result in Table 4 entails logistic regression result with access to credit as dependent variable. Model 1 tries to look at effect of freedom of movement on access to credit. From the result obtained, the coefficient for freedom of movement is positive and significant at 1%; this means that for any opportunity given to a woman to go outside home will likely increase women access to credit with a log-odds ratio of 0.07. Women having access to move around will expose them to various information required in respect to loan accessibility given the predicted probability to be 0.0103. The finding of this study is in line with the study of Onay and Ozer (2011) as they found inability to move around by women will hinder their credit accessibility. In model 2, age, marital status and educational level were included, to see if women freedom of movement will be influenced. The coefficient for freedom of movement is 0.06 and statistically significant with a predicted value of 0.0085. Coefficient of age is negative and

significant, given the predicted probability to be -0.0795. This shows that an increase in women age may likely reduce their ability to credit accessibility.

Table 4: Logit Result

	Credit					
	1	$dy/dx$	2	$dy/dx$	3	$dy/dx$
Freedom of Movement	0.0715***	0.0103	0.0629***	0.0085	0.0667***	0.0085
	(0.0208)		(0.0214)		(0.0238)	
Age			-0.5483*	-0.0795	-0.6449**	-
			(0.2814)		(0.2908)	0.0894
Marital Status			0.5091*	0.0677	0.4862*	0.0610
			(0.2820)		(0.2866)	
Educational Level			0.8407***	0.1091	0.6221**	0.0767
			(0.2962)		(0.3067)	
Income Level					0.0236***	0.0030
					(0.0088)	
Family Size					-	-
					0.2950***	0.0375
					(0.1113)	

Notes: Robust standard errors are in parentheses, *P* values: significance \*10%; \*\*5%; \*\*\*1%; *N* is equal to 383

Although, marital status is positive and significant with a predicted probability of 0.0677; being married may likely enhance once ability to have access to information on loan, because their male counterparts are more prone to information within and outside their community, this result is not in conformity with the study of Chen (2004). Also, the coefficient for educational level is positive and statistically significant at 1%. It means that an increase in educational qualification is predicted to increase women access to credit by 0.1091. Though is expected that most women leaving in metropolitan areas are averagely educated, especially when it comes to

reading and writing, which might assist when it comes to information on credit facilities.

However, model 3 have two control variables inclusive notably income level and family size. The coefficient for freedom of movement is still positive and significant with same predicted probability as in model 2. The predicted value for age is -0.0894, indicating further decrease on credit accessibility once the age increases. Similarly, marital status and educational level are positive and significant, but with a lower predicted probabilities of 0.0610 and 0.0767 respectively. Also, the coefficient for income is positive and significant with a log odds ratio of 0.0236. This shows that increase in income may likely increase women access to credit by 0.0030, because having more access to fund gives them confidence to approach microfinance banks for loan as earlier obtained by Gabriel *et al.* (2017). For family size, the coefficient is negative and significant with log odd value of -0.2950. This signifies that the larger a family size is the less likely women will have time for accessing or seeking information on credit accessibility; this finding is supported by Asher and Haider (2015).

## 5. Conclusion

This study investigates women freedom of movement and how it influences their access to micro credits. The inferential result shows that women with ability to go outside home either with the permission of the husband or not are more prone to credit facilities. The study therefore concludes that freedom of movement, educational level and income are highly significant to access to credit. But age and family size were found to reduce women access to credit facilities. This study however recommends awareness strategy that will make the husbands to be more understanding on issues of micro credit. A proper modalities need to be worked out with a timing schedule that will strictly adhere to time once it comes to service rendering to beneficiaries, because most men and women do feel discouraged due to administrative bureaucracy. Also, there is need for government to articulate a policy for direct financial assistance to women.

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## **Influence of Bank Liquidity on Economic Growth of Nigeria**

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### **Abstract**

*This study investigates the influence of Deposit Money Banks' (DMBs) liquidity on economic growth of Nigeria measured by Gross Domestic Product (GDP from 1981 to 2014). The population of the study is 64 DMBs that include 45 defunct and 19 existing DMBs operating in the Nigeria banking industry as at December 2015. The regression results indicate that DMBs' reserves have a positive and significant influence on economic growth. Also, DMBs' loan to deposit ratios has a negative and significant influence on economic growth. However, DMBs' liquidity ratios have a negative and insignificant influence on the economic growth of Nigeria. Therefore, this study recommends that the management of DMBs should increase their deposits with CBN as reserves. This is because an increase in the bank's reserve will increase the economic growth of Nigeria immensely. Also, the management of DMBs should increase the percentage of loan to deposit liabilities ratio. This is because a decrease in the ratio will gradually destroy the economy of Nigeria as fewer funds will be a channel to the productive sector of the economy.*

**Keywords:** Bank liquidity, DMBs, GDP, Economic Growth, Nigeria

**JEL classification:** G33

### **1. Introduction**

The banking industry is an important financial sector in an economy that accepts deposits, make payments and issue credits to its customers. As the banks implement these key roles and responsibilities, they contribute toward economic growth of a nation. Economic growth has a linkage with a nation's resource endowment, capital

formation, and utilization. The resource endowment is natural resources that include minerals and oil resources; fertile land; water resources and so on. Another link is capital accumulation which is an investment in human capital development (formal and informal education); investment in new factories and industries; social and economic infrastructures like constant electricity supply, pipe borne water, banking institutions, communication network, et cetera. Also, technology progress which is an advancement in the production methods comes in the form of computerized banking operations, mechanized farming implements and advanced use of machines in industrialization (Adewuyi & Olowookere, 2011).

Economic growth is the total market value of domestically produced goods and services in a nation usually in a year. It is measured by the total value of domestically produced goods and services in a nation, per capita income of all citizens living in a nation and the standard of living of citizens in an area or nation. Economic growth of a nation measured by the total value of domestically produced goods and services known as Gross Domestic Product (GDP). In Nigeria, GDP per annum at current market prices was ₦71714 Billion in the year 2012 as against ₦80093 Billion and ₦89043.6 Billion in the year 2013 and 2014 respectively (STABULL 2014).

Bank liquidity may influence the economic growth. Liquidity is the ability of banks to provide cash and to meet urgent cash requirements such as payment of maturing short-term debt obligations. The reasons banks maintain adequate liquidity level is to meet debt obligations and to meet customer demand for cash at any time (Timsina, 2017). Banks liquidity may be measured by reserves requirement, liquidity ratio and loan to deposit ratio (Mattana & Panetti, 2010; Onyeiwu, 2012; Udude, 2014; Berger & Sedunov, 2017). These variables may influence economic growth as the arguments on the key drivers of economic growth had been ongoing. This is because the results of some of the previous studies relating to liquidity factors affecting economic growth were inconclusive due to mixed findings. Major among the previous studies include the research works of Onaolapo (2015); Marlyse and Ngo (2015) and Anowor and Chisom (2016). The gaps identified in the previous studies reviewed are scope and conceptual gap. Scope gap is the period, place and variables used for the study. The conceptual gap is the way the variables were defined by some previous research scholars as observed in the literature.

The present study aims to fill the identified gaps by investigating problems in bank liquidity and economic growth of Nigeria from 1981 to 2014. This is because it was during this period that banks contribute immensely to the growth of Nigerian economy through the issuance of credits to the economy as a result of an increase in



the asset base, capital base, and some banks as well as branch network (Somoye, 2008). Therefore, this study conducted by adapting the work of Marlyse and Ngo (2015) in the field of social sciences after slight modifications in their model and scope of the study that make it different from some of the earlier studies such as Onaolapo (2015) and Anowor and Chisom (2016). This makes this study to contribute to knowledge, and it will be beneficial to policymakers like CBN as well as reference material to potential academic researchers. The broad objective of the study is to investigate the influence of banks liquidity on economic growth of Nigeria. Specifically, the study aims to achieve the following objectives.

## **2. Literature Review and Theoretical Framework**

### *2.1 Conceptualization of the Study Variable*

The concept of economic growth has been discussed by many academic scholars such as Adewuyi and Olowookere (2011); Growthokwo, Mbajiaku and Ugwunta (2012); Yakubu and Affoi (2014); Khan, Babar, Omair, Ameen and Sameen (2014); and Ismaila and Imoughele (2015). Adewuyi and Olowookere (2011) define economic growth as the process by which domestic income or output increased. Growthokwo *et al.* (2012) view economic growth as the process by which national income or output increased. Therefore, an economy is said to be growing if there is a sustainable improvement per head for the output of goods and services. Kira (2013) defines economic growth as total market value of all final goods and services produced within the country in a given period (normally one year).

Yakubu and Affoi (2014) view economic growth as a sustained increase in the actual output of goods and services per head. Khan *et al.* (2014) define economic growth in a country per annum for the commodity produced. Ismaila and Imoughele (2015) opine that economic growth is the quantity of goods and services produced in a nation and real GDP mostly measures it. Hence, this study operationally defines economic growth as total market value of domestically produced goods and services in a nation usually in a year. This is because a nation's commodities consist of both domestic and foreign-produced goods and services known as Gross National Product (GNP).

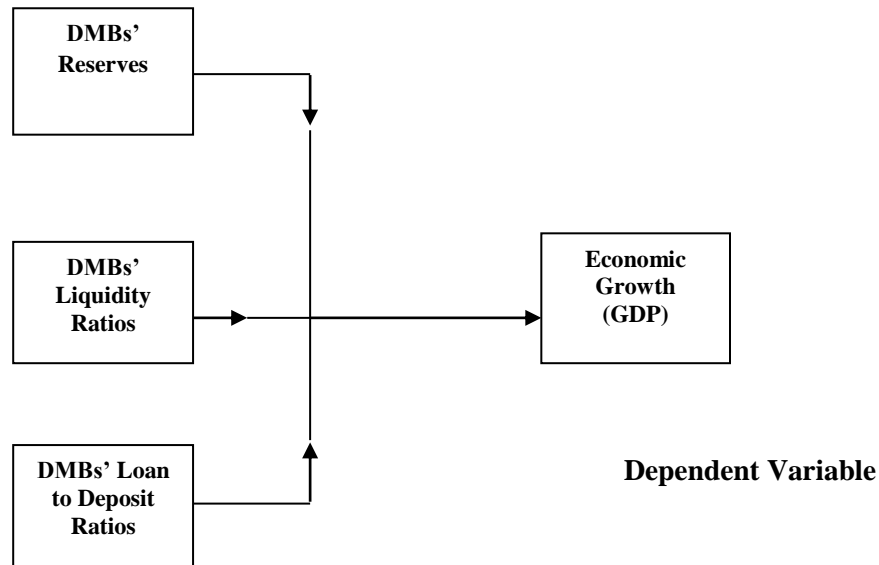
Bank liquidity classified as reserves, liquidity ratio and loan to deposit ratio among others depending on usage. Reserve is special money saved by organizations to meet urgent cash needs. It is also saving money for future use. Business Dictionary (2015) defines reserve as funds set aside or saved for future use. It further states that in accounting, the reserve is part of retained earnings set aside for a specified purpose. In banking, the reserve is funds set aside for day to day operation known as primary

reserve or funds set aside to meet emergency liquidity requirement known as a secondary reserve. Oh (2011) sees bank reserve ratio as cash reserve requirements of apex bank and percentage of total bank deposit liabilities. Nana and Samson (2014) opine that banks are holding large amounts of liquid assets as are serve for precautional strategy. Omer, Haan, and Scholtens (2014) define bank reserve as cash reserve requirement and statutory liquidity requirements over a period. Amuda (2014) views reserve requirement of commercial banks as an instrument used to maintain liquidity and influence credit operations. Gitau (2015) sees bank reserve as the funds that commercial banks are legally required hold in the central bank. Economics Times (2017) defines bank reserves as a specified minimum fraction of the customers total deposits liabilities which banks hold as reserves with the central bank. This study operationally defines reserve as money set aside or saved for regulatory and precautionary reasons.

Besides, bank liquidity is liquid assets of an organization such as cash and near cash instrument (money, treasury bills, and commercial paper). Ojiegbe, Oladele and Makwe, (2016) defines liquidity as a situation in which an individual or organization has cash or close to cash instruments that can be changed to meet debt obligations. Economic Times (2017) views liquidity as how quickly a person or an institute can get cash when the need arises. This study operationally defines bank liquidity as the ratio of total specified liquidity assets to total current liabilities known as cash ratio.

Bank liquidity has the ability of banks to meet customers' demand for loans out of deposit liabilities. Boadi, Li and Lartey (2015) define bank deposits as the sum of current, savings and time deposits accounts of customers. Conversely, Timsina (2017) sees bank credit as the aggregate amount of funds provided by commercial banks to individuals, business organizations and government. This study operationally defines loan to deposit ratio as a percentage of total deposit liabilities given out to customers as loan or credit. The variables of study conceptualized in figure 1.1 below.

Figure 1.1: Conceptualization of the Variables



### Independence Variables

Source: (Researcher's Illustration, 2016)

## 2.2 Review of Related Empirical Studies

### 2.2.1 Bank Reserves and Economic Growth

Oh (2011) that studied reserve requirements and economic growth of South Korea from 1970 to 2009. The regression result shows that banks reserve requirement ratio and bank lending have a significant effect on economic growth of South Korea. However, the study conducted in South Korea, and the result may not be applicable in a wider perspective. Omer *et al.* (2014) empirically analyzed excess interbank liquidity and output gap in Pakistan from using weekly data from December 2005 to July 2011. The findings show that excess liquidity reserve (bank deposits as reserves with the central bank) and required reserves (statutory reserve requirements) have a relationship with output gap (index of industrial production). However, the study used the index of industrial production as against GDP. Onyeiwu (2012) investigated monetary policy instruments and economic growth of Nigeria from 1981 to 2008. The regression result shows banking sector liquidity ratio and cash reserve ratio have an insignificant impact on economic growth while money supply has a significant impact

on economic growth in Nigeria. The recommendations are that monetary policy should facilitate a favorable investment climate through appropriate interest rates, exchange rate, and liquidity management mechanism among others. However, the work utilized 28 years' time series data that ended in 2008. Gitau (2015) examined the effect of financial repression on economic growth of Kenya using quarterly data from 1996 to 2014. The findings indicate that reserve requirement has a significant effect on economic growth. But the study was conducted in Kenya using 19 years quarterly time series data that ended in 2014. Anowor and Chisom (2016) assessed the impacts of monetary policy instruments on economic growth of Nigeria from 1982 to 2013. The result indicates that banking sector's cash reserve ratio has a positive and significant effect on economic growth. Therefore, the study recommends that monetary authorities should give priority attention to cash reserve ratio (monetary policy tool) as it will produce a more desired result regarding economic stabilization. However, the study failed to consider bank liquidity ratios among its model specification.

#### *2.2.2 Bank Liquidity Ratios and Economic Growth*

Udude (2014) examined monetary policy and economic growth of Nigeria from 1981 to 2012. The result shows that money supply is not significant impact on economic growth but banking sector liquidity ratio has a significant impact on economic growth. But the study failed to consider bank reserves. Marlyse and Ngo (2015) investigated the effects of financial deepening on economic growth of Kenya using quarterly data from 2000 to 2013. The empirical results reveal that commercial banks' liquidity ratio, commercial banks' deposits liabilities, commercial banks' total assets and central bank credit to the private sector have significant positive effect on economic growth. The study recommends reinforcement of existing policies that will encourage the public to save money with commercial banks. But the study failed to consider bank reserves. Fidrmuc, Fungáčová and Weill (2015) studied bank liquidity creation and economic growth of Russia from 2004 to 2012. The result shows that bank liquidity creation strengthens economic growth. However, the study made use of 9 years' time series data that ended 2012. Berger and Sedunov (2017) examined banks liquidity creation and real economic output of United States of America from 1984 to 2010. The result shows that bank liquidity has statistical and economic significant positive relation with real economic output measured by GDP. But the research work was conducted in a developed economy, and the findings may not apply to developing economy like Nigeria.

#### *2.2.3 Bank Loan to Deposit Ratios and Economic Growth*

Akingunola, Adekunle, Oluwaseyi and Olusoji (2014) investigated the effect of the financial liberalization on economic growth of Nigeria 1976 to 2006. The findings indicate that banking sector liquidity and total deposit of DMBs are insignificantly

affected economic growth, though the study used banking sector liquidity as against DMBs liquidity. Onaolapo (2015) empirically assessed the effect of financial inclusion on the economic growth of Nigeria from 1982 to 2012. The results indicate that banking system liquidity ratio and loan to deposit ratio have an insignificant positive effect on economic growth. However, the study does not examine the influence of bank reserves on economic growth. Adigwe, Echekeba and Onyeagba (2015) empirically assessed monetary policy and economic growth of Nigeria from 1980 to 2010. The findings indicate that banking sector liquidity ratios and cash reserve ratios have an insignificant positive impact on economic growth. But the study made use of 31 years' time series data that ended 2010. Ojiegbe *et al.* (2016) studied banking sector liquidity and economic growth of Nigeria from 1980 to 2013. The regression result shows that deposit credit ratio has significant positive effect on economic growth. On the contrary, total bank deposits have an insignificant negative effect on economic growth. The study recommends that government should motivate banks to grant more loans and advances to the economy of Nigeria. But the study utilized 33 years' time series data that ended in 2013.

From the review of the previous studies, the gaps identified are scope, conceptual and modeling gap. Therefore, this research work is different from past studies and intends to contribute to knowledge by investigating the influence of bank liquidity on economic growth of Nigeria.

### *2.3. Theory Underpinning the Study*

The theories underpinning this study are endogenous growth theory. Endogenous growth theory or new growth theory was developed 1980's by Romer, Lucas and Rebelo among other economists as a response to criticism of Solow-Swan neoclassical growth model (Jhingan, 2010). Endogenous growth theory states that policy measures by financial institutions and government can have an impact on the long-run growth rate of an economy. For instance, financial development by the government can affect growth in three ways which include raising the efficiency of financial intermediation, increasing the marginal social productivity of capital and influencing the private savings rate. Physical capital and human capital development can contribute to the growth of the economy. The theory criticized as it is traceable to the work of classical economists like Adam Smith, so nothing is new in endogenous theory. Again, the difference between physical capital and human capital is not clear in the model among others (Jhingan, 2010; Adenuga & Donatus 2013; and Yakubu & Affoi, 2014). Despite the criticism, the theory is applicable in current situation due to incessant changes of policy measure by banks and government. Therefore, this study underpinned endogenous theory because policy issues by the government on developments may affect economic growth of a country.

### 3. Methodology

This study adopts causality and ex-post facto research design. This is because the study attempts to explain the extent at which one variable influences the other using secondary longitudinal data. The secondary data of Deposit Money Banks (DMBs) were extracted from Central Bank Statistical Bulletins from 1981 to 2014. This is because it was during this period that banks contribute immensely to the performance of Nigerian economy through the issuance of credits to the economy as a result of an increase in the asset base, capital base and some banks as well as branch network (Somoye, 2008). Also, it was during this period that 45 banks closed their businesses and licenses revoked by CBN (NDIC, 2016).

The population of the study is 64 Deposit Money Banks (DMBs) in Nigeria banking industry from 1981 to 2014. This population includes 45 defunct and 19 existing DMBs operating in the Nigeria banking industry as at December 2015 (NigeriaGalleria, 2015; CBN, 2015). Since census population is studied, sampling technique and sample size frame are not required.

Multiple regression models used. The dependent variable in the model is GDP while the independent variables are DMBs' reserves, liquidity ratios, and loan to deposit ratios. These predictors were chosen because they are variables of interest. Secondly, empirical literature relating to similar studies indicated how these explanatory variables influence the economic growth in which some results are not significant. Therefore, this study adapts analytical framework and model of Marlyse and Ngo (2015) to test causality relationships that exist between bank liquidity factors of DMBs and the economic growth (GDP) of Nigeria. But the study by Marlyse and Ngo (2015) was carried out in Kenya and used variables such as ratios of liquid liabilities to nominal GDP; credit to the private sector to nominal GDP; and commercial bank deposits to nominal GDP as independent variables. The real GDP was utilized as the dependent variable to measure economic growth.

$$GDP = \alpha + \beta_1 \text{DMBs' reserves} + \beta_2 \text{DMBs' liquidity} + \beta_3 \text{DMBs' loandepo} + e_i \dots \dots \dots 1$$

Based on the unit root test of stationarity, the model is estimated as follows:

$$GDP = \alpha + \beta_1 \text{DMBs' reserves} + \beta_2 \Delta \text{DMBs' liquidity} + \beta_3 \Delta \text{DMBs' loandepo} + e_i \dots \dots \dots 2$$

$\beta$ s are betas coefficients to be estimated and the prefix  $\Delta$  on the variable indicates the use of the first difference or a change of the respective variable in the unit root test. The unit root test of stationarity is line with the research works of Aurangzeb (2012), Awoyemi and Dada (2015) and Korkmaz (2015). The explanation of the study variables is as follow:

GDP	=	Gross Domestic Product per annum at current market prices regarding Naira value of all domestically produced goods and services in Nigeria known as nominal GDP. The GDP is a measure of economic growth. This is because the data of nominal GDP of Nigeria was stationary when Dickey- Fuller (ADF) statistical test conducted. Also, nominal GDP at current market prices was used by many research scholars such as Kira (2013); Marlyse and Ngo (2015); Adigwe <i>et al.</i> (2015); Onaolapo (2015); Ojiegbe <i>et al.</i> (2016) and. But Akingunola <i>et al.</i> (2014); Khan <i>et al.</i> (2014); Yakubu and Affoimeasured economic growth as GDP regarding the real market value of all domestically produced goods and services in a country over a period of one year. Also, Ismaila and Imoughele (2015) and Anowor and Chisom (2016) used real GDP growth rate to measure economic growth. Dhungana (2014); Bongini, Iwanicz-Drozdowska, Smaga and Witkowski (2017); and Srithilat and Sun (2017) measure economic growth using GDP per capita income.
DMBs' reserves	=	DMBs' reserves as deposit with CBN per annum regarding Naira value. This is in line with the research works of Omer <i>et al.</i> (2014) and Gitau (2015) that weighed bank reserve using commercial banks deposits as a reserve with the central bank.
DMBs' liquidity	=	DMBs' liquidity ratios that measured by the ratio of total specified liquidity assets to total current liabilities known as cash ratio. This is line with studies of Onyeiwu (2012) and Udude (2014) that gauged bank liquidity using cash ratio.
DMBs' loan dep	=	DMBs' loan to deposit ratios. The ratio measures how liquidity is banked to disburse credits facilities to customers. This is line with the research works of Onaolapo (2015) and Ojiegbe <i>et al.</i> (2016) that used a bank loan to deposit liability ratio to identify liquidity position of banks to disburse loans and advances to customers.
$\alpha$	=	Constant or interceptor
$\beta_1 \dots \beta_2$	=	Regression Coefficients
$e_i$	=	Error term.

