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BOOSTING ECONOMIC OPPORTUNITIES IN AFRICA THROUGH
ENTREPRENEURSHIP, AGRICULTURE AND TECHNOLOGY

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- Boosting Economic Opportunities in Africa through Entrepreneurship, Agriculture and Technology -

DEDICATION

Dedicated to the International Institute for Policy Review & Development Strategies for providing a platform and supporting Institutional and Collaborative Research for Sustainable Development.

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INTRODUCTION

Boosting Economic Opportunities in Africa through Entrepreneurship, Agriculture and Technology

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Africa is progressively making its impression as a continent for growth and opportunity. African countries now understand that entrepreneurship is crucial to reducing youth unemployment and getting young people involved in activities that will boost economic growth. For entrepreneurship to have a substantial impact on Africa's economy, governments and other relevant stakeholders must confront the challenges that negatively affect the countries progress. Some of these challenges include lack of funds, lack of infrastructure, corruption, political instability, poor government policies, and the need for relevant mentorship.

The importance of agriculture to economic development cannot be overstressed. Agriculture provides an important source of income for most African countries. However, constrained by several factors, productivity remains too low and is based on small-scale subsistence production. Improvements such as better leveraging of technology (both information and communications technologies, as well as the development of high-yield crops and better irrigation), access of land, capital, enabling greater market access for small-scale farmers to improve production and marketing processes, and ultimately to meet the quality standards of world markets, are some of the concerns experts believe must be addressed for nations to gain from the full potentials of the agricultural sector.

Technology has transformed the world. It has remained the strongest indicator and driver of a developed economy. More than half of the world's population is using the Internet. Of all regions, the strongest growth has been reported in Africa, where the percentage of people using the Internet increased from 2.1 percent in 2005 to 24.4 percent in 2018. This is having a positive impact on the African economy as technology drives all parts of her economy. While there is still a long way to go to bridge the digital divide, connectivity gains have helped improve lives in many parts of the African continent. Without more rapid digital transformation, Africa will not succeed in creating the huge number of new jobs needed to match its population growth. Building a solid digital economy will require a focus on key areas, such as digital infrastructure, digital literacy and skills, digital financial services, digital platforms, and digital entrepreneurship and innovation.

The Book “**Boosting Economic Opportunities in Africa through Entrepreneurship, Agriculture, and Technology**” seeks to analyse how the diverse opportunities in entrepreneurship, agriculture, and technology can be harnessed to boost economic development in Africa.

- Boosting Economic Opportunities in Africa through Entrepreneurship, Agriculture and Technology -

Executive **Summary**



Executive Summary

Strengthening Africa's Capacity to Trade

World Trade Organization, Geneva, Switzerland

The multilateral trading system overseen by the WTO has helped to spur economic development for both developing and developed economies by creating a more predictable, fair and transparent trading system that encourages investment and industrialization. However, in recent times, this progress has been slowed by crises such as that triggered by the COVID-19 pandemic. This new health and economic crisis have caused major disruptions to trade. In its October 2020 forecast, the WTO predicted that the volume of world merchandise trade would decline by 9.2 per cent in 2020, followed by a 7.2 per cent rise in 2021. In its October 2020 World Economic Outlook, the International Monetary Fund (IMF) forecast negative growth of -4.4 per cent for the world in 2020, with a rebound to 5.2 per cent in 2021. For sub-Saharan Africa, these figures are -8.0 per cent and 3.0 per cent, respectively.

In Africa specifically, the high prevalence of informal employment has been particularly affected by the social distancing measures implemented in an effort to control the spread of COVID-19 and by the disruptions to trade, particularly in services such as tourism and travel, which are important sources of revenues for African countries. The World Bank's April 2020 "Africa's Pulse" report (World Bank, 2020a) projected that, as a result of the pandemic, economic growth in sub-Saharan Africa would decline from 2.4 per cent in 2019 to between -2.1 per cent and -5.1 per cent in 2020. The October 2020 "Africa's Pulse" report (World Bank, 2020b) confirmed that growth in sub-Saharan Africa is predicted to fall to -3.3 per cent in 2020, pushing the region into its first recession in 25 years, driving up to 40 million people into extreme poverty across the continent and erasing at least five

years of progress in fighting poverty. The downturn in economic activity will cost the region at least US\$ 115 billion in output losses in 2020. These numbers have been driven to an extent by resource-intensive countries, particularly metal and oil exporters. Diversified economies expect more moderate declines. Forty-four out of the 55 member states of the African Union are members of the WTO. These economies are supported by the Development Division of the WTO Secretariat through the work of the African Group. African countries also benefit from other forms of support from the WTO, as well as capacity-building activities run by other divisions of the WTO or by WTO-sponsored facilities and initiatives. This report also outlines collaborative efforts undertaken in 2019 by the WTO with the African Union in African countries in order to increase the continent's industrial and manufacturing capacity.