Data collected on the variables of the study were inputted and processed in STATA version 13. The output data which is the regression results are used to test the hypotheses and draw conclusions. The hypothesis of this study tested at 1% and 5% significance level. Therefore, the study rejects the null hypotheses if the results are 1% (0.000 – 0.005) and 5% (0.006 – 0.050) significant. Otherwise, the study fails to reject the null hypotheses because of no sufficient reasons for rejection.

#### 4. Results and Discussions

This section discusses diagnostic tests relating to the variables of study as well as hypotheses tests to conclude.

##### 4.1 Stationarity Test

Table 4.1 presents summary unit root test to ascertain whether the data of study variables are stationary or not.

Table 4.1: Summary of Unit Root Test

Variables	ADF Test Statistics	Order of integration
GDP	-2.943 (-2.775)**	I(0)
DMBsreserves	-2.963 (-2.866)*	I(0)
DMBsliquidity	-4.834(-3.770)***	I(1)
DMBsdepoloan	-3.623(-3.195)**	I(1)

Source: Author Computation, 2016 (STATA-3.0)

Table 4.1 shows that GDP and DMBs' reserves are stationary at levels or zero order of integration. But DMBs' liquidity ratios and DMBs' deposit to loan ratios are stationary at first difference, or first order of integration with their ADF test statistics is less than the critical values. Therefore, the shocks have been removed from the model as the time series data is confirmed stationary to run the regression output.



#### 4.2. Results of the Null Hypotheses Testing

Table 4.2 presents summary information concerning the influence of bank liquidity on economic growth of Nigeria.

Table 4.2: Summary of Regression Results

Model 1	Coefficients $\beta$	Standard Error	T	Significance Level
Constant ( $\alpha$ )	90264.318	25629.024	3.522	0.001
DMBs' reserves	2.258**	0.564	4.006	0.000
DMBs' liquidity	-468.905	345.872	-1.356	0.185
DMBs' loandepo	-834.755**	251.644	-3.317	0.002
R	0.720			
R <sup>2</sup>	0.518			
F Statistics	10.758**			
Significance of F (P-alpha value = 0.000)	.....	.....	.....	0.000
Durbin Watson	0.380			

Note: Dependent variable: GDP (Economic growth); Significance Level: 1% (\*\*), 5% (\*)

Source: Author Computation, 2016 (STATA-3.0)

The multiple linear regression outputs explaining the influence of DMBs' reserves, liquidity ratios and loan to deposit ratios on GDP is expressed in the equation form as follows.  $GDP = 90264.318 + 2.258 \cdot DMBs_{reserves} - 468.905 \cdot DMBs_{liquidity} - 834.755 \cdot DMBs_{loandepo}$ .

Table 4.2 shows the outcome of regression results between the predictors and GDP with a constant  $\beta$  value of 90264.318 and standard error of 25629.024. DMBs' reserves have positive estimated coefficient  $\beta$  value of 2.258, standard error of 0.564, t-value of 4.006 and significance level of 0.000 (1%). Therefore, DMBs' reserves have significant positive influence on GDP and hypothesis one ( $H_{o1}$ ) is rejected. This means 1 percent increase in DMBs' reserves will significantly increase economic growth by same percent. The result is similar to the findings of Oh (2011), Gitau (2015), Anowor and Chisom (2016) that indicated cash reserve ratio has a significant impact on GDP. However, the result is different from the finding of Onyeiwu (2012) and Adigwe *et al.* (2015) that observed banking institutions' Cash Reserve Ratio [CRR] has a positive and insignificant effect on economic growth.

DMBs' liquidity ratios have negative coefficient  $\beta$  value of - 468.905, standard error of 345.872, and t-value of 1.356 and significance level of 0.185. Thus, DMBs' liquidity ratios have an insignificant negative influence on GDP and hypothesis two ( $H_{o2}$ ) not rejected. This means that 1 percent decrease in DMBs' liquidity ratios will

insignificantly decrease economic growth by the same proportion. This result is similar to the findings of Onyeiwu (2012), Akingunola *et al.* (2014) that revealed banking sector liquidity has an insignificant effect on economic growth. However, the finding is different from the research works of Udude (2014), Marlyse and Ngo (2015), Fidrmuc *et al.*, (2015) and Berger and Sedunov (2017) that indicated banks liquidity has a significant effect on economic growth.

DMBs' loan to deposit ratios has negative coefficient  $\beta$  value of - 834.755, standard error of 251.644, and t-value of 3.317 and significance level of 0.002 (1%). Hence, DMBs' loan to deposit ratios have significant negative effect on GDP, and hypothesis three ( $H_{03}$ ) rejected. This reveals that 1 percent decline in DMBs' loan to deposit ratios will significantly decline economic growth by 1 percent. This result is similar to the finding of Ojiegbe *et al.* (2016) that showed deposit credit ratio has a significant effect on economic growth of Nigeria. But, the finding is different from the studies of Onaolapo (2015) that observed loan to deposit ratio has no significant effect on economic growth of Nigeria.

In diagnose test of the model, the values of R, and  $R^2$  are 0.720 and 0.518 respectively. The R-value is the coefficient of correlation that explains the relationship between the dependent and independent variables which is a strong positive relationship. Also, the  $R^2$  value is the coefficient of determination that indicates that 51.80 percent of the variation in the dependent variable (GDP) explained by the independent variables of the model. The value of  $R^2$  is strong because a value of  $R^2$  below 0.2 is considered weak; a value of  $R^2$  between 0.2 and 0.4 is moderate; and a value  $R^2$  above 0.4 is strong (SSRL, 2010). Also, the  $R^2$  is strong because variables are correlated and homoscedasticity as no evidence of omitted variables in the heteroskedasticity test.

The F statistic value (P- value) is 10.758 with a significance level of 0.000. If the significance of F statistic value is less than 0.005 ( $p < 0.005$ ) it means independent variable contributes to the prediction of the dependent variable (Pallant, 2001; Hair, Black, Babin & Anderson, 2014).

The Durbin Watson (DW) value is 0.380. Normally, the value of DW statistic ranges from 0.0 to 4.0. So, the value of DW close to 2 or around 2 indicates the absence of autocorrelation problem. Autocorrelation is a problem in time series data because the ordinary regression residuals correlated over time (SAS Institute, 2016).

## **5. Conclusion and Recommendation**

Economic performance of a country is mostly gauged by economic growth which is measured by Gross Domestic Products (GDP). The proxies that significantly influence

economic growth of Nigeria is reserves and loan to deposit ratios of Deposits Money Banks (DMBs). Government must formulate policies that will increase banks reserves with Central Bank of Nigeria (CBN). This is because enough bank reserves with CBN are a signal that the banks have enough liquidity that will influence economic growth. Besides, a policy to increase the ratio of loan to customers deposit liabilities is necessary for the reason that it is an indicator of bank liquidity. On the other hand, if the banks decrease loan or credit disbursements to the private sector it will gradually dwindle the economy.

Therefore, this study recommends that the management of DMBs should increase their deposits with CBN as reserves. This is because an increase in the bank's reserve will increase the economic growth of Nigeria immensely. Also, the management of DMBs should increase the percentage of loan to deposit liabilities ratio. This is because a decrease in the ratio will gradually destroy the economy of Nigeria as fewer funds will be a channel to the productive sector of the economy.

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## Relationship between fiscal policy and balance of payment on economic growth in Nigeria

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### Abstract

*This study investigates the relationship between fiscal policy and balance of payments on economic growth in Nigeria from 1984 to 2017. The method employed is Autoregressive Distributed Lag (ARDL) using variables such as government expenditure, balance of payments, unemployment, real exchange rate, inflation and economic growth. The study revealed that Nigeria absorb more than what the economy produce (that is, domestic expenditure and investment are greater than National income) which result to balance of payment (BOP) deficit arising from over population as compared to productive sector of the economy. The result also shows a positive and significant relationship between unemployment and economic growth. Government expenditure is negatively related to economic growth in short-run, however, in the long run it is positive through infrastructures; inflation is positive in short run while it is negative in the long run; Exchange rate reveal negative and significant relationship with economic growth. It is concluded that balance of payments deficit and over population it's a curse to the economy, it is recommended that Absorption and Devaluation of currency to improve export and deteriorate import through policy induced approach*

**Keywords:** Gross Domestic Product, Balance of Payments, Government Expenditure

**JEL classification:** E62

### 1. Introduction

Economic growth, balance of payments, price stability, and employment creation are the most macroeconomic objectives of every state irrespective of economic status of developed, developing or underdeveloped economies (Reem, 2009). Rhohana, (2017) also shares idea on these objectives which are conflicting factor to one another in most economy. To maintain balance of payments equilibrium, Milthani (1994) stated that seeking the help of international monetary fund (IMF) that give pieces of advice to members on the appropriate measures to be used for balance of payments equilibrium

to be achieved in any country is highly paramount. Fiscal policy is highly recommended as Keynes, 1973 had rightly said that ‘as total demand is volatile and irregular, free market economy will frequently face with inefficiency in macroeconomic outcome in form of economic recession (when demand is poor) and inflation (when demand is appreciate). These can be mitigated by economic policy responds, in particular, monetary action by the apex bank of the country and fiscal policy action by the state which can result in balance of payments unfavorable. The expenditure by the government (fiscal policy) in manufacturing and industrial sector reduced the tension of over reliance on imported goods, this help to advance BOP equilibrium through government intervention (Alexander, 1952). For economic growth to be achieved in an economy, fiscal policy and balance of payment has a vital role to play.

Over decades in Nigeria ranging from her year of independence till date, the economy is still faced with problem of over dependent on foreign products for sustenance and survival despite the numerous natural resources endowment in the economy (Bhim, 2017), thus, makes the economy to be operating unfavorable balance of payments. This is due to fiscal policy ineffectiveness in the economy as experienced during the oil boom era of 1970s where government expenditure (fiscal policy) was shifted to oil sector as a result of the huge revenue receipts received from the sector at that time (World Economic Watch, 2010). The effect of fiscal policy and balance of payments in Nigeria has been a problematic factor inhabiting economic growth since after independence (Hasemzadeh, 2004). The negligence of Agricultural sector due to inappropriate fiscal policy led the economy to be basic importer of food items and other major commodities in the country (Onoh, 2007). However, the failure of oil revenue as foreign exchange earnings caused the economy to experience a decline in gross domestic investment as percentage of GDP from 16.3% and 22.8% in 1970s and 1980s to 14% in 1988 and later increased to 18.2% in 1991 (Agiobenebo, 2000, & Gbosi, 2002). In the first quarter of 2011 the economy posted a surplus of NGN 2175.1 billion compared with NGN 253.3 billion deficit in the same year (World Bank, 2012). The economy balance of payment rose to 54.5% in export year-on-year till 57.3% increase on crude oil in first quarter of 2018 World Bank Report (2018), the fluctuations in all these despite the said effectiveness of the fiscal policy and the balance of payments deficits ignites this research work to examine the trend between fiscal policy (government expenditure and taxes) and balance of payments in Nigeria in checking the influence of fiscal policy on balance of payments in the country. However, the study seeks to fill the gap between deficit balance of payments and efficacy of fiscal policy to achieve economic growth in Nigeria with the aims of achieving how fiscal policy affect balance of payments on economic growth in Nigeria, the nature of relationship that exists between fiscal policy and balance of payments on economic growth of Nigeria. The study will be grouped into five sections, section one comprises of the introductions and aims of the study. Section two includes review of relevant literatures and theoretical framework, section three



contains the methodology used to achieve the research objectives, Section four is concern with data analysis of the empirical results. Lastly, section five includes summary conclusion and recommendation.

## **2. Literature Review**

There are various empirical studies on the relationship between fiscal policy and balance of payments. Bo sodersten and Reed (1994) underpinned the idea of government using fiscal policy to correct the effect of balance of payments disequilibrium (Deficit) through the use of government expenditure and taxation in the economy; either by reducing expenditure and increase tax or increasing expenditure and reduce tax depending on the policy targeting. Mithani (1994) revealed that balance of payment is more harmful to a country's economic growth from his empirical analysis of Pakistan from 1984 to 2010.

Egwaikhide (1994) investigates the effect of fiscal policy on external balances (balance of payments) in Nigeria from 1973 to 1993, captured variables like inflation, money supply, domestic absorption government expenditure on fiscal budgetary policy and balance of payments with OLS and Simulation Approach. His result submitted that government expenditure influences balance of payments with a strong relationship. Thus, to attain external balance, fiscal discipline is necessary in the economy. The studies of effectiveness of fiscal policy and economic growth portray a positive relationship using ordinary least square method and co integration test. The study found a long run relationship between government expenditure and economic growth, such that an increase in government expenditure will lead to expansion in the economy (Ram,1986; Barro, 1991; Easterly & Rebelo,1993; Otani & Villanueva, 1990; Komain & Brahmarene, 2007; Rayan & Sharma,2008). On the contrary, other studies found a negative relationship between fiscal policy and economic growth (Abu-bader & Abu-qarn, 2003; & Ladua, 1986; Adeoye 2006). However, ( Kormendi and Meguire, 1995) could not find any relationship using annual data from (1970-2007), the result shows that the effect of monetary policy is much stronger than the effect of fiscal policy in economic stabilization. In the same vein, (Olawunmi and Ayinla, 2007) estimates fiscal policy in achievement of sustainable economic growth using slow growth model and ordinary least square (OLS) method discovered that, fiscal policy has no impact on sustainable economic growth in Nigeria. Ogbole, Amadi, and Essi (2011) investigate the impact of fiscal policy on economic growth in Nigeria from 1970 to 2006. Their findings show that there is a difference in effectiveness of fiscal policy and economic growth. Onwanchukwu, (2015) examined the impact of fiscal policy in unemployment and inflation on economic growth in Nigeria from 1985 to 2010 using Ordinary Least Square (OLS) technique, findings revealed that unemployment does not significantly impact economic growth in the country while inflation impact significantly on economic growth in Nigeria.

Muhammad (2014) study the effect of inflation and employment on economic growth of Pakistan from 1980 to 2010 using ARDL, the study observed that inflation differs

from economy to economy his findings revealed that there exists a positive relationship between inflation and economic growth. Akpansung (1998) examined the applicability of monetary approach to balance of payment in Nigeria from 1960 to 1995 using two stage least (2SLS) with relevance monetary variables, he summated that balance of payment has a negative relationship with economic growth.

### 3. Methodology

This study adopted the Absorption Theory propounded by Alexander (1952). The theory state that if a country has deficit in her balance of payments, it means that people are “absorbing” more than they produce. This explains the rate of employment of factors of production in the economy which make the domestic expenditure on consumption and investment to be greater than national income of the country absorbing. However, if a country is having balance of payment surplus it means that the people are “absorbing” less than what the produce. Domestic expenditure on consumption and investment is less than the national income of the country, which indicates full utilization of factor resource in the economy. Thus, balance of payments is explained as the difference between national income of the country and her level of domestic expenditure. The theory can be explained in the following form:

$$Y = C + I_d + G + X - M \dots\dots\dots 1$$

Where Y represents the national income of the country, C is the consumption expenditure  $I_d$  is the domestic investment, G is the autonomous government expenditure, X is the export of the country, where M is the import. Thus, the summation of  $(C + I_d + G)$  is the total absorption represented as ‘A’ and the balance of payments  $(X-M)$  represented as ‘B’. Thus, the equation became

$$Y = A + B \dots\dots\dots 2$$

$$B = Y - A \dots\dots\dots 3$$

Which means that balance of payments on current account is the difference between Y and A. balance of payments can be improved by either increasing domestic income or reduce the absorption. First it increases export and reduce imports, therefore, fostering economic growth through the national income. The marginal income generated will further increase income through multiplier effect. This will lead to an upswing in domestic expenditure. Thus, the net effect is

$$\Delta B = \Delta Y - \Delta A \dots\dots\dots 4$$

The total absorption  $\Delta A$  depends on the marginal propensity to absorb when there is depreciation. This is express as ‘a’

$$\text{Devaluation also directly affect absorption through changes in income represented as } D. \text{ therefore, } \Delta A = a\Delta Y + \Delta D \dots\dots\dots 5$$

Put equation 4 into 3, we have

$$\Delta B = \Delta Y - a\Delta Y - \Delta D \dots\dots\dots 6$$

The equation point towards three factors which explain the effect of devaluation of currency on the balance of payments of a nation, these are the marginal propensity to absorb (a), secondly,  $\Delta Y$  and changes in direct absorption. It may be observed that since 'a' is the marginal propensity to absorb, (1-a) is the propensity to save. These factors in turn, are disturbed by the likelihood of unemployment and full employment of resource of the country.

### 3.1 Estimation Procedure

There are many tests for establishing the stationary or otherwise of a series. Unit root can be tested using: Dickey-Fuller (DF) test, Augmented Dickey-Fuller (ADF) test, Phillips-Perron test and Kwiatkowski et al. test.

The Augmented Dickey-Fuller (ADF) (1979) regression tests for the existence of unit root  $Y_t$ .

The extension of DF test (Augmented Dickey-Fuller test, ADF) allows for possibility that the error term is autocorrelated. The ADF test refers to the  $t$  statistics of coefficient on the following regression:

$$\text{Case 1: no constant no trend: } \Delta Y_t = \gamma Y_{t-1} + \sum_{i=1}^k \beta_i \Delta Y_{t-i} + \varepsilon_t \dots\dots\dots \text{equation 1}$$

$$\text{Case 2: with constant but no trend: } \Delta Y_t = \alpha + \gamma Y_{t-1} + \sum_{i=1}^k \beta_i \Delta Y_{t-i} + \varepsilon_t \text{ equation 2}$$

$$\text{Case 3: with constant and trend: } \Delta Y_t = \alpha + \lambda t + \gamma Y_{t-1} + \sum_{i=1}^k \beta_i \Delta Y_{t-i} + \varepsilon_t \text{ equation 3}$$

The model specification is based on the theoretical argument in the literature review. Therefore, the empirical model follows Alexander (1952) though with a slight modification. The adoption of the model is because it gives the inside association of the dependent and independent variables. The model can be express in the following linear form

$$GDP_t = \beta_0 + \beta_1 GEX_t + \beta_2 BOP_t + \beta_3 UNEM_t + \beta_4 EXCH_t + \beta_5 INF_t + \mu_t \dots\dots\dots 7$$

$GDP$	=	real gross domestic product
$GEX$	=	government total expenditure
$UNEM$	=	unemployment rate
$EXCH$	=	exchange rate
$BOP$	=	balance of payments
$INF$	=	inflation
$\mu$	=	disturbance term (white noise)
$t$	=	represents time period.
$\beta_0$	=	parameter constant/ intercept
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$	=	coefficient or parameter estimates

### 3.2 Autoregressive Distributed Lag Model (ARDL)

The study utilizes the newly proposed ARDL bounds testing approach originally introduced by Pesaran and Shin (1999) and later extended by Pesaran, Shin and Smith (2001) to examine the co-integration relationship between GDP and its various determinants of fiscal policy and balance of payments. The test has a numerous advantage over the various co-integration tests. First, unlike other conventional co-integration techniques, the ARDL bounds testing approach does not impose the restrictive assumption that all the variables under study must be integrated of the same order. In other words, the ARDL approach can be applied to test the existence of a relationship between variables regardless of whether the underlying regressors are integrated of order one I(1) and order zero I(0). Another advantage of the ARDL technique is that it generally provides unbiased estimates of the long-run model and valid *t*-statistics – even when some of the regressors are endogenous (Odhiambo, 2008; 2011). Again, while other co-integration techniques are sensitive to the size of the sample, where the critical value on their estimation is based on a large sample from 500 and above, the ARDL test is suitable even when the sample size is small given the critical value of small sample size by Narayan (2005). Thus, the ARDL test has superior small sample properties compared to the Johansen and Juselius (1990) co-integration test.

Following Pesaran et al. (2001); Narayan (2005), the study estimates the robust Autoregressive Distributed Lag (ARDL) model. The bounds testing approach is employed to test the existence of a cointegration relationship amongst the variables.

The ARDL(*p*, *q*<sub>1</sub>, *q*<sub>2</sub>, ..., *q*<sub>*k*</sub>) model specification is given as follows;

$$\Phi(L, p)yt = \sum_{i=1}^k \beta_i(x_i) Lq + \delta wt + ut \quad i=1 \dots \dots \dots 8$$

where

$$\Phi(L, p) = 1 - \Phi_1 L - \Phi_2 L^2 - \dots - \Phi_p L^p$$

$$\beta(L, q) = 1 - \beta_1 GEX - \beta_2 BOP - \beta_3 UNEM - \beta_4 EXCH - \beta_5 INF, \text{ for } i=1, 2, 3, 4, 5 \quad ut \sim iid(0; \delta)$$

*L* is a lag operator such that  $Lyt = Xt$ ,  $Lyt = yt - 1$ , and a *s*x1 vector of deterministic variables such as the intercept term, time trends, seasonal dummies, or exogenous variables with the fixed lags.  $P=0, 1, 2, 3, 4, 5$   $q=0, 1, 2, 3, 4, \dots, m$ ,  $i=1, 2, 3, 4, 5$ : namely a total of  $(m+1)^{k+1}$  different ARDL models. The maximum lag order, *m*, is chosen by the user. Sample period,  $t = m+1, m+2, \dots, n$ .

### 3.3 Long and short Run Elasticity Estimates

The long run coefficients are estimated to find the elasticity of the determinants of gross domestic product based on the equation specified underneath.

$$GDP_t = \beta_0 + \beta_1 GEX_{t-1} + \beta_2 BOP_{t-1} + \beta_3 UNEM_{t-1} + \beta_4 EXCH_{t-1} + \beta_5 INF_{t-1} + \mu_t \dots \dots \dots 9$$

Here, the variables are as earlier explained. The study estimates the long run equation based on the existence of co-integration using lag length automatically selected by Akaike information criteria.

The error correction term is included in the analysis of the short run elasticity of the model in order to find the speed of adjustment. The parameter of the error term shows how quickly variables converge to equilibrium. The error-correction term is calculated from the long run co-integrating vector and it should have a statistically significant coefficient with a negative sign. Once the model has been estimated, Pesaran and Shin (1999) suggest applying the cumulative sum of recursive residuals (CUSUM) tests proposed by Brown et al, (1975) to assess the parameter stability.

#### 3.4 Sources of Data

The data employed in this study are secondary data which were obtained from the World Bank data, Central Bank of Nigeria statistical bulletin and Bureau of statistic from 1984 to 2017 using annual time series data.

### 4. Data Presentation, Analysis and Discussion of Result

#### 4.1 Unit Root Test

Table 1 Unit Root Test (ADF)

Variable	Constant without trend		Constant with trend	
	Level	1 <sup>st</sup> Difference	Level	1 <sup>st</sup> Difference
LGDP	-3.069**	-4.611***	-0.012	-5.169***
LGEX	-3.195**	-0.696	-1.256	-14.375***
BOP	-2.790*	-6.081***	-3.161	-6.028***
UNEM	-1.292	-7.804***	-3.065	-7.718***
INF	-2.119	-4.638***	-4.722***	-4.968***
EXCH	-2.602	-4.803***	-2.223	-5.344***

*Note: \*\*\*, \*\* and \* represent significance level at 1%, 5% and 10% respectively. The figures are the t-statistics for testing the null hypothesis that the series has unit root. The lag length is determined automatically based on Schwarz information criteria. The critical values for intercept without trend are -4.284580, -3.562882 and -3.215267 whereas, for intercept with trend the values are -3.661661, -2.960411 and -2.619160 for 1%, 5% and 10% respectively.*

Following the result of Table 1, it can be seen that all the variables pass the unit root test of ADF at 1<sup>st</sup> difference and some at LEVEL with co integration order of 1(0) and 1(1). Thus, the null hypothesis of non-stationary is rejected at 1<sup>st</sup> difference and accepts the alternative hypothesis of stationary. This evidenced the use of the data for further use in analyzing the relationship between fiscal and balance of payments on Nigerian economy.

Table: 2: The result of ARDL Bound Test for co integration

Bound Test To Co integration			
F (LGEX BOP, UNEM, LEXCH, INF)			
Optimal lag structure		ARDL (2, 1, 1, 2, 1, 1,)	
F-statistic	14.66481		
Significant level	critical value {Lower bound 1(0)}	critical value {upper bound 1(1)}	
10%	2.08	3	
5%	2.39	3.38	
2.5%	2.7	3.73	
1%	3.06	4.15	

The value of F-statistic figures test for null hypothesis that there is no co integration among the variables used. To demonstrate the co integration relationship among gross domestic product (LGDP) and its determinants, an overall significant F-test for the null hypothesis of no co integration relation was analyzed. The result of the F-test for co integration test is = 14.66481 which is higher than 1% upper bound critical value of ARDL co integration. This implies that there is long run relationship among the variables employed in the analysis.

#### 4.2 Long Run Results

Table 3: Longrun Regression Result

Dependent variable (LGDP)			
EC= LGDP-(1.6216*LGEX-0.0008*BOP+0.024*UNEM-0.8334*LEXCH-0.0163*INF+0.9018)			
Variable	Coefficient	standard error	t-statistic (p-value)
LGEX	1.621601	0.118347	3.70208 (0.0000) ***
BOP	-0.00804	0.004990	-0.161216 (0.8737)
UNEM	0.024107	0.008021	3.005365 (0.0076) ***
LEXCH	-0.833396	0.145024	-5.746594(0.0000) ***
INF	-0.016327	0.004555	-3.584316(0.0021) ***
C	0.901762	0.288786	3.122603 (0.0059) ***

Note: \*, \*\*, \*\*\* represent 10% 5% and 1% significant level respectively.

Table 6: ARDL Short Run Analysis

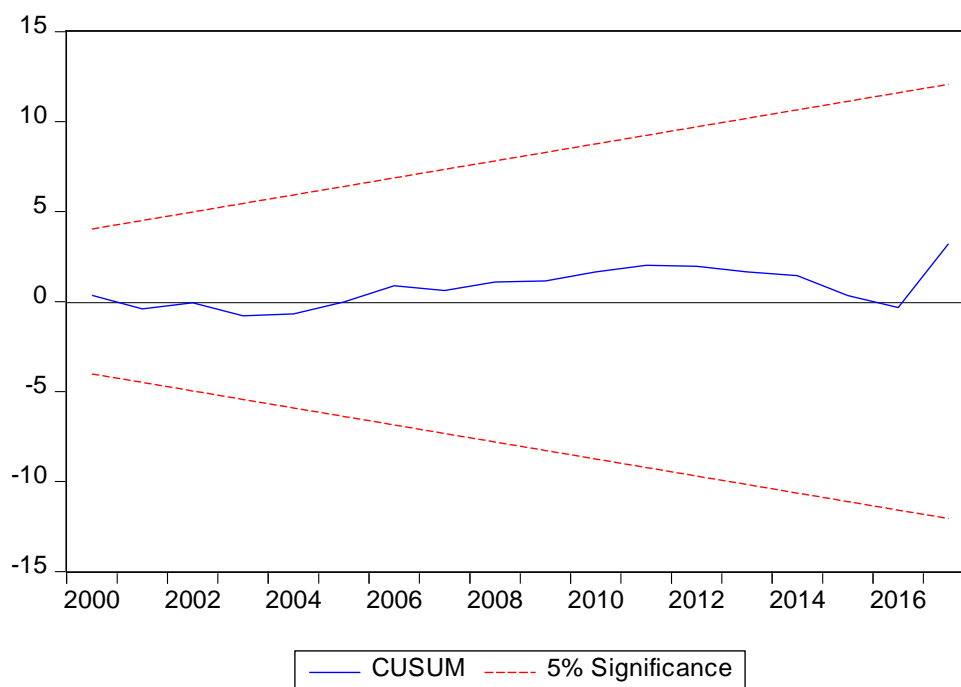
Variable	coefficient	standard error	t-statistic	(p-value)
$\Delta(\text{LGEX})$	-0.381878	0.222339	-5.627196	0.0006***
$\Delta(\text{BOP})$	-0.003778	0.001992	-1.896212	0.0741
$\Delta(\text{UNEM})$	0.007599	0.004092	1.857095	0.0797
$\Delta(\text{INF})$	0.003003	0.001194	2.515117	0.0216
$\Delta(\text{LEXCH})$	0.292676	0.065678	4.456194	0.0003***
Cointeq(-1)*	0.613943	0.052477	11.69921	0.0000

Notes: P values: significance \*10%; \*\*5%; \*\*\*1%.

From table 3, the long run result shows that government expenditure (LGEX) is positive and significant at 1% which implies that an increase in government expenditure will increase economic growth by 1.62% through capital expenditure in the economy. balance of payment deficit is negative and not significant in long run while it is also negative but significant in short run it implies that an increase in balance of payment deficit will reduce economic growth by 0.08% in the short run this ensure the consistency of Mithani (1964) who says BOP deficit is more harmful to a country's economic growth.. Unemployment is positive and significant at 1% both in short run and long run relationship which may be attributed to impact of informal sector contribution to the outputs of the economy which renders the effect of unemployment in the nation meaningless, though not as expected. Inflation is negative and significant at 1% in long run showing an increase in the general price level in the country will reduce the growth of the economy by 0.01% This finding is in line with Muhammad (2014) who investigated the effect of inflation on economic growth in Pakistan from 1980 to 2010 using ARDL, he noted that inflation varied from economy to economy but most studies found a positive relationship between inflation and economic growth. Exchange rate is also negative and significant in long run which implies that an appreciation of exchange rate reduces economic growth in Nigeria

#### 4.3 Stability Test

The stability test is used through cumulative sum of recursive plot to check for the stability of the model coefficient. The stability of CUSUM test through the plot of residual will be stable if the line of the residual lies within the boundary of the graph at 0.05 level of significant.



The result of stability test revealed that the model is stable through its CUSUM analysis. As indicated by the CUSUM analysis, the blue line is within the boundary which implies that at 5% level of significant the model is stable in investigating the relationship between fiscal policy an balance of payment in Nigeria under the period of study.

### 5. Conclusion and Recommendations

The study examines the relationship between fiscal policy and balance of payments in Nigeria. Empirical analysis of government expenditure, unemployment, inflation and exchange rate as factor inducing balance of payments equilibrium on national economy, using available data, was considered; which previously has not been found in recent literatures.

The study found a (significant) positive relationship between unemployment and economic growth showing that an increase per unit of unemployment will increase economic growth by 1.8 units, which explains that the prevalence of unemployment increase growth potentials. World Bank estimate were adopted in measuring unemployment. For most of the period covered (1984-2017), the estimate of balance of payments is negative, signifying that the country absorb more than it produce and residence periodically import goods and services from abroad. Similarly, exchange rate and inflation was identifies as consequence of economic growth and balance of payments disequilibrium. However, some of the variables was found to be positive and significant in short run and a negative coefficient in the long run such as exchange



rate and inflation while government expenditure shown to be positive and significant in the long run. Balance of payments is negative both in short run and long run analysis of ARDL, unemployment is positive both in short run and in the long run with a significant value.

Following the result from the research work above, it is recommended that for Nigerian economy to grow by considering the aspect of fiscal policy and balance of payments, the following points are recommended for policy makers to look into in order for the ugly situation facing this great country with enormous mineral deposit and human capacity to be resolve in the economy.

- i. Capital investment should be given more priority by both the government and private sector with full liberalization of the economy to encourage foreigners for more investment. This will help to reduce unemployment rate facing the economy and the productivity of the nation will increase.
- ii. Import substitution industries should be built through corporate bodies to ensure competition in the production of goods and services, while government should play a regulatory role to ensure regular supply and availability of products in the economy through proper implementation of fiscal policy to reduce the rate of importation of unnecessary goods into the country which often result the economy to operate disequilibrium balance of payments.
- iii. Problem of unemployment in the economy could be solved if fiscal policy could be effectively implemented. The problem of unemployment in Nigeria gear the economy to deficit balance of payments since those that could have been used for the production of imported goods are unemployed, the national output also get falls below the desired level of output in the production of basic consumer and capital goods. This revolved round the economy to caused high rate of poverty in the

The relationship between fiscal policy and balance of payments in Nigeria was investigated using five independent variables such as government expenditure (GEX), balance of payments (BOP), unemployment (UNEM) inflation (INF) and exchange rate (EXCH) with gross domestic product (GDP) as the dependent variable with 34years as the scope of the study. Therefore, other researchers are advice to increase the scope of the study, more variables to see the effectiveness of the relationship. The research uses ARDL, its advice for other researchers is to employ other econometric technique to evaluate the relationship.

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## Human Development and Economic Growth in Nigeria: An Empirical Study

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### Abstract

*This study empirically examines the impact of human development on economic growth in Nigeria. Specifically, the study looks into how human development affect real gross domestic product (RGDP) in Nigeria using time series data for the period 2003 to 2015. Error correction model (ECM) and Pairwise Granger Causality test are used in analyzing the data. The study carries out test of stationarity of the variables using Augmented Dickey–Fuller unit root test and test of long-run relationship among the variables using Johansen Cointegration test. The findings show that human development has significant causal relationship with economic growth in Nigeria. Unidirectional causality runs from human development to real GDP in Nigeria. All variables of the study are cointegrated and have a long-run relationship that indicates a divergence from equilibrium with a speed of 84%, hence, the explanatory variables have to be adjusted by 84% of the past year deviation from equilibrium. The study recommends among others that adequate attention be given to indices of human development index that is education, life expectancy, health and income in purchasing power parity amongst others as enlisted by the UNDP as improving on them will go a long way in improving the human production capacity of the people that would and hence translate to improvement in economic growth in Nigeria.*

**Keywords:** Human Capital Development, Gross Capital Formation

**JEL classification:** O15

### 1. Introduction

Human development plays a fundamental role and remains the most important factor in economic growth and development in countries of the world. The Human Development Index (HDI) is a composite statistic used to rank countries by level of “human development” and to separate countries into developed (high development), developing (middle development), and underdeveloped (low development) categories. The statistic is computed using data on life expectancy, education and per capita GDP,

each as an indicator of standard of living. Human Development (HD), being the ultimate objective of each and every human activity, it plays a vital role in producing high skilled manpower that leads to economic growth and hence economic development. "Human development denotes both the processes of widening people's choices and level of their achieved wellbeing" (UNDP, 1990). Human development is the enlargement of people's choices to live more prosperous lives.

Economists consider human development as one of the most important ingredients of economic growth (Afzal, Butt & Rehman, 2010). Sustained economic growth accompanied with social development is one of the notable macroeconomic objectives of every country and in this regard human development is deemed as an essential ingredient (God's time, & Uchechi, 2014).

The government of Nigeria has failed to reap the maximum benefits from human capital development due to less emphasis and less budget allocation to social sector. Despite almost threefold increase in total expenditure of public sector since 1999 post military era, the government spending on health and education has remained low. In fact, spending on health as a percentage of GDP has even declined over time as it was 0.98% of GDP in 1999 which declined to 0.92% of GDP in year 2014. The estimates of government education expenditure in Nigeria as a share of GDP and of total government expenditure can be compared to the situation in other sub-Saharan African countries. UNESCO's World Education Report (2000) presents the data for 19 countries across sub-Saharan Africa for 1996. The average share of GDP was 4.7% and of government expenditure was 19.6%. In both cases, the measures of educational expenditures for Nigeria (2.3% and 14.3% respectively) are relatively low.

However, recent data shows that total expenditures on education by all governments combined were equal to 3.5% of GDP and 15.2% of total government expenditure. Education expenditures were equal to 15% of total federal expenditures and 21%, 27% and 29% of the total expenditures of the Northern, Eastern and Western regional governments respectively. In terms of education spending, Nigeria is one of the lowest in Africa and in terms of human development index by UNDP latest ranking of August 30, 2016 report, Nigeria ranked at 152nd position. Consequently, the country retained its 2014 status as there was no forward or backward shift from the computation. Nigeria's HDI value for 2014, according to UNDP's 2015 report, was 0.514 which put the country in the low human development category, positioning it at 152 of 188 countries, whereas Mauritius ranked at 63rd position, Tunisia ranked at 96th position; Botswana ranked at 106th position; Sao Tome and Principe ranked 143<sup>rd</sup> position; Kenya was placed at 145<sup>th</sup> position on the list of countries ranked low. The country of the region, that has the lowest was Niger, is considered to be low human developed nation and ranked at 188<sup>th</sup>.

Most of the empirical researches conducted on the subject matter on Nigerian economy has defined human development in terms of education indicators or in terms

of health indicators. These (indicators) alone according to Asghar, Awan and Rehman, (2012), fail to capture development and skills of the labor force; therefore, there is a need to conduct research on this aspect that uses much broader measure of human development in the context of Nigerian economy. Besides conflicting results from the previous studies, none of the studies estimate the magnitude of influence exerted by the identified variables. The present study is an attempt to use broader measure of human development as it uses human development index as proxy for human development and real gross domestic product as proxy for economic growth (Ogujiuba, 2013).

Some studies argue that human development have had impact on economic growth. For instance Judson (2002), Ranis, Stewart and Ramitez, (2000) among many others uphold that human development has a positive long run relationship on economic growth, whereas, Liu, Squire and Zou (1998) among others see otherwise relationship between human development and economic growth. Also, researches till today hold different opinions regarding the causal nexus between human development and economic growth. However, most of these studies present inconclusive and contradictory results over the relationship between human development and economic growth and as such more studies are needed in this area for Nigeria and this justify the need for this research.

It is in the light of these conflicting views on the dynamic impact and causality relationships, the possible long run relationship that may exist between human development and economic growth, and the recent improvement in availability of data on human development index call for this study. Therefore, the objectives of this study is to empirically estimate the dynamic relationships between human development and economic growth in Nigeria, to investigate the direction of causality between human development and economic growth in Nigeria and also to ascertain whether long run relationship exists between human development and economic growth in Nigeria.

This paper is divided into five sections, with section two clarifying relevant concepts and review of literatures. Section three discusses sources of data used for analysis, states the hypothesis, specifies the relevant model and outlines estimation and evaluation techniques. Section four analyzed data, while section five dwells on recommendations and conclusion.

## **2. Literature Review**

### *2.1.1 Concept of Human Development*

Human development is a development paradigm that is of more significance than the rise or fall of national incomes. It is about creating an environment in which people can develop their full potentials and lead productive and creative lives in accord with their needs and interests. People are the real wealth of nations. Development is, thus, about expanding the choices of people's lives. Therefore, much more than economic

growth which is only means of enlarging people's choices (MahbubulHaq, 1998). Human development is related to economics and standards of living (World Bank, 2005). Human capital refers to the stock of competences, knowledge and personality attributes embodied in the ability to perform labour so as to produce economic value. It is the attributes gained by a worker through education and experience. Many early economic theories refer to it simply as workforce, one of three factors of production, and consider it to be a fungible resource – homogeneous and easily interchangeable. Other conceptions of labour dispense with these assumptions. Human capital theory predicts that more educated individuals are more productive (UNDP, 2005).

According to the theory of Mincer (1958), productivity of labour is high with educated individuals and consequently they contribute far more to the level of national income and also earn higher income than their uneducated counterparts. Furthermore, education is a good measure of human development and the relationship between human development and poverty level has a significant effect on economic growth and development in some selected countries of the world.

#### *2.1.2 Human Development Index*

Human Development (HD) and Human Development Index (HDI) are powerful concepts. The former refers to the process of empowerment in the possession of the capacity to build up oneself so as to be able to live a long life, be able to read and write and to participate in the societal affairs effectively and above all be gainfully employed to earn a living. The latter merely establishes how far a country has been able to achieve this for its citizens in numerical qualitative evidence represented by a real number. The fact is that earlier indices of development such as per capita income and its various derivatives have not been able to establish this effectively, especially for comparative purposes. HDI is an index fashioned out of education, life expectancy and income in purchasing power parity (UNDP, 2010-2015).

#### *2.1.3 Human Development Report*

The first Human Development Report in 1990 opened with the simply stated premise that has guided all subsequent Reports: "People are the real wealth of a nation." By backing up this assertion with an abundance of empirical data and a new way of thinking about and measuring development, the Human Development Report has had a profound impact on development policies around the world. The 2010 Report continues the tradition of pushing the frontiers of development thinking. For the first time since 1990, the Report looks back rigorously at the past several decades and identifies often surprising trends and patterns with important lessons for the future. These varied pathways to human development show that there is no single formula for sustainable progress. In other words, no single index could ever completely capture such a complex concept—and that impressive long-term gains can and have been achieved even without consistent economic growth. Looking beyond 2010, this Report surveys critical aspects of human development, from political freedom and



empowerment to sustainability and human security, and outlines a broader agenda for research and policies to respond to these challenges (UNDP, 2005).

The HDI is a composite measure of human development covering health and education as well as income. It was devised by the late Pakistani economist Mahbubul Haq for the first Human Development Report in 1990. The new 20<sup>th</sup> Anniversary Edition of the Report revisits that original analytical exercise, using new methodologies and international data sources, also looking back to 1970. The HDI 2010 report combines three dimensions: Longevity (a long and healthy life): measured by Life expectancy at birth; Knowledge (access to knowledge): measured by Mean years of schooling and Expected years of schooling; and Standard of living (decent standard of living): measured by purchasing power based on GNI per capita (PPP US\$).

## 2.2 Theoretical Framework

The initial theory of human development dates back to pioneer work of Mincer (1958), Schultz (1961) and Becker (1962), who believe that human development is just like physical capital and one can invest in it by means of education, health and training which, in turn, will raise output and contribute to economic growth. Furthermore, proponents of endogenous growth theory lay emphasis on human capital formation and regard it a factor which explains difference in growth performance of under developed and developed nations (See, Asghar, Awan and Rehman, 2012; Romer, 1990; Lucas, 1988; Rebelo, 1991). Therefore, it can be concluded that human development has gained significant importance in growth theories (Russo, Santos, & Parré, 2012).

Solow (1957) introduced the influence of technological progress on the production process. The model introduces total factor productivity growth, represented by parameter A, which is sometimes also referred to as the available technology stock. The basic Solow model's production function exhibits constant returns to scale and is assumed to be capital-augmenting or Solow-neutral technology, as seen in the following Cobb-Douglas production function:

$$Y = f(K, AL) = AK^\alpha L^{(1-\alpha)} \dots\dots\dots 1$$

Where: Y = level of output in a given period; A = an index for the level of total factor productivity; K = the available level of physical capital; L = the available labor supply and finally;  $\alpha$  = is a parameter that represents the capital elasticity of output.

Because this study is primarily concerned with savings productivity growth per worker, it is required to restate the above production function in per worker terms:

$$y = AK^\alpha \dots\dots\dots 2$$

The neo-classical theory of growth developed by Solow (1957) centered macroeconomists' attention throughout the 1960's and 1970's on tangible (physical) capital formation as the driver of economic growth. However, the theory showed that,

the accumulation of capital would not indefinitely support a steady rate of growth in labour productivity due to the decreasing marginal returns in substituting physical capital for labour.

The recent literature on “endogenous economic growth” emerged primarily as an attempt to encompass the sources of technological progress and hence of sustained productivity growth within the general equilibrium framework of neoclassical growth theory. In the literature, several distinct explanations of the process of economic growth are provided, each of which carries particular empirical and policy implications. Romer’s “AK model” generates sustained growth by assuming that technological change is the unintended result of specializing in investments by firms. Creating the capacity to produce additional specialized intermediate products is assumed to work like Adam Smith’s principle of division of labour, but at the aggregate level. Also, the resulting externalities yield increasing returns to cumulative investment, and thus the production of goods can avoid the decreasing returns to rising capital-intensity that the neoclassical model posited. In addition, these externalities imply that the competitive equilibrium growth path does not coincide with that which could be achieved in an optimally planned economy

The contributions by Uzawa (1965) and by Lucas (1988) reveal how individual decides on how much of his available time is spent for producing physical output and how much is used for the formation of human capital. Uzawa and Lucas deduce that human development is the result of human capital input alone. However, neither of these models allows for public spending in the process of human capital formation. Contributions, which acknowledge that the public sector can stimulate the formation of human capital by devoting public resources to schooling, include Glomm and Ravilumar (1992), Ni and Wang (1994), Beauchemin (2001) and Blankenau and Simpson (2004).