African trade in goods and services has amounted to around 3 per cent of global exports and imports on average. In 2019, African countries recorded exports of US\$ 462 billion and imports of US\$ 569 billion in merchandise trade. This constituted a fall of 3 per cent on average compared to 2018. Between 2005 and 2019, Africa's commercial services exports nearly doubled in value. However, this picture is incomplete; the continent's exports are dominated by one region. North Africa has accounted for about a third of all African goods and services trade, despite comprising only five of the continent's 55 countries. However, the share of exports contributed by sub-Saharan Africa has been steadily increasing and accounts for 70 per cent of all African goods and services exports. The WTO has made broad and diverse efforts to support trade development in Africa over the last 10 years. For example, WTO members, through the different bodies that comprise the organization, and the WTO Secretariat have implemented a broad range of agreements, decisions and technical assistance programmes, ranging from trade facilitation to government procurement regulations. Through technical assistance programmes and support for economic diversification and industrialization on the African continent, the WTO has played a role in fostering economic transformation. The WTO has supported trade development in Africa through its leadership on Aid for Trade. Since the launch of the initiative in 2006, donors have disbursed US\$ 451 billion in official development assistance to help developing countries build trade capacity and infrastructure. US\$ 163 billion of this amount has gone to African countries, with US\$ 16.9 billion being disbursed in 2018, representing a 180 per cent increase from the 2006 baseline.

The Aid for Trade initiative focuses on economic diversification as being key to development; in the 2019 Aid for Trade monitoring exercise, 97 per cent of African respondents pointed to economic diversification as a priority. The Aid for Trade Work Programme for 2020-21 reiterates the importance of investments in digital connectivity, which have become more important as a result of the COVID-19 pandemic. Development financiers have also introduced new aid programmes, including a US\$ 160 billion World Bank fund to address the economic impacts of the COVID-19 pandemic and a US\$ 10 billion COVID-19 Response Facility from the African Development Bank (ADB). The Trade Facilitation Agreement (TFA) expedites the movement, release and clearance of goods and establishes measures for effective cooperation between economies to establish customs compliance. The TFA entered into force on 22 February 2017 after two-thirds of the WTO membership completed their domestic ratification processes. Studies show that full implementation of the TFA could reduce trade costs by an average of 14.3 per cent and boost global trade by up to US\$ 1 trillion per year, with the largest gains in the poorest countries. For the African region, the reduction in trade costs would average 16.5 per cent, with many countries facing reductions of between 15.8 and 23.1 per cent. Across coastal and landlocked Africa, reductions would average 16.8 per cent and 15.7 per cent, respectively.¹ This is significant, since the central African region has some of the highest trade costs in the world. As the cost of implementing trade agreements is significant for many economies, the WTO created the Trade Facilitation Agreement Facility (TFAF) to support implementation of the TFA. The TFAF has, for instance, funded the participation of African representatives at meetings and workshops focusing on capacity-building and utilization of the TFA.

The WTO also provides support for developing economies and least-developed countries (LDCs) through the Standards and Trade Development Facility (STDF), which helps imports and exports to meet sanitary and phytosanitary (SPS) requirements for trade based on international standards. The STDF has provided support for the implementation of Africa's SPS policy framework and has helped to strengthen sanitary capacity in many industries. The African Group² has taken an active role in the implementation of another WTO agreement, the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement). While Article 66.1 of the TRIPS Agreement provides that the Agreement is not immediately binding for LDCs, TRIPS Agreement rules have served as the basis for intellectual property regulations that have helped innovators to market their goods and limit the spread

of counterfeit goods. An amendment to the TRIPS Agreement, which took effect in 2017, establishes a secure and legal pathway for developing countries to obtain affordable medicine from generic suppliers. For example, a national workshop held in Dakar, Senegal in July 2019 covered the use of the TRIPS Agreement's special compulsory licence system to obtain affordable intellectual property for the advancement of public health. Transfers of technology to African LDCs, facilitated by the TRIPS Agreement, have played a significant role in the plan to enhance cotton production and processing in Benin, Burkina Faso, Chad and Mali.

Closely related to WTO development initiatives, the Agreement on Government Procurement (GPA) recognizes the importance of government procurement in ensuring sustainable consumption and production patterns. While no African country is currently a party to the GPA, adopting GPA disciplines such as the Article IV principle of non-discrimination can help members to attract foreign direct investment. GPA initiatives to increase competition and develop e-procurement capacity are designed to help reduce the costs of procuring vital foreign-sourced goods and services. The Enhanced Integrated Framework (EIF), an Aid for Trade facility purely dedicated to supporting trade development in LDCs, has successfully supported African LDCs in building trade-related institutional and productive capacity. One example is an EIF project in Burkina Faso that has helped to increase the production and export of cashew nuts and dried mangoes to create jobs and increase profits for producers. Another example is the Benin Agricultural Development Company which, with the help of the EIF, has increased its production by 25 per cent and generated new exports to West Africa. Both projects provide concrete examples of the WTO's successful combination of development aid and technical expertise at the service of LDCs.