The latter conclusion was reached by virtually all the theoretical analyses based upon successive formulations that belong to the family of “endogenous growth models”. This implies that policy action might improve growth performance. Subsequently, through the explicit introduction of human capital and/or knowledge, endogenous growth models have fleshed out the process of technological change. Lucas (1988) asserts that human capital is not fundamentally different from physical capital. It is considered as another input in the production function, formed by workers through certain activities (principally education or on-the-job training). By assuming that human capital formation has constant returns – based on the argument that workers’ knowledge “spills over” – the model can achieve a positive steady-state rate of growth in labour productivity. A second line of analysis focuses on modeling other important activities pursued by skilled labour, especially innovation while shifting attention away from treating human capital as a direct input to the production of goods. The main form of technological change recognized by the endogenous literature following

Romer (1990) is that which results from research and development (R&D) investment that creates a greater variety of goods, or improves the quality of existing investments.

This analysis brought out the significant point that when human capital is modeled as a factor affecting innovation, the long run rate of productivity growth is positively affected by the human capital stock's level; whereas, in the Lucas (1988) model, the rate at which human capital is being accumulated, relative to the existing stock, was seen as the critical determinant of productivity growth. However, the early growth models (Harrod 1939; Domar 1946; Solow 1996) explained the long-run growth path of advanced capitalist economies in terms of technological progress and accumulation of capital. These models were solely concerned with growth in income. From the perspective of a developing country, the model has limited relevance to the extent that increased accumulation of capital is the basic condition for the growth of economies.

Development theories from earlier times accepted the importance of structural transformation in the process of economic development (Lewis 1956; Fei and Ranis 1996). Through stylized facts of development, these models also explained the importance of attaining structural transformation in developing economies. In addition development economics gained an added thrust with the publication of Sen (, 1984, and 1985). Sen (1984) divided the whole concept of development in terms of commodities and capabilities by emphasizing the importance of capabilities over commodity approach. He also acknowledged that GNP is a measure of the amount of the means of well-being of people, but it does not reveal what the people are doing to progress from achieving their means, to their ends. It can be deduced from the writings of Sen (1985), that achieving development cannot be a matter of quantifying income alone, but has to be incorporated with the actual achievement themselves.

Developments in the growth theory have started acknowledging the importance of development variables. For example (Romer, 1982) tries to incorporate some of the development variables like human capital, into the growth framework. Recently empirical cross country studies (Young, 1995) also acknowledge the importance of increased participation in the labour force, educational improvement and intersectoral transfer of labour from agriculture, as earlier parts of development thinking. Thus, the tendency of convergence between growth economics and development economics has increased. Attempts have also been made to relate these two concepts of economic growth and human capital development empirically (Ranis and Stewart, 2001). The focus of this study is on the two-way relationship between economic growth (EG) and human development (HD). The study views human development as a central objective of human activity and economic growth as a very important instrument that has the potential for advancing it.

While there is persuasive evidence about the positive relation between initial human capital levels and output growth and (weaker) empirical support for the relationship between changes in human capital and growth, it is unclear whether there is a causal relationship between human capital and growth. Bills and Klenow (2000) suggest that

the causal direction may run from growth to schooling. Inspired by the fact that there has been a dramatic increase in schooling in the last 30 years at the same time that the “productivity slowdown” became manifest in many of the higher income economies, a Mincerian model would predict that relationship by asserting that growth leads to lower discount rates in the country thus increasing the demand for schooling. Both variables may of course be driven by other factors. Based on results from various empirical tests, it was deduced by Bils and Klenow that the link from schooling to growth is too weak to explain the strong positive association found by Barro (1991), and Barro and Lee (1993), as described above. But, they argue, the “growth to schooling” connection is capable of generating a coefficient of the magnitude reported by Barro. Lucas (1988) retains other elements of the neoclassical growth model but includes human capital as an additional input in the production of goods. This model assumes that the output of the economy can be generated by using the labour force to accumulate human capital and combining it with physical capital. One version of the model assumes that human capital is acquired through time spent in an educational process that is (non-productive). This means that a trade-off is introduced for workers between employing time to produce output and using it to gain further human capital that will increase their marginal productivity when working in subsequent periods.

It is also evident in another version of the model that on-the-job training can enable workers gain human capital and so their productivity is increased later on by the time employed working. In the case of education, human capital accumulation involves a sacrifice of current utility in the form of less current consumption, or in the case of on-the-job training, a less desirable mix of current consumption goods is considered. Albeit, the literature on endogenous growth theory has stimulated economists’ interest in empirical evidence bearing on cross-country comparisons of the existing relationships between human capital formation and the growth rate of real output. Some growth models view human capital as a simple input to production. They predict that growth rates will be positively associated with changes in the stock of education. However, models in which human capital plays a role in the development of innovations and its diffusion throughout the economy assume that it is the stock (rather than the flow) of human capital that affects the overall productivity growth rate of the country. One force of sustained per capita growth in endogenous growth models is human capital. The literature on human capital formation is abounding with partial equilibrium analyses of production and cost functions of education (Prakash and Chowdhury, 1994).

In order to determine the dynamic evolution of output, the Solow-Swan and Ramsey models suggest that it is sufficient to use the equation describing physical capital accumulation. When human capital is included, it is necessary to consider an additional sector where the growth of human capital takes place in order to specify the growth path. Since physical capital has diminishing returns, the requisite assumption for the model to exhibit a positive growth rate of output per worker in the steady state is that the “technology” for generating human capital has constant returns. This means

that whatever the level of human capital attained, the growth of human capital is assumed to be the same for a given level of effort. Based on this assumption, output growth rate (per worker) is positive and increasing in the productivity of education or on-the job training in the creation of human capital. Azariadis and Drazen (1990) model the mechanism of human capital transmission across generations in the more plausible framework of an overlapping generation's model (Lucas followed Ramsey in the simplifying assumption that firms and households are infinitely lived). These models stipulate that the human capital accumulated by the previous generation is inherited by agents. They then decide how much time to devote to training young graduates in acquiring further skill in technology that increases the quality of their labour, and in so doing affect their marginal productivity when they are older. In deciding its own human capital investment, a given generation does not take into account the inter-temporal spill-over effect upon the human capital endowment of future generations. As such, a technological externality occurs which can result in constant or increasing returns to human capital at the social level. This outcome could be attributed to the impossibility of contracting with the future generations and is sometimes referred to as allocation inefficiency due to "incompleteness of markets". This problem affecting human capital investment comes from a source which is rather different from the set of conditions previously seen to impair the allocative efficiency of markets that do exist.

Therefore, Lucas endogenous theory of growth will serve as the foundation of this work. Lucas (1988) presented a growth model in which output is generated via a production function of the form

$$Y = AK^\alpha (uhL)^{(1-\alpha)} h_a \dots \dots \dots 3$$

Where: Y is the level of output produced; A is the technical coefficient and K is the input of physical capital. The variable u is the proportion of total labour time spent working, and h is what Lucas calls the stock of 'human capital'.  $h_a$  is the average human capital level and  $\alpha$  is a parameter that represents the capital elasticity of output

### 2.3 Review of Empirical Studies

Early studies of the effects of human capital on growth, such as Mankiw (1992) and Barro (1991), were based on data sets from the post-1960s era pertaining to a very diverse array of (more than 100) countries. Narrow flow measures of human capital were used such as the primary and secondary school enrolment rates and it was found that these and output growth rates were positively associated. A report by Barro (1991) stated that the catching up process was firmly linked to human capital formation: only those poor countries with high levels of human capital formation relative to their GDP tended to catch up with the richer countries. Barro and Sala-iMartin (1995), among many others, have also included life expectancy and infant mortality in the growth regressions as proxies for tangible human capital in order to complement the intangible human capital measures derived from school inputs or

cognitive tests considered; in their findings, it is evident that there is a strong positive relationship between life expectancy and growth.

More robust results were reported in a survey by Krueger and Lindahl (1998) from the econometric studies of cross-country growth equations. First, growth rates do not seem to be affected by changes in the human capital stock as suggested by the model in Lucas (1998). This contrasts with the robust evidence from the micro literature on the effect that education has on income. Having made allowances for measurement errors, it is found that there is a positive correlation between the change in stock measures of education and economic growth. Secondly, although the evidence regarding the positive effect of the level of human capital stock on growth rates is much stronger, the size of this effect varies across countries. Two other well-established results that emerged from the cross-country studies examined by Krueger and Lindahl are:

The greater effect of secondary and higher education on growth, compared with primary education, and the negative or insignificant effect that female education seems to have on the growth of output. Regarding the latter, they concur with Barro (1999) in suggesting that the insignificant effect of female education may be a result of gender discrimination in the labour markets of some countries. The contention is that although females in these countries receive education, they are unable to contribute to the growth of output because they are discouraged from participating in the labour market. Apart from this problem, it appears that there are other mechanisms also at work. In countries with high female participation in the labour market, variations that exist in the level of female education have an insignificantly small positive effect on output growth rates.

In the 1990's and early 2000's pioneering econometric studies (based on international panel data for a widely diverse array of countries during the post-1960 era) provided empirical support for the conclusion that human capital formation was among the factors that significantly affected the aggregate level rate of economic growth. It was found that successfully catching up internationally in terms of GDP growth was positively related to the overall social rate of human capital formation. Moreover, the countries which were poor and had the tendency of catching up with the higher income economies were restricted to those that were maintaining levels of investment in formal education which were high in relation to their respective GDP levels. Three robust empirical findings have been revealed in more recent econometric studies. The hypothesis that changes in the human capital stock affect growth rates has weak empirical support, The hypothesis that the relative level of the stock of human capital (in relation to the labour force or aggregate output) has a positive effect on growth rates has a strong statistical support and The magnitude of the "level effect" of the human capital stock is itself far from uniform across the distribution of economies; the impact on growth rates does not vary linearly with the relative size of the stock but,

instead, becomes proportionately smaller among the economies where the average educational attainment is already high.

The broad interpretation of these findings in the context of recent growth models is that raising the general level of educational attainment interacts positively with other forces - among them is the accumulation of complementary physical capital and the application of new technologies. This higher intensity of human capital permits countries to accelerate their productivity growth rate and narrow the relative size of the per capita real income gaps separating them from the leading economies. Maintaining a high average level of educational attainment, and correspondingly high rates of investment in other forms of human capital (for example, health, internal spatial and occupational mobility), would appear to serve as a stabilizing force – although not a guarantee – against continuing secular decline in a country's relative per capita income position. Nonetheless, most of the theoretical literature on economic growth focuses on the role that investment in formal education plays in modern economies.

Regarding the empirical relevance of human capital, there is evidence that education is positively correlated with income growth. At the microeconomic level, the positive correlation seems to be quite robust. On the macroeconomic level, the findings are more fragile (Krueger and Lindahl, 2001) which, however, may be due to measurement errors. Krueger and Lindahl (2001) demonstrate that cross-country regressions indicate that the change in education is positively correlated with economic growth if measurement errors are accounted for. Further, Levine and Renelt (1992) have shown that human capital, measured by the secondary enrolment rate, is a robust variable in growth regressions, so that building endogenous growth models with human capital as the engine of growth seems to be justified. When the government can influence the process of human capital formation by adequate expenditures, it may finance these measures by the tax revenue and by public deficits. As concerns deficit finance of productive public spending in endogenous growth models with an infinitely lived representative individual, one realizes that a deficit financed increase in public spending leads to higher long-run. The reason for this outcome is that deficit finance of the government does not have any distortions in the model with an infinitely lived individual. Consequently, the growth stimulating effect of higher productive spending dominates and leads to a higher balanced growth rate.

Despite there being many factor that affect the growth rate of an economy, human development has been identified as the most prominent factor in recent decades by researchers. Recent decades have seen an explosion in research, both theoretical and empirical, that attempts to focus on the correlation between human development and economic growth. Thus, it is crucial that we review the related literature, if we are to understand the precise relationship between these two variables. This section briefly reviews the relevant empirical and theoretical studies, and then goes on to discuss the

findings of existing empirical studies that pertain to the human development–economic growth nexus.

The linkages between economic growth and human development, have been studied and discussed by Narayan and Smyth (2004). A strong linkage was found between economic growth and human development (Ranis, Stewart and Ramitez, 2000). Judson (2002) states that even though conventional wisdom does support a positive correlation between output growth and human development, the empirical results are mixed, that the positive correlation between growth and human development has been found exceptionally rather than as a rule. So, examining the causality between human development and economic growth for Nigeria is the need of a day.

According to Taniuchi and Wang (2003), education and health both cause each other and thus contribute in economic growth. Weil (2001) findings related to health-growth nexus further strengthen the importance of health for economic growth. The study concludes that 17-20% of variations in income across countries is due to differences in health status. Agiomirgianakis et al. (2002) conduct panel study (consisting of 93 countries) on subject matter and find significant positive long-run impact of education (primary, secondary and tertiary) on economic growth. Bloom et al. (2004) try to investigate the impact of human capital on economic growth. By utilizing, 2S L S approach they find that schooling and life expectancy both positively contribute to economic growth. Improvements in health standards are associated with increase in output due to increased labor productivity and capital accumulation. Seebens and Wobst (2003); Moser and Eliot (2005) both have asserted that in the long-run education (human capital) increases substantially household income as well as economic growth. However, other studies including Bils and Klenow (2000), Easterly and Levine (2001), Temple (2001), Bosworth and Collins (2003) have failed to establish positive association between human capital (years of schooling) and economic growth.

In the case of Nigeria, most of the studies have used micro data on human development and these studies conclude that education brings significant positive returns for wage earners (for details see Lawal & Wahab, 2011; Babatunde & Adefabi, 2005; Adawo, 2011). Using macro data in a comparative analysis of Nigeria Kehinde (2013) find overall significant and positive impact of human capital (school enrollment rates as a proxy) on economic growth during 1970-2010. They use higher secondary, secondary and primary enrolment rates for observing the role of education in economic growth. They employ cointegration on standard growth model augmented with variables of enrolment rates. The results of the study reveal that both primary, secondary and post-secondary enrolment rate have positive and significant impact on economic growth in Nigeria. Other studies include Jelilov, Aleshinloye and Onder (2016); Javed (2013); Mba, Mba, Ogbuagor & Ikpebu (2013); Asghar, Awan & Rehman (2012); Kodabakhshi (2011); Qadri & Waheed (2011); Afzalet al. (2009);



Haldar & Mallik (2010); Abbas & Peck (2008); Narayan & Smith (2004) Anas, Aminu, & Zainab, (2017) among others.

The methodologies used are mostly OL S, 2L S, conventional cointegration methods (such as, Johansen, Johansen and Juselius, Gregory and Hansen), error correction model and causality tests. A number of empirical studies have reported a strong and positive relationship between human capital and economic growth. However, the causality test results are mixed. While Asghar, Awan & Rehman (2012) documented a unidirectional causality running from human development to economic growth, opposite is the case in Narayan & Smith (2008) and Haroon (2001) where the causality runs from economic growth to human capital. Moreover, bidirectional causality is found in Al-Yousif (2008).

After reviewing empirical literature on the subject matter it is evident that in case of cross country studies empirical results remained inconclusive whereas in a single country analysis mostly studies support positive association between human development and economic growth. However, it is observed that different studies have used different proxies for human development and difference in measurement of human development may be a source of bias in their empirical results. Furthermore, it can be concluded that earlier studies have used education as a proxy for human development and more recent studies lay emphasis on both health and education as a proxy for human development. The existing literature on Nigerian economy shows that appropriate proxies of human development are not used along with recent advances in dynamic modeling.

There exists a gap in the literature regarding the role of human development on economic growth in Nigeria. The present study is an attempt to bridge this gap by analyzing the causal relationship between human development and economic growth using recent advances in dynamic modeling and more appropriate proxies for human development (human development index). The results of this study may be helpful for policy makers in designing appropriate policies giving priority to the development of human capital development.

### **3.0 Methodology**

This study uses econometric techniques to analyze historical time series data. These econometric techniques include: Augmented Dickey–Fuller (ADF) to test for a unit root in the individual data series (Dickey & Fuller, 1981); Johansen Cointegration to test for the integration of all the data series (Johansen, 1991); ECM to estimate the model; and Pairwise Granger Causality Test to determine the direction of causality between human development and economic growth in Nigeria (Engle & Granger, 1987). The proxy for economic growth for this study is Real Gross Domestic Product (RGDP) and human development is proxied by human development index as used by Adediran (2010) and Bils and Klenow (2000). The major source of data for this study is CBN Statistical Bulletin and UNDP report on Human Development index of 2015. Thus, the basic model for this study is

$$RGDP = f(HDI, GCF) \dots\dots\dots 4$$

$$LRGDP_t = \beta_0 + \beta_1 LHDI_{t-1} + \beta_2 LGCF_{t-1} + \varepsilon_t \dots\dots\dots 5$$

Where: LNRGDP = Natural log of real gross domestic product;  $f$  = function; LNHDI = Natural log of human development index; LNGCF = Natural log of gross capital formation  $\beta_1$  and  $\beta_2$  = Slope Coefficient; and  $\beta_0$  = Intercept;  $\varepsilon_t$  = Stochastic or Error Term in Time  $t$ .

3.1 Estimation Procedure

3.1.1 Augmented Dickey–Fuller (ADF) Unit Root Tests

For this purpose, the study uses the conventional Augmented Dickey-Fuller (ADF) unit root tests as a tool for identifying stationarity (or non stationarity) of a variable by running OLS regression of levels variables on their lag values.

$$\Delta Y_t = \alpha_0 + \alpha_1 X_{t-1} + \sum_{i=1}^n \alpha_i \Delta Y_{t-i} + \varepsilon_t \dots\dots\dots 6$$

Where  $\alpha$  and  $\beta$  are parameters,  $\varepsilon$  is assumed to be a white noise,  $\Delta Y_{t-i}$  expresses the first difference of the variable with  $p$  lag,  $\Delta Y = Y_t - Y_{t-1}$  is a stationary series if  $-1 < p < 1$ . If  $p = 1$ ,  $Y$  is a non-stationary series; if the process is started at some point, the variance of  $y$  increases steadily with time and goes to infinity. If the absolute value of  $p$  is greater than one, the series is explosive. Therefore, the hypothesis of a stationary series can be evaluated by testing whether the absolute value of  $p$  is strictly less than one. If the series is correlated at higher order lags, the assumption of the white noise disturbance is violated.

3.1.2 Johansen Cointegration to Test

$$X_{1,t} = \alpha + \beta_2 X_{2,k} + \beta_3 X_{3,k} + \dots + \beta_k X_{k,t} + \varepsilon_t \dots\dots\dots 7$$

The Johansen test approaches the testing for cointegration by examining the number of independent linear combinations ( $k$ ) for an  $m$  time series variables set that yields a stationary process.

3.1.3 Error Correction Model

The error correction model (ECM) is adopted to establish a short run relationship between dependent, independent variables and error term (residual). The justification for ECM is that, it distinguishes between short run and long run responses and it allows direct estimation of the speed adjustment towards long run

$$\Delta RGDP_t = \beta_0 + \beta_1 \Delta HDI_{t-1} + \beta_2 \Delta GCF_{t-1} + \beta_3 EC_{t-1} + \varepsilon_t \dots\dots\dots 8$$

Where:  $\Delta$  = Is the first difference operator and  $\alpha_5 EC_{t-1}$  = Error correction model. It reflects the short run dynamics of the model. It measures the speed with which short run equilibrium adjust to the long run equilibrium. However, it is expected to have a negative sign.

3.1.4 Pairwise Granger Causality Test

$$y(t) = \sum_{i=1}^{\infty} \alpha_i y(t-i) + c_1 + v_1(t)$$

$$y(t) = \sum_{i=1}^{\infty} \alpha_i y(t-i) + \sum_{j=1}^{\infty} \beta_j x(t-j) + c_2 + v_2(t) \dots\dots\dots 9$$

Granger causality model helps to measure the precedence and information content on variables.

4.0 Results and Discussion of Findings

Table 1: Augmented Dickey–Fuller Stationarity Results

Variable	At levels	At 1 <sup>st</sup> difference	At 2 <sup>nd</sup> difference	Order of integration
LNRGDP	10.53697	-1.554496	-3.147652	I(2)
LNHDI	-5.617397	-2.939623	-14.80450	I(0), I(1), I(2)
LNGCF	4.036102	-1.256389	-5.801207	I(2)
Note	Critical value	Critical value	Critical value	
	1% = -2.771926	1% = -2.972154	1% = -2.816740	
	5% = -1.974028	5% = -1.977738	5% = -1.982344	
	10% = -1.602922	10% = -1.602074	10% = -1.6114	

Source: Researchers’ estimation using E-Views software

Table 1 shows the results of the ADF test carried out. The unit root test reveals that all the variables are stationary at different stages, that is, LRGDP is of order I(2), LHDI is of order I(0), I(1) and I(2), and LGCF is of I(2). Therefore, it is necessary to carry out the cointegration test to ascertain whether the variables have a long-run equilibrium relationship.

Table 2 presents the Johansen cointegration results. It shows a cointegrating equation(s) at 0.05 level of significance in Trace and Max-Eigen test. This means that there is a long-run relationship existing between the variables of the study.

Table 2: Johansen Cointegration Results, Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigen value	Trace statistics	0.05 percent critical value	Prob **
None*	0.973952	65.47110	29.79707	0.0000
At most 1*	0.801593	25.34513	15.49471	0.0012
At most 2*	0.496750	7.553356	3.841466	0.0060

Source: Researchers' estimation using E-Views software; Trace test indicates 3 cointegrating eqn(s) at the 0.05 level; \* denotes rejection of the hypothesis at the 0.05 level; \*\*MacKinnon-Haug-Michelis (1999) p-values

The coefficient of the error correction term (0.84) appears with positive sign and statistically significant at 5% level. It indicate that the divergence from equilibrium will take place with a speed of 84% and thus, the explanatory variables are adjusted

Table 3: Error Correction Model (ECM) Estimates and Residual Statistics

Dependent Variable: LRGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LHDI(-1)	2.558878	0.320486	7.984358	0.0000
LGCF(-1)	0.107799	0.016667	6.467671	0.0002
C	11.78663	0.362316	32.53137	0.0000
ECT <sub>t-1</sub> (-1)	-0.837079	0.165323	5.063287	0.0010
Diagnostic test				
Test	Statistics		Prob	
R-Square	0.99			
DW-Stat	2.16			
LM test	0.10		0.04	
ARCH test	3.20		0.36	
Jacque-Bera	0.90		0.64	

Source: Researchers' estimation using E-Views software

by 84% of the past year deviation from equilibrium. Also, the coefficient of the explanatory variables LHDI (2.56) and LGCF (0.11) are statistically significant and again their signs are correct. These suggest that the model has captured the effects of human development on economic growth in Nigeria.

Table 4 shows the direction of causality using pairwise Granger Causality test. Human development index and gross capital formation granger cause real GDP in Nigeria and no feedback from real GDP. However, the results show a unidirectional causality, running from human development to economic growth in Nigeria.

Table 4: Pairwise Granger Causality Tests Results

Null Hypothesis	Obs	F Statistic	Probability	Remark
LHDI does not Granger Cause LRGDP		0.24727	0.7885	Accept
LRGDP does not Granger Cause LHDI	11	7.06213	0.0265	Reject
LHDI does not Granger Cause LRGDP		4.34281	0.0682	Accept
LRGDP does not Granger Cause LHDI	11	0.66140	0.5501	Accept
LGCF does not Granger Cause LHDI		2.51027	0.1614	Accept
LHDI does not Granger Cause LGCF	11	0.21067	0.8158	Accept

Source: Researchers' estimation using E-Views software

## 5. Conclusion and Recommendations

This study examined human development and economic growth in Nigeria: an empirical study. The study estimated economic growth using Johansen cointegration, error correction mode and granger causality technique. In particular, economic growth's responsiveness to human development and gross capital formation has been estimated. The HDI estimate of RGPD for the ECM model is 2.56 and LGCF is 0.11 and both are statistically significant with correct signs correct. The error correction term was found significant with an adjustment coefficient of 0.84. It indicates that in the case in which we are off the long run revenue curve, standard of living adjusts toward its long run equilibrium at a relatively average rate, with about 84% of the adjustment occurring within the first year.

In summary, the variables of this study, that is, real GDP, Human development index and gross capital formation have a long-run relationship amongst them for the period 2003 to 2015 in Nigeria. The findings of this study gain support from the studies of Barro and Sala-iMartin (1995), Krueger and Lindahl (1998), Asghar, Awan & Rehman (2012), Narayan & Smith (2008) and Haroon (2001), and Al-Yousif (2008). This is a conclusive result from the empirical analysis that also finds that there

exists a long-run relationship among the variables of the study. The study recommends as follows:

- i. There is need for government to improve on indices of human development indices (that is education and health). Improving on these indices will go a long way in improving the productive capacity of the people and hence translate to improvement in economic growth in Nigeria.
- ii. Giving the existence of the significant long-run relationship between human development index and economic growth, there is need for government to increase investment in education sectors. More funds as percentage of GDP should be allocated to education sector in line with other sectors. Government should further formulate and implement effective economic policies related to the provision of education and health facilities to the people to support the innovative technological progress which increases productivity and thus accelerates the economic growth. The fact that national policies and reform programs influence the behaviour of education and health outcomes, this study recommends that policy makers should prioritize these sectors and devote attention to policy determinants of education and health as a mechanism for promoting economic growth in Nigeria. Government at federal and state should cooperate in promoting the importance education to the people on priority basis.
- iii. More resources should be allocated for development of potential human development areas such education and research, this will help in innovations and technological improvement and increase economic growth through excessive productivity.

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## **An Empirical Study on Impact of Crude Oil Price and Real Exchange Rate on Economic Growth of Nigeria**

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### **Abstract**

*The study empirically examines the impact of crude oil price and exchange rate on economic growth in Nigeria covering the period of 1970 to 2016. Time-series data source from Central Bank of Nigeria were used and analysed using Vector Error Correction Approach. The results from the unit root tests indicate that all the variables are integrated of order one  $I(1)$ . Johansen cointegration test suggests the presence of a long-run economic relationship among the variables. The results estimate on VECM revealed GDP to be positively related to crude oil price and exchange rate in both the periods, while interest rate is positively related to GDP in short run and negatively related in the long-run and inflation is negatively related to GDP in both the period. All variables are statistically significant in both the periods except for interest rate and inflation which are statistically insignificant in both periods. The study further reveals a unidirectional causal relationship between COP and GDP. More so, it reveals bidirectional relationship between GDP and exchange rate. The study recommends effective diversification of the economy which will save the country from the imminent menace of over-reliance on petroleum. And there is need for government of Nigeria to develop sound exchange rate management in the country.*

**Keywords:** Exchange Rate, Economic Growth, Nigeria, Oil Price

**JEL classification:** O15

### **1. Introduction**

Crude oil is a major source of foreign exchange earnings and the dominant source of revenue for the Nigerian government. According to Yuan, Liu and Huang (2014) oil price shocks have had an attendant multiplier effect on crude oil and economic activity. The Nigerian economy has been completely reliant on oil and the basis upon which government budgeting, revenue distribution and capital allocations are determined. It is widely known fact among economists that international oil prices saw a sharp fall during the global economic crisis of 2008. This led to a fall in oil revenues and unfavourable exchange rate movements for major oil-exporting

economies especially those that were not well-diversified. The situation was worse for some OPEC economies with low levels of accumulated foreign reserves (Emmanuel, 2015). It is also argued that the attendant problems associated with fallen oil prices in Nigeria is inability of the government to finance its fiscal projects, decrease in standard of living and exchange rate. The current living standard in Nigeria showed that about 60% of her citizens live below one dollar per day. The resulting decline in the non-oil sector reinforces sharp decline in the economic growth rate when the price of crude oil falls (Akindele *et al.*, 2017).

An oil price shock may have real effects, as a higher oil price may affect output through the aggregate production function by reducing the net amount of energy used in the production. In addition, aggregate demand, of which investment is a major part, may also change in response to energy price changes (Agbede, 2012; Taiwo and Olumuyiwa, 2015). An oil price increase will typically lead to a transfer of income from the oil importing countries to the oil exporting countries. This reduction in income would cause rational consumers in oil importing countries to cut back on their consumption spending and investment, hence, reducing aggregate demand and output. However, to the extent that the increase in income in the oil exporting country will increase demand from the additional income transferred to them from the oil importing country, the global effect would be minimized (Ifeanyi and Ayenajeh, 2016).

Oil price spikes induce greater uncertainty about the future, which affects households and firms spending and investments decisions. Also changes in oil prices leads to reallocations of labor and capital between energy intensive sectors of the economy and those that are non-energy intensive sector (Ebele, 2015; Yusuf, 2015). Nigeria like other low income countries has adopted two main exchange rate regimes for the purpose of gaining balance both internally and externally. The purpose for this different practice is to maintain a stable exchange rate (Umar and Abdulkakeem, 2010). A fluctuating real exchange rate stemming from volatile oil prices are damaging to non – oil sector, capital formation and per capita income. The consequences of substantial misalignments of exchange rate can lead to shortage in output and extensive economic hardship. There is reasonably strong evidence that the alignment of exchange rate has a substantial influence on the rate of growth of per capita output in low income countries (Khuram *et al.*, 2015). The recent shock in crude oil prices which started in July 2014 has adversely affected Nigeria, especially in the areas of foreign reserves, currencies crisis, declining government revenue, and ultimately, threat in terms of ability to meet financial obligations as at when due. Brent oil price declined by 24 percent to a four-year low of USD81 as at November 11, 2014. The price of Brent fell from USD114.91 on January 31 to USD102.12 on May 31, and stood at USD57.8 and 67.6 on March 31, 2015 (AEA, 2016; Akindele, 2017).

One factor in the global economy that has continued to pose a big challenge to policy makers across countries is the increasing spate of fluctuations in the price of oil and exchange rate. The recent crashing of global oil prices and of exchange rate attracting heated debate among policy makers and academics because of the effect on global output, inflation and economic stability. Nigeria represents a good case study for exploring the effect of exogenous oil price shock on oil exporting countries because of her dependence on crude oil earnings, and the challenges currently confronting the government. Even though various studies have been conducted on this area, it is observed that the impact of crude oil price and exchange rate on economic growth in Nigeria has been subjected to several debates in empirical studies. This research is not without observed gaps which this study intends to fill for example:

The study conducted by *Ani et al.*, (2014) on the effect of oil price on economic growth in Nigeria suffered from both theoretical and methodological problem in which the authors did not relate their study to any theory as well as spearman rank correlation method of analysis and granger causality test were used in the study. These statistical techniques may not be appropriate in drawing useful conclusion. Thus, their study may prone to spurious result. Similarly, they failed to investigate long run relationship between the variables and their impact on the dependent variable. This may lead to spurious result which may not be reliable for prediction in which rigorous statistical techniques and diagnostic test are require to examine the trend of the variable control in the model. More so, this study will also serve as an update to the previous studies more especially that of Emmanuel (2015); Musa (2015); Isma'il (2016); Jarumeh *et al.*, (2016). The previous studies suffered from both theoretical and methodological problem. None of the study investigate the causality relationship between the variables. Also there was a problem of omitted variable bias due to omission of relevant variables in the study, like work conducted by Emmanuel (2015) neglected the role of crude oil price and exchange rate on economic growth, neglecting important role of this variable may lead to spurious result which may not be reliable for prediction. Furthermore, most of the previous studies did not properly check for the problem of non-stationarity associated with time series data. This indeed affects the quality of their results. Some of this previous studies include that of Musa (2015) and Isma'il (2016) Therefore, modern statistical time series procedure like unit root test will be used to know the nature of the series whether they are stationary or not in order to choose appropriate model for the study.

Again this background, this paper intends to examine the impact of oil price and real exchange rate on Nigeria's economic growth. Also to determine the long-run relationship between oil price and real exchange rate and economic growth in Nigeria, and to determine the direction of causality between oil price and real exchange rate and Nigeria's economic growth. The significance of the study therefore is its contribution to literature as well as methodology, and the economic importance of oil price uncertainty to growth for oil exporting countries like Nigeria. It will also provide the government with relevant information on the need for diversified economy and

ensure that the benefits of the Nigerian oil industry are broadly shared and that sustainable revenues from these natural deposits elevate the Nigerian society.

## **2. Literature Review**

### *2.1 Empirical Reviews*

Adeniran, Yusuf and Adeyemi (2014) examined the impact of exchange rate on Nigeria economic growth from 1986 to 2013. Employing the correlation and regression analysis, the ordinary least square (OLS) analyze the data. The result revealed that exchange rate has positive and insignificant impact on Nigeria economic growth and recommended that government should encourage the export promotion strategies in order to maintain a surplus balance of trade and also conducive environment, adequate security, effective fiscal and monetary, as well as infrastructural facilities should be provided so that foreign investors will be attracted to invest in Nigeria. More so, Jerumeh *et al.*, (2016) study the effect of currency fluctuations on the economic growth in Nigeria using the Johansen co integration tests and ECM. The result from Johansen co integration tests shows the presence of long run relationship between variables. The Error Correction Model (ECM) results suggest that exchange rate has a negative significant impact on GDP in the short run and long run. The study therefore recommends that the competitiveness and stability of the exchange rate should be given due consideration as this will increase economic growth through increased investment.

Dada and oyeranti (2012) examines exchange rate and macroeconomic aggregates in Nigeria. The result shows that there is no evidence of a strong direction between changes in the exchange rate and GDP growth. Rather, the country's growth has been directly affected by fiscal and monetary policies and other economic variables particularly the growth of exports which is majorly oil. More so, Manalo, Perera and Rees (2014) examine the effects of exchange rate movements on the Australian economy using the structural vector auto-regression model using seasonally adjusted data at quarterly frequencies for the period of 1985Q1 to 2013Q2. They found out that a temporary 10 per cent appreciation of the real exchange rate that is unrelated to the terms of trade or interest rate differentials lowers the level of real GDP over the subsequent one-to-two years by 0.3 per cent and year-ended inflation by 0.3 percentage points.

Attah-Obeng, Enu, Osei-Gyimah and Opoku (2013) examined the relationship between GDP growth rate and exchange rate in Ghana from the period 1980 to 2012. The study employed the graphing of the scatter diagram for the two variables which are GDP growth rate and exchange rate, establishes the correlation between GDP growth rate and exchange rate using the Pearson's Product Moment Correlation Coefficient (PPMC) and finally estimates the simple linear regression using OLS. Which confirms to the theory that undervaluation (high exchange rate) stimulates economic growth in the short run. Therefore, policy makers should 207ointegra monetary and fiscal policies in the long run. More so, Al-Mulali, (2010) examines the

impact of oil price shocks and real exchange rate on the gross domestic product in Norway using time series data from 1975 to 2008. The vector auto-regressive has been implemented using the co-integration and the granger causality test. The results of the study show that the increase in oil price is the reason behind Norway's GDP i.e there is positive relationship between oil price and GDP. More so, exchange rate is positive to GDP. The result further reveals a unidirectional relationship between oil price, exchange rate and GDP. More so, Aliyu (2009) assesses the impact of oil price shock and real exchange rate on the real gross domestic product in Nigeria using quarterly data that span the period 1986-2007. He used the Johansen VAR-based co integration technique to examine the sensitivity of real GDP to change in oil prices and real exchange rate in the long-run while the vector error correction model was used in the short-run. The result of the long-run analysis indicated that a 10.0 per cent permanent increase in crude oil prices increases the real GDP by 7.72 per cent, similarly a 10.0 per cent appreciation in exchange rate increases GDP by 0.35 per cent. The short-run dynamic was found to be influenced by the long-run equilibrium condition. He recommended the diversification of the economy and infrastructural diversification.

## *2.2 Theoretical Framework*

International trade has received considerable attention from researchers and policy-makers around the world. The standard growth theories focus on primary inputs, while failing to recognize the role of primary energy inputs such as; oil deposits. However, natural scientists and some ecological economists have made efforts at evolving some theories which capture the role of oil price on economic growth, thus incorporating the linkage between energy resources; its availability and economic growth. Therefore, the theoretical underpinning of this study is situated based on Linear/Symmetric relationship theory of growth and The Renaissance growth theory.

*2.2.1 The Linear/Symmetric Relationship Theory of Growth:* The Linear/Symmetric relationship theory of growth which has as its proponents, Hamilton (1983), Hooker (1986) and Laser (1987) postulated that volatility in GNP growth is driven by oil price volatility. They hinged their theory on the happenings in the oil market between 1948 and 1972 and its impact on the economies of oil-exporting and importing countries respectively. Hooker (2002), after rigorous empirical studies demonstrated that between 1948 and 1972 oil price level and its changes exerted influence on GDP growth significantly. Laser (1987), who was a late entrant into the symmetric school of thought, confirms the symmetric relationship between oil price volatility and economic growth. After an empirical study of her own, she submitted that an increase in oil prices necessitates a decrease in GDP, while the effect of an oil price decrease on GDP is ambiguous, because its effects varied in different countries.

*2.2.2 The Renaissance Growth Theory:* The Renaissance growth theory/model was an off-shoot of the symmetric and asymmetry in effect schools. Lee (1998) who was a leading proponent of this school focused her theoretical work on attempting to

distinguish between oil price changes and oil price volatility. Lee (1998) defined volatility as the standard deviation in a given period. She submitted that both have negative impacts on economic growth, but in different ways: Volatility has a negative and significant impact on economic growth immediately, while the impact of oil price changes delays until after a year. She concludes by stating that it is volatility/change in crude oil prices rather than oil price level that has a significant influence on economic growth.

### 3. Methodology

As for methodology, the study empirically examines the impact of crude oil price and real exchange rate on economic growth in Nigeria within a time frame of 45 years (1970-2016) within Multivariate Vector Error Correction Framework. The data employed for this study was secondary data and source from the publications of The data was sourced from Central Bank of Nigeria Statistical bulletin, Organization of the Petroleum Exporting Countries (OPEC) annual statistical bulletin, and the Nigerian National Petroleum Corporation (NNPC) annual statistical bulletin. The justification for selection of this period would ensure conformity to sample requirement for a minimum of 30 observations i.e. central limit theorem (Gujarati, 2007). The data collected for the study has been analyzed using Johansen Cointegration test, Vector Error Correction Model and VEC Granger Causality/Block Exogeneity Wald Test for the specified econometric model. Since time series data are notably not stationary overtime, this study applied a conventional Augmented Dickey Fuller and Phillips-Perron tests for stationarity to test for unit root in order to avoid spurious results. Diagnostic tests for serial auto correlations, normality and cointegration was carry out for the estimated model. The result was analyzed with the aid of EVIEWS 9 Software.

#### 3.1 Model Specification

In trying to assess the impact of crude oil price and real exchange on economic growth in Nigeria, the following model was adopted and modified from the works of Ifeanyi and Ayenajeh (2016) and Isma'il (2016) is expressed in linear econometric equation. This is represented thus:

$$RGDP = f(COP, EXR, INF, INTR) \dots \dots \dots 1$$

Where the stochastic form as Real Gross Domestic Product (GDP), Crude Oil Price (COP), Real Exchange Rate (EXR), Inflation (INF) and Interest Rate (INTR)

In order to estimate the equation empirically, the above equation was transformed into an econometric equation stated as follows:

$$GDP_t = \alpha_0 + \alpha_1 COP_t + \alpha_2 EXR_t + \alpha_3 INF_t + \alpha_4 INTR_t + \varepsilon_t \dots \dots \dots 2$$

$\alpha_0$  = Constant Term,  $\alpha$ 's = the parameters to be estimated,  $\varepsilon_t$  = disturbance term

#### 3.2 Techniques of Estimation



To estimate this model, Vector Error Correction Model will be use. As stated by Engle and Granger (1987) that there is an existence of both Short-run and long-run equilibrium in VECM once the variables are cointegrated of order 1(1). The VECM specifications employed in this study are presented in the equations below.

$$\Delta(\text{GDP})_t = \alpha_0 + \alpha \text{GDP} \phi_{t-1} \sum_{i=1}^{g_1} \alpha_{1i} \Delta(\text{GDP})_{t-1} + \sum_{i=1}^{h_1} \rho_{1i} \Delta(\text{COP})_{t-1} + \sum_{i=1}^{r_1} \lambda_{1i} \Delta(\text{EXR})_{t-1} + \sum_{i=1}^{v_1} \gamma_{1i} \Delta(\text{INTR})_{i-1} + \sum_{i=1}^{s_1} \vartheta_{1i} \Delta(\text{INF})_{i-1} + \varepsilon_{1t} \dots \dots \dots 3$$

$$\Delta(\text{COP})_t = \rho_0 + \rho \text{COP} \phi_{t-1} \sum_{i=1}^{g_2} \alpha_{1i} \Delta(\text{GDP})_{t-1} + \sum_{i=1}^{h_2} \rho_{1i} \Delta(\text{COP})_{t-1} + \sum_{i=1}^{r_2} \lambda_{1i} \Delta(\text{EXR})_{t-1} + \sum_{i=1}^{v_2} \gamma_{1i} \Delta(\text{INTR})_{i-1} + \sum_{i=1}^{s_2} \vartheta_{1i} \Delta(\text{INF})_{i-1} + \varepsilon_{2t} \dots \dots \dots 4$$

$$\Delta(\text{EXR})_t = \lambda_0 + \lambda \text{EXR} \phi_{t-1} \sum_{i=1}^{g_3} \alpha_{1i} \Delta(\text{GDP})_{t-1} + \sum_{i=1}^{h_3} \rho_{1i} \Delta(\text{COP})_{t-1} + \sum_{i=1}^{r_3} \lambda_{1i} \Delta(\text{EXR})_{t-1} + \sum_{i=1}^{v_3} \gamma_{1i} \Delta(\text{INTR})_{i-1} + \sum_{i=1}^{s_3} \vartheta_{1i} \Delta(\text{INF})_{i-1} + \varepsilon_{3t} \dots \dots \dots 5$$

$$\Delta(\text{INTR})_t = \gamma_0 + \gamma \text{INTR} \phi_{t-1} \sum_{i=1}^{g_4} \alpha_{1i} \Delta(\text{GDP})_{t-1} + \sum_{i=1}^{h_4} \rho_{1i} \Delta(\text{COP})_{t-1} + \sum_{i=1}^{r_4} \lambda_{1i} \Delta(\text{EXR})_{t-1} + \sum_{i=1}^{v_4} \gamma_{1i} \Delta(\text{INTR})_{i-1} + \sum_{i=1}^{s_4} \vartheta_{1i} \Delta(\text{INF})_{i-1} + \varepsilon_{4t} \dots \dots \dots 6$$

$$\Delta(\text{INF})_t = \vartheta_0 + \vartheta \text{INF} \phi_{t-1} \sum_{i=1}^{g_5} \alpha_{1i} \Delta(\text{GDP})_{t-1} + \sum_{i=1}^{h_5} \rho_{1i} \Delta(\text{COP})_{t-1} + \sum_{i=1}^{r_5} \lambda_{1i} \Delta(\text{EXR})_{t-1} + \sum_{i=1}^{v_5} \gamma_{1i} \Delta(\text{INTR})_{i-1} + \sum_{i=1}^{s_5} \vartheta_{1i} \Delta(\text{INF})_{i-1} + \varepsilon_{5t} \dots \dots \dots 7$$

$\alpha_0$  = Constant parameter

$\Delta$  = Denoted the difference operators

$\sum$  = Vector of coefficient variable in the model

$Y_t$  = Represent the dependent variable at time t

$\rho_0 \gamma_0 \lambda_0 \theta_0$  = Are slopes coefficient of independent variables

### 3.3 Estimation Procedure

The econometric technique adopted is based on the Johansen maximum likelihood estimation procedure, the vector error correction model (VECM); while the former enables to determine 211ointegration rank of our model, the later helps to ascertain possibility of error correction as the model approaches it long run equilibrium path. The choice of a 211ointegration technique over the ordinary least square techniques lies on the following; most time series data are not stationary, implying that the assumption of a constant mean, a constant variance and a constant auto variance for every successive lag is mostly violated, so the use of the OLS method of estimation could only yield a spurious result. More also, 211ointegration approach is a convenient approach for the estimation of long run parameters. The 211ointegration approach provides a direct test of the economic theory and enables utilization of the estimated long run parameters into the estimation of the short run disequilibrium relationships. The traditional approach is criticized for ignoring the problems caused by the presence of unit roots variables in the data generating process. However, both unit root and 211ointegration have important implications for the specification and estimation of dynamic models and lastly, Granger Causality Block Exogeneity Wald test to be use. This procedure has been found to be superior to ordinary Pairwise Granger causality tests since it does not require pre-testing for the cointegrating properties of the system and thus avoids the potential bias associated with unit roots and 211ointegration tests as it can be applied regardless of whether a series is I (0), I (1) (Johansen, 1995; Dickey and Fuller 1981; Granger, 1986).