African countries continue to be major beneficiaries of several other WTO technical assistance initiatives: 16 per cent of all technical assistance activities in 2019 were focused on African countries. This includes the Netherlands Trainee Programme, which sponsors junior public officials and provides them with the opportunity to learn about matters dealt with within the WTO, under the direction of staff members of the WTO, with particular attention given to African countries. The French and Irish Mission Internship Programme also sponsors the attachment of officials to their countries' Geneva resident missions, with priority given to African members and LDCs. The WTO Secretariat has also continued to

provide technical support with regard to the implementation of regional trade agreements between WTO members in Africa. The WTO Secretariat also works in cooperation with other regional bodies, including the Economic Community of West African States (ECOWAS). The WTO has organized virtual training activities on trade in services, trade facilitation and market access for officials of ECOWAS institutions in both English and in French since mid-2020. Likewise, the WTO collaborated with the Union économique et monétaire ouest-africaine (UEMOA) on a sub-regional training activity on intellectual property in 2019, and it cooperates directly with many African WTO members to collect information on their services policy regimes in the context of the Integrated Trade Intelligence Portal (I-TIP) database.

A stable multilateral trading system and access to international markets has had positive effects on the development and industrialization of Africa, and efforts to build capacity, to enable African countries to take fuller advantage of the benefits that trade brings, are continuing. In recent times, the COVID-19 pandemic has slowed these efforts and reduced the developmental gains of recent years. African countries are particularly vulnerable to the effects of the pandemic because of several factors that affect large swathes of their populations, such as informal employment, weak health systems, few social safety nets, and difficulties in mobilizing resources not only to fight the pandemic directly, but also to summon the fiscal and monetary resources needed to contain its economic impact. Keeping markets open and predictable, as well as fostering a more generally favourable business environment, will be critical to spur the renewed investment that is needed for a swift recovery. The multilateral trading system and the WTO stand ready to continue providing the necessary framework for this to happen.

1WTO Secretariat calculations using disaggregated estimates from Moisé and Sorescu (2013) based on Organisation for Economic Co-operation and Development (OECD) trade facilitation indicators.²The African Group is the coordinating informal body comprised of African members and observers. Currently this group comprises Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Egypt, Eswatini, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Tanzania, Togo, Tunisia, Uganda, Zambia and Zimbabwe.

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Executive Summary

Food Security and Food Self Sufficiency in Africa

African Studies Center, University of Pennsylvania

The first four years of the 1990s indicate that African economies have grown by an estimated mere 1.5 per cent per annum - worse than during the "lost decade" of the 1980s when Africa's economic annual growth rate was on average 1.8 per cent during the period 1980-1990. This growth is barely half of the rate of growth of Africa's population and is well below the annual average growth target of 4 per cent set by the World Food Conference in 1974, and still worse than the 6 per cent set in the United Nations New Agenda for the Development of Africa in the 1990s.

Not only more people go to bed hungry every day but a great number of the African population was brought into a state of insecurity and instability due to the breakdown in the social fabrics and to the expansion of war, ethnic conflicts, political turmoil, crime and diseases such as the pandemic AIDS. It is becoming even harder for the international community to keep some countries in peace and in one piece. Agricultural production which increased at an annual average growth rate of 2.9 per cent in 1961-1970, dropped to a negative growth of -2.4 per cent in 1991-1992. Per caput food production growth rate fell from a poor value of -0.1 per cent per annum in 1981-1990 to yet an alarming mediocre estimate of -5.3 per cent per annum in 1991-1992. Africa which was a small net exporter of food in 1960-1970, having achieved a food self-sufficiency ratio (SSR) of 102, saw this ratio decline to 75 in the 1978-1982 period.

Africa has become a *continent in transition*. Transition from continuous economic mismanagement and social fabric deterioration compounded by a debilitating increasing external debt, from unconvincing and uncoordinated drive to genuine democracy, towards a permanent market oriented economic system. This transition period will need 15 to 20 years.

There is again an urgent need to analyze Africa's food security issues in relation to the performance of the region's agriculture food sector and discuss the constraints to increased agricultural food production especially those of policy origin; once more, appropriate and strengthened strategies are needed to help solve the continent's food insecurity problems and highlight priorities likely to improve food security in Africa. Hunger is evil, and it is worse when hunger and loss of hope or lack of faith to take action go together. Opening up new horizons in objectives and needed action will be required for those who have lost them; and this will call for inter-country cooperation among the African countries which must identify their resources and priorities to enhance food and agricultural production including agro-industry in the continent.

Meeting food production demand in years to come suggests the importance of appropriate policies and approaches. A 5 per cent growth rate is ambitious, but not impossible. To achieve the growth target, all the African countries will need to create an enabling environment, control population growth, harness new technologies, build and strengthen considerably their own capacities, safeguard natural resources, and strengthen regional economic cooperation and integration. Fundamentally, there are five major conditions to agricultural progress in Africa: it must be environmentally sustainable; compatible with population growth rate; technologically feasible to increase yields to raise output; economically there have to be incentives (quality growth, equity and economic policies) not just exhortations; organizationally farmers must be provided with the delivery system - infrastructures and institutions; and based on regional economic cooperation and integration.

Reference

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Executive Summary

TEEB for Agriculture and Food in Africa; Assessing Policy Options to Improve Livelihoods

Dr. Harpinder Sandhu
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Agriculture remains the most significant sector in African economy as it contributes on an average about 15% to its total Gross Domestic Product (GDP; OECD/FAO, 2016). It provides employment to about 60% of the workforce and able to feed half of the population with remaining half of the food demand met by food imports. Growing demand for food by increasing population in sub-Saharan Africa (SSA) is one of the key challenges of agriculture. It is estimated that global population will rise to about 9.7 billion by 2050 and about 1.3 billion will add to the existing African population. This will put enormous pressure on agriculture and food systems to respond in order to meet the food demand, reduce food imports and protect natural resources. At the same time, it provides an opportunity for African agriculture to respond more cohesively and improve value generated by this sector to society, environment and the economy. This can help achieve self-sufficiency in food, gainful employment to growing work force, protection of natural resources and contribution towards sustainable development goals (SDGs). A comprehensive action plan with carefully developed policies are required to achieve these outcomes. It is recognised that the global agriculture and food systems cause damages to environment and human health and these are not captured by the current economic system. This leads to perverse and pervasive outcomes for society and the environment. Therefore, this

report aims to consider all social and environmental externalities – both negative and positive, in sub-Saharan African agriculture and food systems and reflect them in an economic system by evaluating comprehensive costs and benefits by adopting an innovative, universal, and inclusive framework (the 'TEEBAgriFood' framework). This assessment intends to stimulate appropriate policy responses so that sustainable agriculture and food systems can be developed to ensure food and nutritional security and economic prosperity for all in Africa.

The report provides a regional analysis and narrative on the economics of the agriculture and food sector by focusing on Sub-Saharan Africa, highlight key positive and negative externalities it generates, and the national and international policy context. These externalities are assessed in three case studies – agroforestry (coffee/cacao) in Ethiopia and Ghana, livestock in Tanzania and rice in Senegal, using the TEEBAgriFood Evaluation Framework.

Cocoa (Ghana) and Coffee (Ethiopia) in Agroforestry Systems

This study quantifies the biophysical and social impacts and dependencies along the cocoa and coffee value chains in Ghana and Ethiopia, respectively (ICRAF, 2019). Its aim is to assess key negative and positive impacts to health, ecosystems and the economy of the processes associated with the value chains of the two commodity crops. This is achieved by applying the TEEB for agriculture and food (TEEBAgriFood) framework (TEEB, 2018). Following this framework, several invisible and visible benefits and costs within these value chains are identified, quantified, monetised and/or described. Most of these benefits and costs are in monetary values except for biodiversity, vegetative diversity and aquatic life diversity, which were measured using diversity indices such as Shannon-H index, Simpsons index, species richness index, Alpha index. Secondary data sourced from variety of sources including peer reviewed journal articles, technical reports etc. was used in the analysis.

Livestock Systems in Tanzania

The study quantified socio-economic and ecological externalities of value chain activities related to three livestock sectors (Pastoralist cattle system, Backyard poultry system, and Smallholder dairy system) in Tanzania using the TEEBAgriFood evaluation framework. The livestock described here have local value chains which are also examined in each case. Different actors exist in the pastoralists' cattle value chain in Arusha region. The major actors in the chain are

producers (farmers), middlemen, traders, abattoirs, butchers, supermarkets, hotels and individual consumers (final consumers). However, middlemen dominated the market and reported to be the major means of market information. Backyard poultry production in Tanzania is a traditional sector at smallholder level, and has an important position in the rural household economy, supplying high quality meat and eggs, and increasing income, for rural farmers. The bulk of milk produced originates from the traditional small holder dairy system and form over 90% of the cattle population and is consumed at household level, with only about 3% of the milk filtering through to the formal market