## 4. Data Presentation and Analysis

### 4.1 Result of Unit Root Test

Table 4.1 Result of Unit Root Test ADF (Augmented Dickey Fuller)

Variables Series	Level Value	First Difference	Order of Integration
LRGDP	-2.12405	-5.69963***	I(1)
LCOP	-2.33975	-6.612043***	I(1)
LEXR	-0.34919	-5.824958***	I(1)
LINF	-1.34918	-6.871509***	I(1)
LINTR	-1.17201	-6.405912***	I(1)

Note that \*\*\* indicate significant at 1% level.

Source: Author's Computation

Table 4.2 Result of Unit Root Test PP (Phillips and Perron's)

Variables Series	Level Value	First Difference	Order of Integration
LRGDP	-2.171057	-5.647133***	I(1)
LCOP	-2.184657	-5.739175***	I(1)
LEXR	-0.412324	-5.855425***	I(1)
LINF	-1.033958	-8.874458***	I(1)
LINTR	-1.324779	-6.408982***	I(1)

Note that \*\*\* indicate significant at 1% level.

Source: Author's Computation

The result of unit root test is presented in table 4.1 and 4.2. The tables observe the null hypothesis of the unit root using Augmented Dickey Fuller (ADF) and Phillips and Perron's (PP) tests respectively. The null hypotheses were accepted at the level value because the absolute table value is greater than the absolute statistical value for both the ADF and PP. That is to say, the series have unit root at their level values. Based on the results therefore, the variables became stationary at first difference. This revealed that the series are integrated of order I(1) and significant at 1% for both ADF and PP tests. The optimal lag length applied in ADF was based on Schwarz Information Criteria (SIC). For PP test, Bandwidth was chosen using Newey-West Method automatically. All tests include constant and linear trend.

#### 4.2 Optimum Lag Test Result

Table 4.1: Result of Optimum lag Test

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-121.478	NA	8.34e-01	1.95676	1.57834	1.346345
1	24,5747	187.8952	4.57e-03	7.46773	3.38553	2.547362
2	52.4885	53.05416*	5.63e-07*	6.78575*	7.34585*	1.653272
3	148.374	26.48543	5.46e-03	4.25464	7.36535	4.574556*
4	172.574	41.47467	4.47e-29	5.46478	4.25538	2.343436
5	241.364	25.75670	3.46e-16	6.35746	5.3533	5.256454

Note that \* indicate lag order selected by the criterion, LR: sequential modified LR test statistic (each test at 5% level), FPE: Final Prediction Error, AIC: Akaike Information Criterion, SC: Schwarz Information Criterion and HQ: Hannan-Quinn Information Criterion.

Source: Author's Computation

Haven conducted the ADF and PP unit root test, and the result confirm the stationarity of the series variable at the same level I(1) which is one of the basic requirement for 212ointegration, so it is important to determine the number of lag to be included in the regression. As presented in table 4.3, optimum lag order selection was carried out to determine the number of lag(s) to be included in the model prior to 212ointegration

test. The maximum lag for the model was selected based on the five different information criteria. It evident from the table 4.3 that only for Hannan-Quinn Information Criterion which agreed at 3 lag, all the remaining agrees at lag 2. Hence, the study adopted 2 lag as the maximum for the model.

#### 4.3 Result of Johansen Cointegration Test

Table 4. 4 Result of Johansen Cointegration Rank Test (Trace Statistics)

Hypothesized No. of CE(s)	Eigen Value	Trace Statistics	0.05%Critical Value	Prob.
None*	0.5232	72.41095	69.81889	0.0306
At Most 1	0.3606	39.82151	47.85613	0.2290
At Most 2	0.2199	20.14269	29.79707	0.4132
At Most 3*	0.1126	15.21676	9.49471	0.0247
At Most 4*	0.0861	3.961659	15.49471	0.0346

Note that \* donate rejection of hypothesis at 5% significant and Mackinnon P-Value accordingly. Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

Source: Author's Computation

Table 4.5 Result of Johansen Cointegration Rank Test (Maximum Eigen Value Statistics)

Hypothesized No. of CE(s)	Eigen Value	Max-Eigen Statistic	0.05% Critical Value	Prob.
None	0.5232	32.5894	33.8769	0.7006
At Most 1	0.3606	19.6788	27.8843	0.3638
At Most 2	0.2199	10.9259	21.1316	0.6547
At Most 3*	0.1126	14.2551	5.26460	0.0794
At Most 4*	0.0861	3.19166	3.84147	0.0465

Note that \* donate rejection of hypothesis at 5% significant and Mackinnon P-Value accordingly. Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level

Source: Author's Computation

Table 4.4 and 4.5 indicates that Johansen cointegration test was applied to determine whether the variables of the series are cointegrated or not. The results were authenticated through Johansen and Julius trace test and Maximun Eigen value approach to provide the number of cointegrating vectors. This provides the number of cointegrating equations and estimates of all cointegrating vectors in the multivariate circumstances. But trace test statistics and maximum-eigen statistics results in table 4.4 and 4.5 revealed the presence of two cointegrating equations at 5% significance level. In addition, the normalized cointegrating coefficients show that the variables in the equations are relatively important. The consistency in the test results confirms the existence of long run relationship among the dependent and independent variables in the model. Both the trace and the maximum eigenvalue tests results in Tables 4.4 and 4.5 respectively reject the null hypothesis of no cointegration. The implication is that there is a long run relationship between the dependent variable GDP and its regressors.

#### 4.4 Result of Vector Error Correction Model

When there is existence of the cointegration from the Johansen test, construction of VECM model becomes imperative for modelling the dynamic relationship and the speed of adjustment from short-run equilibrium to the long run equilibrium. The greater the coefficient of the parameters the higher the speed of the model from short run to the long-run and vice-versa.

Table 4. 2: Result of Vector Error Correction Model

Variables	Coefficient	
	Short-run	Long-run
ECM	-0.254532*** [0.02907] (-1.87566)	5.959125
$\Delta(-1)$ LRGDP	0.026015** [0.17714] (0.14686)	1.000000
$\Delta(-1)$ LCOP	0.335550*** [0.24666] (1.36037)	2.700428*** [0.88017] (3.06809)
$\Delta(-1)$ LEXR	0.021221*** [0.33030] (0.00370)	0.295639*** [0.33781] (0.87515)
$\Delta(-1)$ LINTR	0.094082 [0.27952] (0.33659)	-2.889066 [0.87874] (-3.28773)
$\Delta(-1)$ LINF	-0.111921 [0.088030] (-0.13541)	-0.282057 [1.48211] (-0.19031)
R-squared	0.681419	
Adjusted R-square	0.526438	
F-Statistic	6.103688	
Durbin-Watson stat	2. 207327	

Note that \*\*\*, \*\* and \* indicate level of significant at 1%, 5% and 10% respectively; *ECM* = size of the error correction terms;  $\Delta$  = indicate changes in the first difference

Source: Author's Computation

The results shows that the error correct term  $ECM(-1)$  is correctly specified. The estimated coefficient value of  $ECM(-1)$  (-0.254532) in Table 4.6 indicate that our variables are well defined as it observes the usual negative sign of which enables it to adjust to equilibrium position whenever the system is out of equilibrium. The estimated coefficient indicates that about 26% of this disequilibrium is corrected annually. The negative sign confirms our earlier conclusion that economic growth and its regressors are indeed cointegrated. The negative sign is an indication of the fact

that any short-term fluctuations between the independent variables and the dependent variables will give rise to a stable long run relationship between variables, and the value is statistically significant at 1%. Nearly 26 percent of the disequilibrium of the previous year's shock adjusts back to the long-run equilibrium in the current year. The result further revealed short run positive relationship between COP and EXR with the dependent variable which is significant at 1% respectively.

The coefficient of COP is 0.33555, means that holding other variables constant, 1-unit increase in COP will lead to 33.555 million naira increase in RGDP and the value is statistically significant at 1% evident from the probability value of (0.0000), The coefficient of EXR means that 1 naira appreciation in the value of the naira against the US\$, without the influence of other variables, leads to an increase in GDP by 2.1221 million naira with probability value (0.000) indicate significance positive influence of real exchange rate to real GDP in Nigeria. In addition, the result revealed negative short run relationship between inflation and economic growth. The coefficient of interest rate is negatively signed at -0.11921, this indicate a unit increase in interest rate will affect the GDP negatively, it will lead to a reduction in GDP by 11.921 million naira, But the result is not statistically significant given it insignificant probability value. More also, the interest rate result reveals positive relationship with GDP, the interest rate coefficient of 0.094082 indicate a unit increase in interest in will lead to 9.4-million-naira increase in RGDP, But the result is not statistically significant given it insignificant probability value.

The VECM long-run impact of the estimated model is show that holding all variables constant, GDP will be positively influence by 5.95125. The coefficient of COP and EXR are positively related to GDP in the long run and statistically significant at 1% respectively. The coefficient of Interest rate is negatively related to GDP in the long-run but insignificant. The coefficient of inflation reveals insignificant negative long run relationship with economic growth. The coefficient of determination  $R^2$ , account for 0.68149 (68%) of the variation of RGDP between the year 1970 to 2016 are explained by the variables controlled in the model while the remaining 32% percent are explained by other variables not captured by the model (that is, error term). Moreover, the result proves F- statistic to be 6.103688, indicated joint effect of independent variables on GDP.

#### *4.5 Result of VEC Granger Causality Block Exogeneity Wald Test*

The result from table 4.7 shows that there is unidirectional causality between RGDP and COP evident from  $X^2$  -values of 2.1324 which is significant at 1%, that is to say COP granger cause RGDP. More also, there is bidirectional causality between RGDP and EXR with  $X^2$  -values of 0.2562 and 0.0453 which are significant at 10% level. More so, this test provides some reason to believe that no causal relationship between INF, INTR and RGDP in Nigeria give there insignificant  $X^2$  values of 2.9086, 2.2260, 3.9838 and 0.5543 respectively. More also, the joint test causality suggests that the three variables RGDP, COP and EXR are not exogenous, because of the significant

X<sup>2</sup>-values of the joint test for each equation of those variables 8.6881, 8.2536 and 12.7622 which are significant at 5%, 5% and 1% respectively. The test also provides evidence that we reject the null hypothesis of excluding almost all variables except one case, we fail to reject the null hypothesis of excluding INTR and INF because the joint test further suggests that two variables INTR and INF are exogenous, because of their insignificant X<sup>2</sup>-values of the joint test for each equation of those variables are 7.0197 and 5.5835 respectively.

Table 4. 3: Granger Causality/Block Exogeneity Wald Test

Dependent Variable	X <sup>2</sup> -statistics of lagged 1 <sup>st</sup> different term [p-value]				
	Independent Variables				
	$LRGDP \phi_{t-1}$	$\Delta(LCOP)_{t-1}$	$\Delta(LEXR)_{t-1}$	$\Delta(LINF)_{i-1}$	$\Delta(LINTR)_{i-1}$
$\Delta LRGDP$	-	3.9731	0.0453*	1.9121	0.2528
$\Delta LCOP$	2.1324**	-	0.5853	4.6513*	0.8876
$\Delta LEXR$	0.2562*	1.9556	-	1.2696	5.3816*
$\Delta LINF$	2.9086	0.7802	2.0417	-	0.5543
$\Delta LINTR$	0.2260	0.0032	0.5981	3.9838	-
Joint Test Causality	8.6881**	8.2536**	12.7622***	7.0197	5.5835

Note that \*\*\*, \*\*and \* indicate 1%, 5% and 10% significant  
Source: Author's Computation

#### 4.6 Diagnostic Tests Result

Table 4. 8: Diagnostic Test Result for VECM

Tests	Coefficient	P-Value
Serial Correlation LM Test	32.2186	0.1518
Jarque-Bera Residual Normality Test	165.839	0.8423
Residual Heteroskedasticity Test	328.809	0.5082

Source: Author's Computation

From table 4.8, the model passes the normality test through the joint Jarque-Bera statistics the result from the test shows residual have normal and identical distribution. this prove the normality of the series variables, the VEC residual normality test confirmed that we cannot reject the null hypothesis of normality properties given the insignificant p-value of tests conducted (0.8423) This provides some support for the

hypothesis that residuals from our VEC model have a normal distribution. VEC residual serial correlation LM test shows that we accept the null hypothesis of no autocorrelation at lag 2, given the insignificant P-value of 0.1518 for the lag order 2. This proved that there is no serial correlation of residual among the selected lag. Furthermore, heteroskedasticity test was carried out and the null hypothesis which says that the model homoscedastic could not be rejected going by its p-value (0.5082) this indicate that the model is not heteroskedastic and not serially correlated. This gives support to the assumptions of our model about white noise residuals and proved the adequacy of the selected VECM.

### **5. Conclusion and Recommendations**

This study looked at impact of crude oil price and exchange rate on Nigerian economy. Based on the findings of this study, the paper concludes that; both crude oil price and exchange rate are positively to economic growth in Nigeria in both the short run and long run, while, inflation has not been friendly to growth because it has hampered economic growth in both periods, while that of interest rate is important and friendly to economics growth in the short run but induced growth in the long run. For causality relationship, bidirectional causal relationship exists between RGDP and EXR. Furthermore, COP granger cause RGDP without feedback. By implication, the Nigerian economy is vulnerable to both internal shocks and external shocks. Since the oil price significantly impacts on all the variables considered, it is a major source of macroeconomic in Nigeria. Hence, fluctuations in oil price and exchange rate bring about instabilities in the Nigerian economy.

The general findings of this study have necessitated some policy directions which may be useful recommendations for policy authorities and for the purpose of contribution to knowledge, it is necessary for other developing countries like Nigeria faced with a budget constraint to undertaken specific policy recommendations. Based on the findings of this research, the following recommendations are proffered:

- i. The need for a national technology development plan. Apart from the undiversified structure of the Nigerian economy and declining oil prices, a critical technology gap predisposes the country to external shocks. Concerted effort towards mass skills acquisition in the form of technology transfer is imperative for global competitiveness.
- ii. there is a need to encourage the manufacturing of high-end, value added goods and services in Nigeria which if implemented, will reduce the demand for dollar for importation purposes. This in turn will limit the necessity for intervention of the CBN in the foreign exchange market and the depletion of the nation's foreign reserves will be curtailed.
- iii. Given the importance of crude oil to the Nigerian economy, therefore, the greater diversification of the economy through judicious investment in the productive sectors of the economy such as the agricultural sector and the industrial sector in order to reduce overdependence on the oil sector.



- iv. Also it is a known fact that exchange rate in Nigeria is primarily anchored by the country's level of excess reserves. Exchange rate stability could, therefore, be achieved even in the face of dwindling oil revenue through a conscious effort aimed at infrastructural development and diversification of the export-base of the economy.
- v. The government should diversify from the oil sector to other sectors of the economy hereby dwindling the impact of crude oil as the mainstay of the economy and overcome the effect of incessant changes in crude oil prices which often culminate into macroeconomic instability.

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## **The Contributions of Education to Niger State Economic Development**

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### **Abstract**

*Education is a crucial sector in any nation. Being a major investment in human capital development, it plays a critical role in long-term productivity and growth at both micro and macro-levels. This explains why state of education in Nigeria continues to be our national discourse at all levels. This paper ex-rays the contributions of education to Niger state economic development. It discusses the concept of development, education value and economic development as well as contributions of education to economic development. The paper concludes by recommending that government and the private sector should brace up to improve the state of education in the state. Furthermore, there should be the need for strong political will among political leaders to ensure continuity of educational policies.*

**Keywords:** Education, Economic Development, Human Capital, Niger State

**JEL classification:** J24, P36

### **1. Introduction**

A nation develops in relation to its achievement in education. This explains why contemporary world attention has focused on education as an instrument of launching nations into the world of science and technology and with consequential hope of human advancement in terms of living condition and development of the environment. This is because, education, in the life of a nation, is the live wire of its industries and also the foundation of moral regeneration and revival of its people. It is also the fore and bulwark of any nation's defence and it has been observed that no nation rises above the level of its education. In Nigeria, much is not being derived from the sector due to neglect on the part of government, corruption, policy discontinuity, among others.

Education is a crucial sector in any nation. Being a major investment in human capital development, it plays a critical role in long-term productivity and growth at both micro and macro levels. This explains why the state of education in Nigeria continues to be our national discourse at all levels. Consequently, the implication of the declining quality of education at all levels has far reaching negative impact on a nation's moral, civic, cultural and economic sustainability. At this point, it is

important to realize that discussions on education and its reforms to make it contribute meaningfully to national development should gradually and systematically move away from a politicized to a more analytical approach that appreciates the complexities inherent in proffering genuine and workable solutions for revamping our educational system.

In the Nigeria context, for the sector (i.e, education) to contribute meaningfully to national development; there should be proper funding of the three tiers of government. If this is done in the proper way, the Academic Staff Union of Universities will not have any need to embark on industrial actions as there will be improved infrastructure in the primary, secondary and post-secondary schools; there will be no more brain-drain as research activities will be effectively carried out and examination misconduct will be eradicated or reduced and the sector will contribute meaningfully to national development. Samalia and Murtala (2010:254) state that something urgent has to be done in the educational sector. This paper examines the contributions of education to development especially Niger State.

## **2. Conceptual Clarification**

In this paper, there are certain concepts like education and development which need clarification. This is done for proper understanding and good grasp.

Etymologically, the word education is derived from two Latin words “educare” and “educere” (Amaele et al 2011:6). Accordingly, “educare”, means to train, to form or to mould. In other words, it means that the society trains, forms or moulds the individual to achieve the social needs and aspirations. “Educere”, on the other hand means to build, to lead, or to develop. This is mostly favoured by the humanists who argue that the function of education is to develop the natural potentialities in the child to enable him function in the society according to his abilities, interests and needs.

Ordinarily, education is exclusively used for the development of human beings in the cognitive, affective, psychomotor and psychoproductive domains. It also involves a desirable approach in human behaviour through the process of teaching and learning. Fafunwa (1974) defines education as what each generation gives to its younger ones which makes them develop attitudes, abilities, skills and other behaviours which are the positive values to the society in which they live.

From the above, education, according to Amaele, et al (2011:7) is seen as the total development of the individual child through acceptable methods and techniques according to his abilities and interests to meet up the needs of the society and for the individual to take his rightful place and contribute equally to the enhancement of the society.

### *2.1 Development:*

Development is a planned activity aimed at speeding up or directing the process of change, which is already going on, towards an identified goal. Development may be large scaled and centrally planned scheme or small-scaled and local grassroots based

programme. There is in all development whether large scale or small scale the people who are involved, those people whose lives will be changed, those who need to be enabled by changes in knowledge, skills and attitudes to adopt new ways and new equipment also referred to as the target group. A major goal for development is to help the participants to take over the process of development for them to become self – reliant to take their own decision. The purpose of development interventions is to help to achieve a better life.

There are different levels and types of goals. Rogers (1992), distinguishes between intermediate and ultimate goals. The former is defined as objectives which are ends in themselves, bringing with them some sense of satisfaction, but which at the same time are the means to a further end. Intermediate goals also referred to as targets are justified largely in terms of their outcomes. Ultimate goals are those things which do not need any further justification. A new trend in development is the multi–sectoral approach, the need to have a fully balanced programme involving, all the major aspect of economic, social, cultural, and political goals, since national economic growth and relief of the suffering are the main goals of education, then its focus on inter–agency co–operation throws up many grounds of congruence between education and development.

### *2.2 Education Value and Economic Development*

The term educational “value” means that someone or something gains value from the act of going through an educational process. This value can be in the form of increasing earnings, human capital or social capital, but it must have a positive financial yield in order to be worth investing in. In order for education to have any value outside of being simply a consumer durable it must return some sort of financial gains. The theory of human capital states that if you invest in human capital you will get value back in the form of increased productivity.

On an individual level, does a person gain value from an education? That is, does that person increase his financial income by increasing his level of education? It is clearly shown in statistics that people that complete higher levels of education such as the university or graduate levels tend to earn higher salaries than people that have only completed secondary school. While it is debatable whether the investment in higher degrees for individuals is worth the total costs (income forgone, tuition), it is not debatable that a person has increased their individual financial productivity. That is, a person with a higher salary due to his increased level of education needs to spend less time to make more money than someone who has only completed a lower level of education. By definition, this is increased productivity on an individual level.

From the perspective of business, we must consider whether businesses gain value from having more educated workers. Productivity studies have been done on workers producing simple goods such as wheat, and it was shown that literate workers were more productive than illiterate workers even though literacy was not critical to complete the tasks. Explanations for this trend include that going through the process

of learning to read and write improves one's problem solving abilities, their ability to communicate better and more efficiently, and that they can help educate and train other workers to be more efficient. Businesses also show that they value more educated workers simply because over a long period of time, they have been willing to pay them higher wages than less educated workers.

### **3. Contributions of Education to Economic Development of Niger State**

#### *3.1 Education Brings Development in the Following Dimensions:*

*3.1.1 Individual:* Increased literacy; increased scientific knowledge and training; increased faith in change in the future; increased faith in the ability of the individual—through his own competence—to alter economic and social conditions; increased respect for, and willingness to abide by, societal (instead of familial or local) norms.

*3.1.2 Social and Political Relationship and Institutions:* Increased inter-nation or inter-group communication; an increasingly open class structure—making possible increased occupational mobility; increased specialization of labour; increased relational and secular bases for decision-making; movement towards some form of mass society (not necessarily democratic); extension of public services and civic duties; increased political participation; increased national identification; political and judicial regulations based on an impersonal system of law.

#### *3.2 Also education influences the following:*

*3.2.1* In the realm of technology,. A developing society is changing from simple and traditionalized technique towards the application of scientific knowledge.

*3.2.2* In agriculture, the developing society evolves from subsistence farming toward the commercial production of agricultural goods.

*3.2.3* In industry, the developing society undergoes a transition from the use of human and animals power toward industrialization proper.

*3.2.4* In ecological arrangements, the developing society moves from the farm and village towards urban concentration.

Prominent among the points to be considered here is that education supplies the needed manpower for development. Afolabi and Loto (2012: 330) support this argument by stating that a developed or educated polity is the one that has enough manpower and each person occupies his or her rightful position to enhance the growth of the society. To support this, Ajayi and Afolabi (2009: 34–36) have also remarked that education is largely perceived in Nigeria as an indispensable tool which will not only assist in meeting the nation's social, political, moral, cultural and economic aspirations but will also inculcate in the individual knowledge, skills, dexterity, character and desirable values that will foster development and self-actualization. From the definition of education given above, it is clear that education trains an individual to be useful in the society and to meet up the need of the society for

development. Therefore, it should be clear that without education Niger State cannot get the needed manpower for material advancement and enlightenment of the citizenry. The trained engineers, teachers, medical doctors, inter alia are all the products of education. This explains why it is argued also that the quality of a nation's education determines the level of its development.