Rice in Senegal

There are strong imperatives facing the rice sector in Senegal: to increase domestic production and processing of rice. Several substantial donors have proposed that investment should be made in However, there are a number of alternative pathways to that goal. For example, increasing rice production by conventional high-input methods could ramp up yields, but there are increased costs related to greater fertilizer, pesticide and water use. Large-scale rice value chain projects may propose equally large rice mills, but the opportunity to process rice in smaller units may enable greater use of rice by-products such as for livestock feed and promote greater equity through community ownership. Different pathways have different implications for employment in the agriculture and food sector. By using a holistic framework to review the possible pathways, many diverse aspects can be brought into focus at the same time, looking at impacts on not just economic/produced capital but also social, human and natural. The application of TEEBAgriFood framework and system modelling has shown that alternative systems based on FAO's principles of agroecology can guide further development of rice policies in Senegal to provide insights into policy opportunities and recommendations for capturing externalities in decision-making for better livelihood outcomes

Three case studies clearly examined key aspects of the value chains of coffee, cocoa, livestock and rice. This analysis also recommended also some alternative systems and scenarios for policy makers to consider in respective countries. For example, shaded coffee and cocoa systems promote several public benefits and can be incentivised through markets and also by providing subsidies by government. Livestock system in Tanzania provide food demand for millions of rural dwellers and need further support from training and quality inputs in order to realise their full potential. Rice in Senegal can be produced by using the principles of

agroecology thereby saving inputs cost. These savings can then be provided directly to farmers and R& D sector to support these multi-dimensional farming systems. Such approach can lead to develop self-sufficient system in these countries. Further analysis is required at continent scale including key cereal crops that are essential for food security in SSA, in order to generate evidence for shifting agriculture and food policies towards long term sustainability, achievement of SDGs and well-being for all.

Recommendations

Based on the analysis presented in earlier sections, some recommendations are suggested as below.

1. Subsidies for inputs can be carefully investigated to target desired outcomes for society rather than narrow focus of per hectare productivity.
2. FDI can be further channelized to invest in infrastructure that is required to support agriculture sector – roads, ports, storage, transport, finance, processing, regulated markets.
3. Extension services can be further improved by training about the multidimensional aspects of farming and move away from the per ha productivity.
4. There is need to improve HDI by investing in education, children and women health, environmental sustainability, so that the society is healthy, better educated and can make informed decisions about their food choices.
5. R&D sector needs investment and reforms as the current global agriculture is geared towards single narrow focus that has to change and this research should trickle down to African continent and SSA region for transformation of agriculture and food systems.
6. Agriculture is vital for 9 out of 17 SDGs and also a prominent sector in Africa agenda 2063, therefore needs further attention with policy makers in terms of investment and national and regional policies.
7. There is need to identify change agents to bring this transformation.
8. Producing more, in a more sustainable manner, while absorbing a growing labour force
9. Promoting diversification based on high quality processed products
10. Promoting efficient and more equitable value chains
11. Making farms and agricultural systems more resilient
12. Developing regional markets and controlling international integration

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13. Designing and implementing structural policies and instruments
14. Reforming development aid aimed at facilitating the structural reform process
15. A clearly articulated objective and a shared vision

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Executive Summary

Scaling Up Disruptive Agricultural Technologies in Africa

Jieun Choi, Mark A. Dutz & Zainab Usman
World Bank Group

"Disruptive technologies in agriculture enable farmers and agribusiness entrepreneurs to leapfrog current methods to increase their productivity, efficiency, and competitiveness"

A gri-tech solutions range from mobile apps to solar applications, to portable agriculture devices, to bio-fortified foods. Disruptive Agricultural Technologies (DATs) differ from other agri-tech solutions in that they empower farmers by either;

1. Accelerating agri-food outcomes by multiple folds (3-5x) and/or by
2. Circumventing the conventions of the value chain to achieve the same/better results — but with a more efficient agri-food outcome.

First, DATs help farmers by reducing the costs of linking various actors of the agri-food system both within and across countries through providing, processing, and analyzing an increasing amount of data faster. Second, DATs help farmers make more precise decisions about resource management through accurate, timely, and location-specific price, weather, and agronomic data and information that is becoming increasingly important in the context of climate change. Third, DATs can make smallholders and especially marginalized farmers more competitive by leveling the playing field.

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Chapter

Enhancing Investment Opportunities through Agriculture, Entrepreneurship and Technological Innovation

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Introduction

The global financial crisis of 2007-2009 and the ensuing weak global economic growth and high unemployment have prompted deeper reflections on the key drivers of economic growth and development. The objective is to design policies and strategies that would accelerate structural shifts towards a stronger, more resilient and sustainable economic future. In this regard, efforts to restore long term growth and macroeconomic stability would require a re-assessment of the roles of technological innovations, entrepreneurship and agriculture in boosting economic opportunities (Gittel et al, 2014). The important nexus of entrepreneurship and technological innovation for long term economic development has been highlighted by Drucker (1985) and Henderson and Weiler (2010). According to these authors, entrepreneurs leverage on available technologies to create commercial ventures and generate employment opportunities for the economy. By assembling required resources, applying relevant business knowledge skills and drawing on important networks, entrepreneurs are able to produce new products and services, create new markets and distribution channels that can ensure the efficient delivery of goods and services to consumers.

Agriculture like most other sectors, benefits from advancements in technology; as its productivity tends to increase as entrepreneurs efficiently combine factors of production to produce a wide range of goods and services at lower cost and higher quality. In achieving this, new technologies and innovations have to be adapted

and deployed to the entire value chain, ranging from production, distribution, storage and product marketing.

The quality of technological innovations deployed towards product improvement is a function of the stock and quality of knowledge and available information. This implies that, for innovation to take place, producers must actively seek new ways to improve the quality and variety of their products in a cost minimizing manner. This category of producers that aggressively seek for improved methods of producing goods and services is known as the classic Schumpeterian entrepreneurs (Haque, 2016). Thus, entrepreneurship, agriculture and technology have been widely believed to be among key drivers of economic development of most countries through the provision of job opportunities, innovation and improved welfare. However, in spite of their huge potential contributions to economic growth and development, many developing countries especially in Sub-Saharan Africa (SSA), rank abysmally low in global innovations and entrepreneurship indices. For instance, according to the 2017 Global Innovations Index, the top forty countries were largely drawn from Europe, America and Asia; while South Africa, the best innovative country in Sub-Saharan Africa ranked 57th followed by Mauritius (64th) and Tunisia (74th). Nigeria ranked 119th position out of 127 countries (Dutta et al, 2017). A similar trend was also observed in the 2017 Global Entrepreneurship Index. America, Europe and Asia led the global entrepreneurship ranking. Botswana, the best entrepreneurial country in SSA, ranked 52nd globally among 137 countries followed by South Africa (55th), Namibia (60th) and Morocco (70th) while Nigeria occupied the 100th position (Zoltan et al 2017). This suggests a direct correlation between the poor performance of SSA countries in entrepreneurial and technological advancements and their slow pace of industrialization and economic development. It is against this backdrop that this paper sets out to examine the relationship between entrepreneurship, technology and agriculture and discusses how their potentials can best be harnessed to unlock economic opportunities, particularly in Nigeria.

Following this introductory section, the rest of the paper is organised into five main sections. Section two attempts to provide the conceptual review of the key concepts while Section three reviews the extant literature both theoretical and empirical that are directly relevant to the study. Section four presents global and domestic analysis of agri-business technology-based entrepreneurship development, while Section five specifies the key challenges and prospects of agri-business technology-based entrepreneurship development in Nigeria. Section Six concludes the paper and provides some policy recommendations.

Conceptual Issues

Within the context of this paper, the concepts of entrepreneurship, agriculture and technology do not follow any sequential order. That is, the title of the paper does not intend to suggest that entrepreneurship could lead to agricultural development or technological development can be an outcome of agricultural development. Rather, each concept is a process that builds upon but also affected by the other two. In other words, while entrepreneurship, agriculture and technology are highly interrelated and linked, such relationships may not necessarily follow a causal one-way process. Due to the pervasive nature of several basic terminologies used in this paper, it may be necessary to explain some conceptual issues as follows.

Entrepreneurship

The concept of entrepreneurship has evolved over time as reflected in the various definitions by different authors. Schumpeter (1942) provided one of the most popular definitions of an entrepreneur as one who coordinates the production process and also acts as an agent of change through a process of creative destruction. By implication, the Schumpeterian entrepreneur is considered an innovator. The entrepreneur's innovative activity, described as a 'destructive process' essentially destabilizes an equilibrating economic system and provides a window of opportunity for economic rent seekers. The process of adjustment to equilibrium position then triggers the take-off of other innovations which stimulates the entry of more entrepreneurs into the economic system. In essence, Schumpeter's theory asserts that the increased number of entrepreneurs arising from the adjustment process could lead to enhanced economic growth. According to this definitional school of thought, entrepreneurship is not considered to be highly relevant at the initial stage of economic development as long as factor accumulation remains the key driver of growth. It, however, plays a more pronounced role at later stages of development where the major growth drivers are knowledge and competition (Naude, 2013).

Another definition by Kirner (1973) considers an entrepreneur as a manager of the production function, payment of wages and acceptance of responsibilities for all production risks and uncertainties. Developing economies like Nigeria would find this definition relevant since their business environment is highly characterized by several risks and uncertainties. There are two distinct types of entrepreneurs: necessity entrepreneurs and opportunity entrepreneurs (Calderon et al, 2016). Necessity entrepreneurs involve people who are left with no other better option than to establish any business activity. Consequently, this type of entrepreneurship has been found to have no positive effect on economic

development. For instance, the fall of the Berlin wall in the 1980s led to the closure of many uneconomic factories in Central Europe. As a result, workers that lost their jobs but were still in their productive age had no choice than to resort to self-employment through necessity entrepreneurship. However, the influx of large number of former factory workers into necessity entrepreneurship led to a period of negative economic growth.