In addition, education promotes social and group relationship (Armstrong, et al 1981:142). In this regard, Obasanjo (2012:3) states that education trains individuals to relate and interact meaningfully with others in the society and to appreciate the importance of effective organization for human progress. Here, the school system within the educational system fosters this development. The school brings people of different cultural backgrounds together for a common purpose. The promotes mutual co-existence among the different students. Learners who strongly identify with their school are thought to have a more positive attitude towards teachers, other learners and the entire educational enterprise (Armstrong, et al 1981:143).

Education also promotes the culture of productivity by enabling individuals to discover the creative potentials in them and apply same the improvement of the existing skill and technique of performing specific tasks, thereby increasing the efficiency of their personal societal efforts (Obasanjo 2012:3). Education teaches or trains people to be useful to themselves and the society they live. By this, they have to be productive and discover their creative abilities and use this to perform specific tasks to attain self actualization.

Education also develops in individuals those values which make for good citizenship, such as honesty, selflessness, tolerance, dedication, hard work and personal integrity, all of which provide the rich soil from which good leadership potential is groomed. As already noted, education trains an individual to be responsible in the society.

#### **4. Conclusion and Recommendations**

The discussion above illustrates the strategic position of education in charting the course of development in Niger State. The crisis which has engulfed the Nigeria education sector centres on government neglect of funding education, politicization of education, changing political environment, incessant change of educational policies and corruption. Below is a recipe or lasting solutions to the perennial crisis that has bedeviled education system.

Prominent among the solutions is that government should be determined to make provision for effective funding of education. The state should endeavour to earmark 26% of the total budget for educational development as recommended in the United Nations Organization.

At the same time, the private sector should also be made to participate in the funding. This will be successful if government on its part shows its seriousness and commitment to the system in term of funding. The private sector can participate by providing research grants, awarding of scholarship and endowment of Professorial



Chairs in universities. An enabling law should also be enacted making it mandatory for multinational companies operating in the State to set aside a minimum of 5% of their profits to finance education and allied projects. There should also be the need for strong political will among political leaders to ensure continuity of educational policies. Severe punishment should be meted to financial crimes and other corrupt practices in the educational sector. Education should not be politicized as identified above and there should be a steady political environment to ensure continuity and maturity of education policies.

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## **Entrepreneurial Education, Economic Opportunities and Venture Creation in the Semi-Urban Areas of Niger State, Nigeria**

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### **Abstract**

*In the face of unemployment, entrepreneurial knowledge sharing and skills development are regarded as important requirements for stimulating economic and social development. This paper seeks to explore the role of entrepreneurial education in the scale-up of new entrepreneurial business ventures among graduates who reside in the semi-urban areas. This research deployed qualitative research methodology, using semi-structured interview technique for data collection among university graduates with different disciplines in Niger State, Nigeria. The data collected was used to explore the impact of entrepreneurship education as motivation for new venture creation. The economic opportunities available in the semi-urban areas were also explored alongside the networking capabilities and relationships of emerging entrepreneurs. The findings revealed that previous entrepreneurship knowledge contributed meaningfully to the creation of new ventures. It is concluded that the transformation of entrepreneurship knowledge, skills acquisition as well as networking served as enablers for new venture creation in the semi-urban areas.*

**Keywords:** Entrepreneurial education, Skills acquisition, University graduates

**JEL classification:** A22

### **1. Introduction**

The motivation for venture creation and the strategies for effective application of entrepreneurial knowledge into venture creation had changed over a period of time. Therefore, this paper explores the role of entrepreneurial education and skills in the creation and development of new ventures among graduate entrepreneurs in the semi-urban areas. In past decades, research revealed that in the rural and semi-urban areas of the developing nations entrepreneurship ventures are largely dependent on traditional knowledge which is characterized by social capital. For instance, ethnicity, family background and geographical location were the major influencing factors, many entrepreneurial ventures established in these areas lack information on modern and innovative skills (Bhatt & Ahmed, 2017; Ami, 2016). Despite the menace of

unemployment, quest for white-collar jobs and increased migration of university graduates demeans their quest for seeking entrepreneurial opportunities within their immediate environment (Olorundare & Kayode, 2014; Olaitari, 2016). The objective of this article is to detect whether entrepreneurial education is effective enough to allow university graduates create new venture or is able to motivate the unemployed graduates to become entrepreneurs base on the knowledge acquired and information shared.

This study is steered by the outcome of a comparative study of motivation and success characteristics of entrepreneurs by Chu et al., (2007) where 356 entrepreneurs in Ghana and Kenya were surveyed. In their study, motivation and circumstances for starting up new business ventures as well as factors responsible for the success of venture and problems that can cause setbacks were duly explored. Within the context of that empirical research, a comparative analysis of newly established entrepreneurs in two different geographical locations was explored, they comprised entrepreneurs who engage in different ventures capitalizing on level of entrepreneurial education, information and skills as their start-up venture motivation. While their relationship with customers as well as relationships with family and friends were considered. Whilst, considering government regulations and policies.

## **2. Literature Review**

### *2.1 Structure of the Semi-Urban Entrepreneurial Business Environment*

In the African context, semi-urban areas are growing in terms of business creation as a result of increase in population and emergence of new entrepreneurial opportunities (Kibler, 2013). In Nigeria, statistics revealed that there has been tremendous increase in the number of registered small and micro scale enterprises of about 43% with the Cooperate Affairs Commission (CAC) between 2013 and 2015. This data is of entrepreneurs venturing into new areas such as innovative agriculture and new technologies. This statistic is slightly higher than what was obtained in the past decades especially in the retail settings. While the country's economic activities are embedded in the typical urban areas, more than eighty percent of the raw materials are sourced from the rural and semi-urban areas (Ministry of Trade and Industry, 2016) in comparison to the total population of over 50 million people residing in the urban areas. Semi-urban entrepreneurial activities are based on the combination of agriculture, production and artisanal services More recent statistics showed that the combination of entrepreneurial activities in agricultural value chain activities is not unrelated to the current government interventions to boost agriculture which have spillover effect that can generate external economies than it will appropriate. For instance, rural economy and semi-urban economy were even more sustainable in the manufacturing and fabrication of products that are needed for economic purposes.

Nevertheless, unemployment in the urban areas has contributed to the movement of people into semi-urban and rural areas. Paniagua (2002) considers the processes involved in urban-rural migration especially in the entrepreneurial tourism sector as a

capsial of the conventionally constructive connection that is based on opportunities available in different spatiality. This type of phenomenon is rear and usually considered as not a capable of leading to meaningful development considering the types of infrastructure available in the semi-urban and rural areas (Goyal et al., 2016). In this context, there is the possibility of plummeting the potential of developing real entrepreneurial ventures while waning the understanding of how participation in entrepreneurial ventures can be encouraged among potential entrepreneurs (Zahra et al., 2008; Mueller & Shepherd, 2016).

Past studies (Babalola, 2014; Choudhury & Sana, 2017) provided counter-argument to these assertions and revealed that availability of opportunities are the main aspiring influences that help in stimulating entrepreneurial venture creation while the economy of the semi-urban area is characterized by opportunities in agriculture, domestic services and retailing sectors thereby providing employment for the people. This means that those who have previously received entrepreneurial education are more at advantage in terms of exploring opportunities and making contributions to economic growth by participating in various entrepreneurial business sectors within the semi-urban areas. Other studies found that those with sound indigenous entrepreneurial knowledge are relatively smart and are often prepared with different characteristics that will lead to efficient venture creation that are competitive in nature (McNaughton & Gray, 2017; Lundberg & Rehnfors, 2018).

### **3. Methodology**

A qualitative research methodology was deployed for this study, whereby semi-structured interview was conducted among 15 University graduates who have established their own small businesses in two semi-urban settlements (Paiko and Lapai) within Niger State, Nigeria. Conducting interviews in this context was necessary for prompting respondents to share their business experiences and academic life stories which motivated them to create their own ventures. These comprehensive biographies and experiences were important towards the understanding of how entrepreneurial knowledge and education gained previously, while in the University facilitated the creation of business ventures. The interview was conducted by a member of staff and two students of Ibrahim Badamasi Babangida University, Lapai. Questions relating to entrepreneurial knowledge and skills, knowledge sharing, education qualification, business opportunities and sourcing of raw materials formed the theme of the checklist. It also included question on preference of location of business (semi-urban settlements) with it being defined as areas less of urban and more advanced than the rural settlements. Questions were designed and asked in a manner at which it followed the historical trends of how the ventures were created and with this the interviewer probed into the enthusiasm that motivated them to take decisions in setting up their new ventures.

## **4. Findings**

### *4.1 Entrepreneurship Knowledge and Skills Development*

The historical context and the biographical investigative pattern of the interviews shape the presentation of the findings. Rauch & Hulsink (2015) posits that the impact of entrepreneurial knowledge and skills for venture creation has thus been quite under studied. In his study, the model he developed and used for undergraduate entrepreneurship education revealed that entrepreneurial knowledge and skills could minimize the dependence of new venture creators on already existing entrepreneurs who haven't really embraced innovation. This paper is more interested on the influence of previous entrepreneurial knowledge on startup ventures. Moreover, from the interviews, previous entrepreneurial knowledge showed impact on the creation of business ventures. For instance, entrepreneurial knowledge serves as an enabler for new venture creation, it provided the necessary business skills and also provided networking platform for entrepreneurs with similar ideas. The themes generated from the interview shall be discussed with quotation from the responses of the interviewees and then it will be followed by the conclusion part which will suggest how youths who have received entrepreneurial trainings and skill but not yet entrepreneurs can also start their own new business ventures.

### *4.2 Entrepreneurial Knowledge as an Enabler*

The importance of acquiring entrepreneurial education for new venture creation has been an area of intellectual discourse (Aldrich & Yang, 2014) due to the fact that universities are currently producing graduates with entrepreneurial knowledge for self-reliance. Whilst semi-urban entrepreneurs need to seek for skills and training from entrepreneurs in either rural or mostly in urban areas. Graduates who are not yet entrepreneurs would voluntarily prefer to move into semi-urban areas to establish their businesses if prospects for opportunities appear to them. One of the interviewees was attracted to the yam market in Paiko and decided to join the supply chain. This entrepreneur and many other examples of graduates are attracted to agriculture base on their previous knowledge or availability of opportunities. Another example of a newly created business venture in Lapai which was based on entrepreneurial knowledge emerge in the area of communication technology. He explained that after taking a General Studies (GST) course in entrepreneurship in his year two and three at the Ibrahim Badamasi Babangida University, he got motivated to startup a recharge card retailing business since there is high demand for it due to the increasing population in the town. This in essence, would in no way stop him from seeking a white-collar job.

Other examples that came up in the course of our findings is that entrepreneurship knowledge can enable the springing up of new ventures among low income earners who reside in the semi-urban areas. These set of people recognize business opportunities and take advantage of such opportunities to boost their level of income. Without much pressure they are able to convert indigenous knowledge into business

reality. Some typical examples in Paiko is that of a primary school teacher who engages in the production of 'Kuli-Kuli' groundnut cake and another one who is a graduate of IBBUL who has also engaged herself in the supply chain of Polo Clay soap as a second-tier retailer and currently she is a beneficiary of the Federal Government N-Power Programme. If they hadn't had entrepreneurial knowledge, they may not have been able to see the importance of creating their own new venture even with the fact that they have limited financial capital. These are examples of entrepreneurs who are working but have low income. The third example is that of an IBBUL staffer's wife, who is a graduate of IBBUL and haven acquired entrepreneurial knowledge but presently unemployed. She said:

*I have written series of aptitude tests and I couldn't find a job but because I have a lot of time at my disposal, I have decided to use it for snacks business since I have experience in baking and other confectionary business*

The study also revealed that semi-urban areas are witnessing increased number of female graduates entrepreneurs who have established their new ventures. This happens because of the available opportunities for instance, IBBUL as an institution has become opportunity to many entrepreneurs not only in Lapai but along the linear route that connects Lapai with the state capital.

All of these examples reveal that for majority of the semi-urban entrepreneurs in such categories, may link the success of establishing their businesses and their ability to manage it greatly to their previous entrepreneurial knowledge. Contrarily, entrepreneurial knowledge has not been seen to be the only factor responsible for business success in the semi-urban settlements. This is because there are vast majority of business owners who have never been to any school or acquired any form of formal entrepreneurial knowledge but were able to manage their businesses using their indigenous knowledge.

#### *4.3 Business Skills for New Venture Creation*

Despite the fact that researchers have been clamoring for the importance of entrepreneurship knowledge, many posited that knowledge is not enough for business and wealth creation and it has to be backed up with skills acquisition and transfer of skills from one generation of entrepreneurs to the other. To witness growth and development in semi-urban areas the types and choice of skills must be in important area of interest of the people. Skills can be acquired from participation in local activities and through the formation of networks. Research revealed that investing in skills acquisition can boost profit of a business owner. One of the entrepreneurs interviewed said:

*I have been attending trainings organized by telecommunication companies to be aware of new trends.....recently the D2R package was introduced by one of*

*the communication companies to put an end to the sale of paper recharge cards*

Mostly, those who engage themselves in technological oriented businesses must keep themselves updated due to emergence of new innovations, changes in market structure and information available to consumers. Some interviewees argued that skills are not always taught but rather they are developed through inquisitiveness and demands from customers. For instance, one the interviewees lamented that:

*I have been operating my business base on trial and error method, nobody has ever taught me any skill. I learn from experience. I drop those things that are not working for me while I maintain those things that show prospect for the growth of my business*

Another interviewee mentioned that:

*my business is not registered and as such I don't want anyone to teach me any new thing especially the government because as soon as they know that I am doing this business they will start taxing me due to the fact that they have empowered me with skills. I only use my own experience and I ask questions from other entrepreneurs doing the same kind of business*

The type of examples provided above suggest that skills are sometimes learned or acquired by experience and entrepreneurship education does not justify that skills must be learnt before setting up a new venture. Other respondents talked beyond acquiring physical skills but skills such as money management and accounting activities are also important skills for the success of new venture creation.

## **5. Conclusion and Recommendation**

This study pursued the menace of unemployment and how university graduates can convert their entrepreneurship knowledge and skills in to business reality especially in the semi-urban areas. Entrepreneurial education has proved to provide diverse opportunities for university graduates in terms of knowledge and skills that will enable them to be self-reliant. For many entrepreneurs who were interviewed, previous knowledge in entrepreneurship was very important to develop the skills they had acquired by leaning or through experiences for their new ventures. It came up strongly that the most valuable capitals that helped the entrepreneurs were physical, social and financial capitals. Subsequently, the zeal to acquire skills related to their area of interest strengthened their human capital capacity to manage their businesses.

Theoretically, this study has shown the importance of the mandatory entrepreneurship education as a general studies course in the Nigerian universities. It also supports the study of Olurundare & Kayode (2014) with the assertion that entrepreneurship

education is a tool for national development. Whether purposely or inertly entrepreneurs in the semi-urban settlements are performing fairly well and opportunities are drawing potential entrepreneurs to take up entrepreneurial activities in such spatial settings. As Olaitari (2006) recognized the importance of vocational and technical education as a means of transferring entrepreneurial knowledge and skills is also highly valued by entrepreneurs and this study remains in-line with the current findings.

It is therefore recommended that further studies are required into the crossing points of developing entrepreneurial knowledge and skills as it is an explicit need of the semi-urban economy. This is however possible if it is extended to the context of the rural economy with a distinct understanding of how to explore business opportunities in the rural settings.

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## **Informal Financial Institutions (IFIs) and Investment in Nigeria: A Binomial Logit Linear Regression Approach**

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### **Abstract**

*Small and Medium Enterprises (SMEs) occupy a central place in the economic growth of nations. SMEs have a fundamental role to play in the development of an economy and this cannot be over emphasized. SMEs serve as training arena for local skills and entrepreneurs, and could become channels for mobilizing local savings, ensuring a more equitable distribution of income and reducing the migration of manpower from the rural to urban areas. On this note, government has identified the need for the development of SMEs. One of such Sectorial strategies is the introduction and pursuit of policies such as concessionary financing to encourage and strengthen the growth of SMEs in Nigeria. However, a well-functioning and regulated informal economy will be a critical prerequisite to sustainable growth. This is because the link between, informality and Investment in Nigeria is not fully understood. This study seeks to investigate the nexus between Informal Financial Institutions and Investment in Nigeria. A binomial Logit Linear Regression approach was employed with data from structured questionnaires having Investment and repayment plan as variables. The finding revealed that the odd ratio of investment against the IFIs chance of alleviating poverty in north central-states-Nigeria is 2.21. The study therefore concluded that there exists a significant relationship between IFIs and Investment in north central-Nigeria. The study recommends among others that there is the need for the government to utilize Informal Financial Institutions in its poverty reduction programmes, since about 75 percent of the Small and Medium scale Enterprises (SMEs) could assess credit for investment through them. This will go a long way in promoting inclusive growth in the country.*

**Keywords:** IFIS, Investment, SMEs and Poverty Alleviation

**JEL classification:** E26, G11, O17

## **1. Introduction**

Small and Medium Enterprises (SMEs) occupy a central place in the economic growth of nations. SMEs have a fundamental role to play in the development of an economy and this cannot be over emphasized. SMEs serve as training arena for local skills and entrepreneurs, and could become channels for mobilizing local savings, ensuring a more equitable distribution of income and reducing the migration of manpower from the rural to urban areas. The economies of third world countries such as Nigeria operate with dual financial institutions. On one hand are group which function through direct governmental control known as Formal Financial Institutions such as Commercial Banks, Insurance Companies and Mortgage Banks, and on the other hand are those financial institutions which are not directly controlled by government, called Informal Financial Institutions such as money lenders, cooperative societies, thrift and loan societies, local bankers, cooperatives etc. It should however be noted that statutory dominance of formal financial sector since independence is hinged on the thinking that the sector would stimulate the growth of the economy and ensure the upliftment of the socio-economic lives of the people (Obadan, 2014).

It has been contended that the Formal financial sector will promote savings and investment, improve opportunities for credit, and engender reduce poverty. But it has been observed that Formal financial institutions have seriously come short of the expectations as they have made things harder for Nigerians through stringent conditionalities for credit, poor customer services and high interest rates (Frank, 2010). Even the micro finance institutions that were created for the purpose of developing the small and medium scale enterprises has not been able to realize any of the objectives for which it was created, thereby leaving the small and medium scale enterprises to be sourcing for their respective means.

The introduction of the informal financial institutions by individuals and groups is to cushion the effects of the Formal financial institutions on the socio-economic wellbeing of the people. This practically done by borrowing loans to small and medium scale enterprises and individual for the purpose of expanding their respective businesses. It has been acknowledged all over the world that small and medium scale enterprises are the powerful tool any country can use to stimulate fast and sustainable socio-economic growth.

The informal financial institutions are creation of the indigenus people with aim of making credit/loan facilities more accessible to the people and SMEs so as help solve their socio-economic and financial problems (Gulong, 2012). Small scale enterprises prefer to operate with these institutions as their conditions for credit are soft, coupled with faster administration of loans with low interest rate compared to Formal Financial Institutions (Yelwa *et al.* 2014).

Furthermore, North Central Nigeria consists of the seven states (Kwara, Kogi, Nasarawa, Niger, Benue, Plateau and Federal Capital Territory) situated geographically in the middle belt region of the country, spanning from the west,

around the confluence of the River Niger and the River Benue. The region itself is rich in natural land features, and boasts some of Nigeria's most exciting scenery. The region is also home to many historical and colonial relics. However, this study focuses on only three states among the North Central states which include Kogi, Niger and FCT which were chosen because of the high familiarity with these states and also the availability of data.

However, the area does have formal banking system, but most people depend on informal financial institutions existing in the area for their financial transactions such as savings and loans. This study is therefore aimed at determining the contribution of informal financial institutions on the growth of small scale enterprises in North central states of Nigeria.

## **2. Literature Review**

### *2.1.1 Concept of Informal Financial Institutions*

In Africa, the vast majority of financial transactions occur outside the boundaries of the regulated banking sector (Aryeetey & Udry, 2007). It is estimated that 55 percent of the money supply in Nigeria is for instance outside the formal banking sector (Okezie, 2009). Informal lenders provide more credits and attract a larger volume of savings than the formal sector in sub-Saharan Africa (Nissanke & Aryeetey, 2013).

It is important to understand how the Informal Financial Sector works for effective policy making. Three types of informal units have been identified in Africa; including savings mobilization units with little or no lending; lending units that do not engage in any savings; and savings mobilization and lending units (Obadan, 2014).

The Informal Financial Sector is an unregulated market and hence highly flexible with respect to structuring credit arrangements. It is therefore not guided by stringent rules and regulations such as the formal sector. The informal sector is characterized by a strong working relationship between borrowers and lenders, and is more responsive to market conditions. It is also common to see individuals and businesses participating in both the formal and informal sectors. This is particularly true among enterprises, a number of which are controlled and managed by families, friends and relatives with full access to formal sector capital markets.

Berko (2010) noted that the earliest but most primitive means of Informal Financing Institutions were the slavery, forced human labour, child marriage and the practice of “*Iwaga*” in Yoruba area in which a borrower uses his own wife or daughter as collateral for the loan. According to him, these inhumanizing of human race practices had been phased out in Nigeria because of Christianity and civilization.

Umebali (2012) sees informal credit institutions to include all classes of credit, savings associations and markets operating outside the formal financial system guidelines. They gained their popularity as a result of non cooperative attitudes of some conventional banks and other non-banking financial institutions in giving loans

to the less privileged or poor. These institutions are often made up of heterogeneous savers and lenders.

According to Osuntogun and Adeyemo (2015), the informal financial market is an indigenous system of saving in varying forms which can be broadly summarized as a situation in which a group of people come together, contribute fixed amount at fixed intervals and assign the total amount contributed to an individual member on rotational basis or offer credit to members and share their accumulated savings at

Furthermore, Robinson (2001) defined microfinance as the supply of loans, savings and other basic financial services to the poor. IFI evolved as an economic development approach intended to benefit the low-income part of a given society, both men and women (Irobi, 2008). According to World Bank (2007), the term refers to provision of financial services (including saving and credit) to the poor.

### *2.1.2 Concept of Poverty in Nigeria*

Central to the quest for policies and programmes that will reduce poverty is the issue of the conceptualization of poverty. Conceptually, three dominant views are identified as the meaning of poverty in the literature. The first view sees poverty as a severe deprivation of some basic human needs at the individual or household level, (Obadan, 2009). Put differently, poverty is a material deprivation and this can be assessed in monetary terms (Aliyu, 2012).

The second view defines poverty as the failure to achieve basic capabilities such as being adequately nourished, living a healthy life, possession of skills to participate in economic and social life, permission to take part in community activities to mention a few. This conceptualization forms the basis for the belief that 'poverty is multi-dimensional' (Senn, 2009).

The third conceptualization of poverty came into limelight in the 1990s and has a fundamentally different approach to the understanding of poverty: subjective poverty assessments. The core of this view of poverty is that poverty must be defined by the poor themselves or by the communities that poor people live in. (Streeten, 2008).

### *2.1.3 Concept of Small, Micro and Medium Scale Enterprises*

As outlined by allbusiness.com (2010), the traditional definition in Germany sees Small and Medium Scale Enterprises as enterprise that is not more than two hundred and fifty employees while in Belgium, sees is as enterprise with not more than one hundred (100) personnels. In the latest development by the European Union, the concept 'micro' has been categorized as enterprises with less than ten (10) employees, 'small' as those with less than fifty (50) employees and 'medium; as those with less than two hundred and fifty (250) employees. In the USA, 'small' is classified as enterprise or business with less than one hundred (100) employees while medium scale business identifies as business with fewer than five hundred (500) employees.

European Union (2013) sees medium-sized business as an enterprise that the number of employees is not more than two hundred and fifty persons and whose annual turnover is not more than EUR 50 million or whose annual balance-sheet total will not exceed EUR 43 million. A small enterprise is described as an enterprise which employs fewer than 50 persons and whose annual turnover or balance sheet total will not exceed EUR 10 million. While a micro enterprise is viewed as an enterprise which employs below 10 persons and whose annual returns and/or annual balance sheet total is not more than EUR 2 million (Ifedulova, 2013).

Micro and Small Enterprises play significant role from the overall industrial economy in India. It is estimated that with regards to value, the sector accounts for approximately 39 percent of the manufacturing output and about 33 percent with the total exports of the nation. In South Africa, the word Small, Medium and Micro Enterprises (SMMEs) plays a significant role in their economy while in Nigeria the word Small and Medium Scale Enterprises (SMEs) is used. Base on these analyses, it is concluded that Small and Medium Scale Enterprises are enterprises that can employ at most five hundred (500) employees at any given point in time and it has been proved to be the backbone of every economic system. However, the brain behind every prosperous Small and Medium Scale Enterprise is entrepreneurship which plays crucial roles in managing the small and medium scale enterprises. Entrepreneurial skill is a pillar to which SMEs survives (Yelwa *et al.* 2012).

### *2.2 Empirical Review*

Yelwa, *et al.* (2012) carried out a research on the relationship between Informal Financial Sector and Financing of the Small and Medium scale Enterprises in Nigeria using Niger state as a case study. He concluded that Informal Financial market operators in Minna, Suleja, Bida and Kontagora have contributed largely to investment, job creation, income generation, easy accessibility to credit facilities and supports the production and distribution of goods and services to the people of the towns.

Osuagwu (2012) found that the following four factors determine investment: The expected rate, the supply of funds, Absorptive capacity and the government policies. Based on the study, he concludes that the inadequacy of investment in the economy supply was caused by government policies, limited supply of investment fund i.e. micro- credit and slow rate of expansion of the absorptive capacity due to lack of innovation in the technological development.

Fowowe and Abidoye (2011) examine the effect of financial development as measured by private credit on the growth of poverty and inequality in Sub-Saharan African countries. Their findings show that private credit has no significant influence on poverty in these countries. However, empirical results show that macroeconomic variables such as low inflation and trade openness engender reduction of poverty.

Geda *et al.* (2014) use the rich household panel data of urban and rural Ethiopia that covers the period from 1994 to 2010, the authors attempted to establish the link between finance and poverty in Ethiopia. Their results show that access to finance is an important factor in consumption smoothing and hence poverty reduction.

Rama (2013) in his study of the theoretical and empirical determinants of investment in developing countries identifies macroeconomic and institutional factors, such as financial repression, foreign exchange shortage, lack of infrastructure, economic instability, aggregate demand, public investment, relative factor price and credit availability as important variables that explain private investment. Here, credit availability among other factors was stressed.

### *2.2.1 SMEs Growth, Investment and Employment Generation in Nigeria*

The baseline economic survey of Small and Medium Industries (SMIs) in Nigeria conducted in 2004 indicated that the 6,498 industries covered currently employ a little over one million workers. Considering the fact that about 18.5 million (28% of the available work force) Nigerians are unemployed, the employment objective/role of the SMIs is far from being reached (CBN 2005). One of the hallmarks of the National Economic Empowerment and Development Strategy (NEEDS) is the empowerment of the poor and the private sector, through the provision of needed financial services, to enable them engage or expand their present scope of economic activities and generate employment. Delivering needed services as contained in the Strategy would be remarkably enhanced through additional channels which the microfinance bank framework would provide. It would also assist the SMIs in raising their productive capacity and level of employment generation.

As at December, 2010, only N8.5 billion (29.5%) of the N28.8 billion Small and Medium Enterprises Equity Investment Scheme (SMEEIS) fund had been utilized. Moreover, 10% of the fund meant for micro credit had not been utilized due to lack of an appropriate framework and confidence in the existing institutions that would have served the purpose. This policy provides an appropriate vehicle that would enhance the utilization of the fund (FAO, 2009; Olaitan, 2011; Yaron, *et al.* 2008; Zeller & Sharma, 2008).

Ariyo (2010) brought out the need to embark on SMEs development by pointing out the significance of Small and Medium scale enterprises on the economy of Nigeria. He posited that more than 50 percent of businesses in Nigeria are classified as small and medium scale. However, since most businesses are in this category, it is therefore necessary for the government to initiate policies and programmes that will promote the activities of the SMEs since it will have a positive impact on the overall economy such as job creation, improved standard of living, reduces prostitution and violence among youths.

Khandker (2008) in his studies using statistical method on assessment of impact of informal finance among three Bangladesi programs found that every additional takas

lent to a woman for investment purpose adds extra 0.18 taka to annual household expenditure.

In the work of Berry *et al.* (2012) in a study conducted in Ghana and South Africa, SMEs takes a large proportion of businesses in the developing nations. He posits that SMEs represents about 72 percent of businesses in Ghana, contribute 70 percent of the nation's Gross Domestic Product (GDP) and 80 percent of employment generation in the same country. He also revealed that South Africa is accounted for 91 percent of businesses, contributing 55 percent of Gross Domestic Product (GDP) and 61 percent employment opportunities.

Dunn and Arhucle (2011) used an analysis of covariance to examine loans to micro entrepreneurs with regard to 305 households in Peru. The analysis uses data at two points over time and looked at changes in borrowers in accordance with control group who have certainly not received micro-credit. 'The study suggests there are significant differences between the borrowers and the control of group with regards to enterprise revenue, productivity, fixed assets and employment creation for others.

#### *2.2.1 Poverty and Economic Growth*

The relationship between poverty and economic growth is that they are empirically needed in growth comparison: A nation without poverty or a reduced level of poverty is definitely having a consistent and reliable economic growth. Nigeria without economic growth and development cannot increase the welfare of the people and would definitely bring about the prevalence of extreme poverty.

Mwakapui, (2012) sees Economic growth as an increase in a country's productive capacity, identifiable by a sustained rise in real national income over a period of years. A country's annual growth, can be measured by taking the average percentage increase in national income over a long period of time, say five or ten years.

A growing labour supply enables a community to produce bigger combination of goods and services and so bring about an outward shift in it production possibly frontier. This in turn leads to an increase output per head and hence a potential improvement of the social welfare of citizenry. An expansion of a country capital stock through net investment, just like an expansion of its labour forces, increase the country Stock of productive resources and so represent another possible source of economic growth (Tonge, 2013).

#### *2.3 Theoretical Framework*

The theoretical framework for this study is rooted on the work of Mc Kinnon (1973) and Shaw (1973) in Financial Repression Theory, who propounded that Informal Financial Institution came into existence because of excessive regulation of the formal sector with the use of policies of direct control such as interest rate ceilings and prescribed credit allocation to government and its parastatals.



This led to distortions in the economy resulting in crowding out of the financial needs of the informal sector by the formal financial institutions. In addition, the effective cost of funds to small and medium scale enterprises became excessively high. However, the imposition of interest ceiling often below market interest rates usually induces excess demand for loanable funds, thus leading to credit rationing by banks and other financial institutions and the existence of parallel financial markets with higher market clearing interest rates.

### 3. Methodology

#### 3.1 Data

The study was conducted in the North Central, Nigeria. These areas consist of the selected three states situated geographically in the middle belt region of the country, spanning from the west, around the confluence of the River Niger and the River Benue. The region is made up of the following states: Benue, Kogi, Kwara, Nasarawa, Niger and Federal Capital Territory (Abuja). The region itself is rich in natural land features, and boasts some of Nigeria's most exciting scenery. The region is also home to many historical and colonial relics. The selection of these states was based on the growing SMEs in these states because of their growing population. For instance, FCT used to be known as businesses headquarters, but recently, because of the growing population in the region with about 6 million people, the growth of SMEs have been on a high side. The same apply to Kogi and Niger state because of their proximity to the FCT.

The cross sectional data for this study was obtained using questionnaires. Based on the Krejcie and Morgan (1970) table with a deterministic model as:

$$S = \frac{X^2 NP (1-P)}{d^2 (N-1) + X^2 P(1-P)} \dots\dots\dots 1$$

Where S is the sample size,  $X^2$  stands for value of Chi-square, N shows the population size, P indicates population proportion, and d is the Degree of accuracy. Based on this proposition by Krejcie and Morgan (1970), a sample size of 850 questionnaires was recommended using 95% confidence interval. In addition, the minimum sample size would be determined on the basis of 30 cases per variable/item for an accurate representation of the first canonical root (Stevens, 2001). The Bowley's model of deriving objective, valid and reliable sample was used which reduced the chances of error.

A total of eight hundred and fifty (850) copies of the questionnaire were administered across the two States and the FCT in the North Central covered by the study. The basis of distribution of the copies of the questionnaire was based on the population from each region which is in line with Krejcie and Morgan (1970). The details of the questionnaire distribution and response rate are shown in Table 3.1 below.

As mentioned, Table 3.1 shows the questionnaire distribution and response rate across the three regions in the North Central geopolitical zone. A total of 415 copies of the

questionnaires, representing 48.8% of the total sample size were administered in Abuja, FCT. In Kogi State, a total of 263 copies of the questionnaire were distributed, representing 30.9% of the sample size. In Niger, 172 questionnaires representing 20.3% were distributed of the total sample size.

Table 3.1 Questionnaire Distribution / Response Rate of Micro & Small Enterprise Operator

States in North Central Zone	I No. of Registered SMEs	II Percentage of the population (%)	III No. of Questionnaire distributed	IV No. of questionnaires returned	V Rate of Response (%)
Abuja FCT	6000	48.8	415	342	49.0
Kogi	3800	30.9	263	216	30.9
Niger	2500	20.3	172	142	20.1
Total	12300	100	850	700	100

Source: Researcher's Analysis of Field Survey, 2018

According to Saunders, Thornhill, and Lewis (2007), there are two methods of calculating a response rate: one is total number of responses divided by total number in the sample minus ineligible; the other active response rate, is total number of responses divided by the total number in the sample minus ineligible plus unreachable. Method one was used in this study. Out of the 415 copies of the questionnaire distributed in FCT area, 342 copies were adequately completed and returned. This represents 49.0% response rate. In Kogi State, 216 copies of the questionnaire were returned and that represents 30.9% response rate. In Niger state, 142 copies of the questionnaire were adequately completed and returned; these represent 20.1% response rate respectively. In all, a total of 700 copies of the questionnaire were returned from the two States and the FCT out of 850 copies administered. This represents a total response rate of 82.4%. The high return rate achieved from the field survey can be attributed to the support received from the credit/field officers in the areas.

### 3.2 Logit Model

The Maximum Likelihood (ML) method is used to obtain estimates for the specified binomial Logit probability model. The justification for using ML method is due to the fact that neither the ordinary least squares (OLS) nor the weighted least square (WLS) is helpful or adequate for estimating the Logit model. Moreover, that the Logit model is a nonlinear model. The parameter estimates of the specified Logit model are not directly interpretable with respect to magnitudes of effect but only interpretable with respect to the direction of effect on probability (Patrick *et al.*, 1996). However, the logit regression is based on the logistic model given by:

$$Y = \alpha + \beta X + \mu \dots \dots \dots .2$$

$$E\left(\frac{1}{X}\right) = \alpha + \beta X = Pi \dots \dots \dots .3$$

$$P = \frac{1}{1 + e^{-\alpha + \beta X + \mu}} \dots\dots\dots 4$$

The above equation (3.3) is a cumulative logistic distribution function and the probability ranges between 0 and 1.

Let Z be  $\alpha + \beta X + \mu$  .....5

$$P = \frac{1}{1 + e^{-Z}} \dots\dots\dots 6$$

$$1 - P = 1 - \left[ \frac{1}{1 + e^{-Z}} \right] \dots\dots\dots 7$$

$$P = \frac{1}{1 + e^{-Z}} = \frac{e^Z}{e^Z + 1} \dots\dots\dots 8$$

$$\frac{pi}{1 - pi} = e^Z = \text{Odd Ratio} \dots\dots\dots 9$$

Since Logit = Log of odd ratio

Therefore,  $\text{Log}\left[\frac{pi}{1 - pi}\right] =$

$$\text{Log } e^Z \dots\dots\dots 10$$

$$\text{Log}\left[\frac{pi}{1 - pi}\right] = Z \text{ Log } e \text{ but } \text{Log } e = 1 \dots\dots\dots 11$$

$$\text{Therefore, } \text{Log}\left[\frac{pi}{1 - pi}\right] = Z \dots\dots\dots 12$$

$$\text{Log}\left[\frac{pi}{1 - pi}\right] = L = \alpha + \beta X + \mu \dots\dots\dots 13$$

Equation (12) is the Logit model framework.

The models will be specified based on the hypothesis as follows:

**H<sub>02</sub>:** There is no significant contribution of IFIs on investment in north central states-Nigeria which is specified as:

$$\text{Log} \left( \frac{P}{1 - P} \right) = L = \beta_0 + \beta_1 \text{INV} + \beta_2 \text{REPL} + \mu \dots\dots\dots 14$$

Where L= P=1, If IFIs promotes growth in Nigeria; (1-P), if otherwise, INV stands for Investment, and REPL represents repayment plan

3.2. Measurement of Variables

Table 3.2 Variable measurement

Variable	Measurement	Expected Sign on impact	Apriori
POV = Poverty Alleviated by Informal Loan Dependent Variable	1, if Informal loan reduces poverty, 0, if otherwise.	±	λ <sub>1</sub> > 0, λ <sub>1</sub> < 0
Independent Variables Owner's Characteristics Variables			
INVESTMENT	1, if experienced increase in the number of employees; 0,	+ / Based on Ayodele, (2015) and Hossain, (2015)	λ <sub>9</sub> > 0

Variable	Measurement	Expected Sign on impact	Apriori
REPL	1, if the repayment plan is convenience in terms of the number of years allowed; 0, if otherwise.	+ / based on the study carried out by Balogun, (2004), Adeyemi, (2014)	$\lambda_7 > 0$

Source: Author's compilation, 2018

### 4.1 Data Analysis

#### 4.1.1 Characteristics of Respondents

Table 4.1 Utilization of loan accessed from IFIs

Response	No. of Respondents	Percentage (%)
Invest	442	63.1
Educational Fees	26	3.71
Health bill	18	2.57
Build House	32	4.57
Farming	182	26
<b>Total</b>	<b>700</b>	<b>100</b>

Source: Field Survey, 2018.

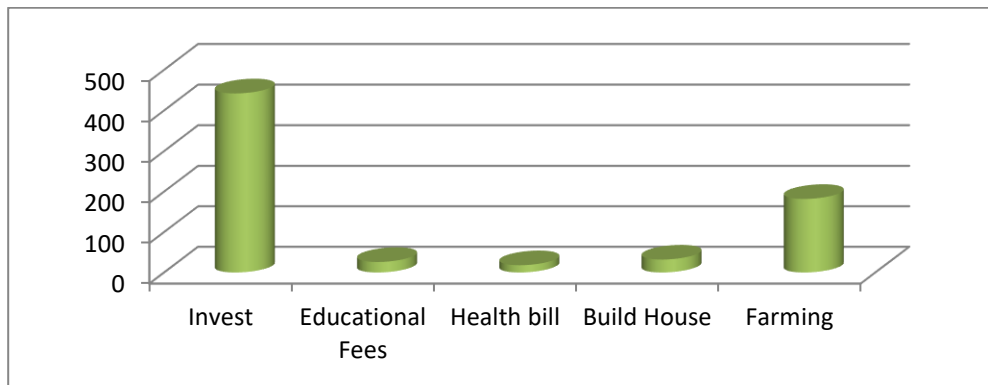


Fig 4.1: Utilization of loan accessed from IFIs

Source: Field Survey, 2018.

Table 4.6 shows that 442 respondents representing 63.1% used the loan for business purpose, 26 respondents representing 3.71% used it to pay school fees, 18 respondents representing 2.57% used it for health bills, 32 respondents representing 4.57% used the loan to build house while 182 respondents representing 26% used it for farming purpose. This shows that majority of respondents used the loan to investment in business.

Table: 4.2: Mode of Repayment for SMEs operators

Repayment Plan	No. of Respondents	Percentage (%)
Yes	558	79.71
No	142	20.29
Total	700	100

Source: Field Survey, 2018.

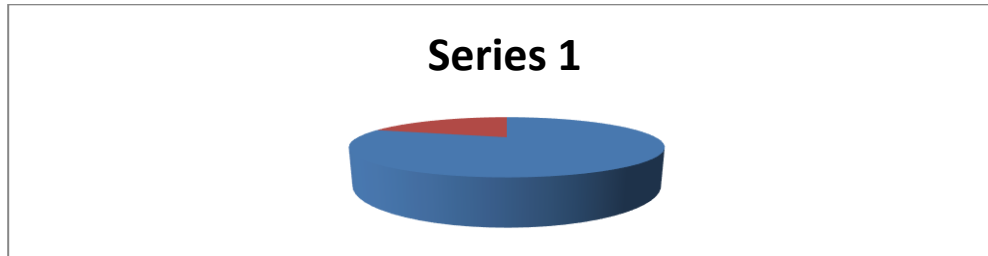


Fig 4.2: Mode of Repayment for SMEs operators

Source: Field Survey, 2018.

Table 4.4 shows the conveniences of payment by the respondents. 558 respondents representing (79.71%) agreed to convenience repayment while 142 respondents representing (20.29%) disagreed. This show that majority of the respondents agreed that IFI loan repayment is convenient.

#### 4.2 Test of Hypothesis

##### 4.2.1 Step One: Restatement of Hypothesis in Null Form

$H_{03}$ : Informal Financial Institutions has no significant relationship with Investment generation in north central states of Nigeria.

##### 4.2.2 Step Two: Presentation of Regression Results

The multiple regressions is to be estimated, where the coefficients  $\beta_1$ , and  $\beta_2$ , to be estimated, are used to measure the contribution of independent variables to dependent variable. The overall results are expressed below.

Table: 4.2: Logit Model Result

Dependent Variable: L				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-1.437809	1.496397	-0.960847	0.0016
INV	0.794806	0.876195	0.907111	0.0043
REPL	0.417357	0.902232	0.462583	0.0031
McFadden R-squared	0.236385	Mean dependent var		0.812081
S.D. dependent var	0.391965	S.E. of regression		0.289188
Akaike info criterion	0.657956	Sum squared resid		11.87539
Schwarz criterion	0.799081	Log likelihood		42.01774
Hannan-Quinn criter.	0.715293	Deviance		84.03548

Restr. Deviance	143.9912	Restr. log likelihood	71.99562
LR statistic	59.95576	Avg. log likelihood	0.281998
Prob(LR statistic)	0.000000		
Obs with Dep=0	198	Total obs	675
Obs with Dep=1	477		

Source: Author's Computation, 2018

Table 4.4: Regression results-dependent variable, IFIs in alleviating poverty

IFIs In Alleviating Poverty	Odd Ratio	S.E	P-Value
INV	2.21**	0.8762	0.0043
REPL	1.52**	0.9022	0.0031

\*\*\* 1% significance level, \*\*5% significance level, \* 10% significance level

#### 4.3 Step Three: Interpretation of Result

The regression above shows that the two explanatory variables (Investment and Repayment plan) are statistically significant at 5 percent. However, the result shows that the odds ratio of Investment against the IFIs chance of alleviate poverty is 2.21. The working hypothesis is that Investment has a significant positive effect on IFIs in alleviating poverty. Moreover, the result also shows that the odds ratio of repayment plan (REPL) against the IFIs chance of alleviating poverty is 1.52. This is significant at 5 percent level of significance.

The finding agrees with the outcome of Yelwa *et al.* (2012) who noted that Informal Financial Market operators in Minna, Suleja, Bida and Kontagora have contributed largely to investment, job creation and income generation in the area. The result also agrees with the findings of Khandker, (2008) that every tekas lent to a woman in Bangladash for investment purpose generates extra 0.18 tekas to annual household expenditure.

The McFadden R-squared value of 0.236385 implies that about 24 percent of the change in the dependent variable was explained by the explanatory variables of the model. There is tendency to assume that the model has poor fit, but according to Byrne *et al.* (1996), the R<sup>2</sup> associated with linear model dominated by dummy variables commonly comes out poor in this manner.

#### 4.4 Step Four: Decision

Based on the positive and significant relationship that exists between Investment and the chance of being able to alleviate poverty, we therefore reject the null hypothesis, meaning that there is significant contribution of IFIs on investment in north central states-Nigeria.

### 5. Conclusion and Recommendations

The findings revealed that informal financial institutions are an integral part of rural economic life and an alternative source of credit for rural people. Their existence in the north central states-Nigeria has contributed significantly towards poverty

reduction through the disbursement of micro loans to their members for productive investment. Given the failure of most Nigerian government rural financial intervention programmes, the researchers therefore recommended that there is the need for the government to utilize Informal Financial Institutions in its poverty reduction programmes, since about 75 percent of the Small and Medium scale Enterprises (SMEs) could assess credit for investment through them. This will go a long way in promoting inclusive growth in the country.

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