In contrast, opportunity entrepreneurs capitalize on the unexploited or under exploited business space to start a business. This group of entrepreneur has the ability to identify and exploit a business opportunity and thus contribute positively and significantly to economic growth. In essence, while the establishment of a new business to exploit a business opportunity may promote economic growth; resorting to entrepreneurship as the only option without any planned business strategy may attract underdevelopment.

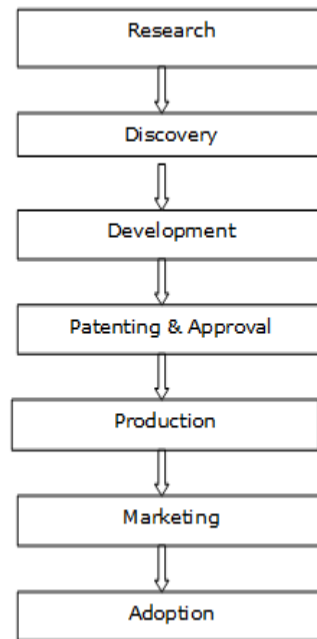
It is important to note that all countries experience a mixed ratio of both opportunity and necessity entrepreneurship. However, it is advisable to have a higher ratio of opportunity-to-necessity entrepreneurship as a veritable indicator of economic development. The level of entrepreneurial development of countries around the world is usually measured by the Global Entrepreneurship Index (GEI). It is an annual index that measures and ranks entrepreneurial performance in each of the 137 countries.

Technological Innovation

The term 'innovation' derives from its Latin equivalent '*innovare*', which implies 'to make something new'. 'Technological innovation, therefore entails the generation of new ideas based on technological knowledge or capability (invention); transformation of the idea into a reality in form of a product (realization) and the diffusion or marketing of the product to consumers (implementation). There are several classifications of technology innovation by different authors. For the purpose of this paper, we shall adopt Marquis approach (o2chapter2) which identified three key types of innovation. The first is *radical innovations* which are ideas with impactful changes on the entire industry. The second is *incremental innovations* which consist of small ideas but impactful in enhancing the quality of products, processes and services. The third is *system innovation* which describes ideas that require a combination of resources over an extended period of time to accomplish.

Usually, the innovation process begins as a concept that undergoes refinement and development until it finally becomes a finished product for consumption. A schematic presentation of the innovation process is shown below:

Figure 1: Typical steps in the life cycle of a new technology



Source: Zilberman (2008)

For a technology to be relevant, it has to be adaptable and appropriate to specific conditions, hence the difficulty for any same technological solution to be optimal everywhere. The specific socio-economic, demographic, ecological and climatic peculiarities are therefore necessary considerations for deploying technological solutions. For developing countries to successfully acquire and apply knowledge for development, they need to invest substantially over a sustained period of time in research and development (R&D) capability, education and relevant skills. Acquisition and adaptation of appropriate foreign knowledge to the local environment require domestic capabilities in R & D. For instance the remarkable efforts made by Singapore, a relatively small economy, in encouraging research and development enables the country to benefit immensely from the global innovation system. China also combined its strong domestic R & D capability with government strategic commitment to exploit the global knowledge system to its advantage.

In contrast, countries with low domestic capacities in science, technology and innovations (STI) have low propensity to benefit significantly from the global

knowledge system. For instance, countries like Kenya and Rwanda, despite the slight progress made in the application of innovation to mobile money and phones, have not benefitted substantially from the global knowledge system due to weak domestic capacity base. Enhanced capabilities in R&D require strategic commitment to sustained investment at all strata of education including basic, secondary and tertiary levels as well as in skills development. This implies that huge investments in human capital development through R & D are essential for achieving increased economic growth and development.

The fundamental contribution of technological innovation to economic development occurs largely through the firm and industry activities. Unlike entrepreneurship, ample empirical evidence identified technological innovation as a strong determinant of economic growth (Wong et al, 2005). Most studies that have investigated the impact of technology on economic growth drew from the Solow's (1956) neo-classical theory. According to the theory, growth is essentially driven by enhancements in the quantity, quality and productivity of labour and capital. By implication, the Solow's neoclassical model failed to explicitly acknowledge the role of entrepreneurship which has been recognized by Schumpeter as the underlying cause of technological innovation (Wong et al, 2005).

Agriculture

The definitional scope of agriculture has widened significantly in recent times. Unlike few decades ago, when agriculture merely referred to the production of basic crops, the modern concept of agriculture has broadened to include forestry, fruit cultivation, bee keeping, poultry and other forms of livestock management. In both developed and developing countries, agriculture plays a critical role in promoting economic opportunities through the provision of food security, supply of raw materials to feed the non-agricultural sector, generation of foreign exchange through exports and creation of employment. In poor developing economies, it accounts for about 29 percent of the gross domestic product (GDP) and employs 65 percent of the labor force. In addition, more than 75 percent of the poor in the developing world live in rural areas with most of them earning their livelihoods directly or indirectly from agriculture, hence the United Nations' adoption of a productive and profitable agriculture as a critical strategy for achieving the Sustainable Development Goals (Setboonsarng and Gregorio, 2017).

Agriculture-led growth has played a significant role in economic transformation and poverty reduction in many Asian economies. Contrastingly, most African countries with agrarian economies similar to those of Asian countries are unable

to benefit from a successful agricultural revolution as productivity in African agriculture continues to lag far behind the world average (Diao et al 2010). In such agrarian economies, rapid agricultural growth based on sustained productivity increase is key to achieving inclusive growth through the process of structural transformation (Briones, 2013). Experiences of many developing countries, including Nigeria, have indicated that economic growth in the last two decades has been largely inequitable, non-inclusive and jobless in nature. In Nigeria, agriculture remains one of the major keys to inclusive growth, in view of the fact that the sector provides employment for about 60 percent of the economically active population, and 70 percent of the country's poorest population.

Furthermore, the huge population of young people represents the country's greatest asset, if they are appropriately empowered to participate actively in growth opportunities that would result in economic transformation. Increasing investments in agriculture can stimulate productivity, profitability and create wealth for smallholders and rural communities. As such, agriculture-based economic growth strategy is crucial to poverty alleviation, job and wealth creation. The increasing volatility of prices of exportable primary commodities that constitute the major source of foreign exchange for developing countries and its implications on economic growth underscores the necessity and urgency for economic diversification.

Economic Growth and Development

The last two concepts that are relevant to our discussion are Economic Growth and Development. Economic growth measures the rate of production of goods and services in an economy. Measured by the gross domestic product (GDP), it provides information on the size and general health of the economy. An increase in real GDP indicates a healthy state of the economy. However, the emergence of a new concept in economic literature, known as human development in the later part of the twentieth century shifted the focus of economic policy practitioners and researchers from mere economic growth to improved human welfare. The concept of Development spans beyond mere expansion in income and wealth to include enhanced living standard through the provision of basic human needs such as food, clothing, shelter, education and medical facilities. In this context, economic growth is critical to human development but not a sufficient condition for the attainment of human well-being. In other words, while growth without development is possible, there can hardly be development in the absence of sustained growth (Thirlwall, 2003; UNDP, 1990).

Furthermore, economic growth and development can be promoted through sustained innovation and entrepreneurial skills that minimize transaction costs

through responsive regulation, better infrastructure and increased education and opportunities for more fruitful exchange. The United Nations Development Program (UNDP) constructed the Human development index to comparatively measure the level of socio-economic developments across countries. The index ranks countries on a scale of 0 to 1 with 0 as the lowest human development index and 1 as the highest human development index. Dudley Seers (1997), in one of his much-quoted addresses on the meaning of development puts it like this:

The questions to ask about a country's development are therefore: What has been happening to poverty? What has been happening to unemployment? What has been happening to inequality? If all three of these have declined from high levels, then beyond doubt this has been a period of development for the country concerned. If one or two of these problems have been growing worse, especially if all three have, it would be strange to call the result 'development', even if per capita income had doubled.

Literature Review

There is no gainsaying that agriculture plays a crucial role in the development process of low-income countries (Nigeria inclusive) where the sector largely contributes to income, total labour force and poverty reduction. The sector matters momentously in low income countries where about 60 per cent of the labour force is employed and it accounts for about 25 per cent of Gross Domestic Product (GDP), but only 9 per cent in middle-income and 1 per cent in high-income countries (World Bank, 2008). Agriculture provides food, income and jobs and hence can be an engine of growth in agriculture-based developing countries and effective tool to reduce poverty in transforming countries (World Bank, 2008).

In Nigeria, the development of agricultural policy over the years has been based on the belief that agriculture is one of the panaceas to the achievement of inclusive growth due to its forward and backward linkages. Hence, several efforts to develop agriculture have been centred on improving and sustaining the sector to play this assigned role with special emphasis on the attainment of a sustainable level in the production of food without treating the sector as entrepreneurship unit that require the use of technology to achieve high productivity. Despite these policies and programmes, agricultural productivity has seriously been declining over the past decades, due partly to the negligence of viewing the sector as techno-entrepreneurship sector; as a result rural poverty is rampant. Nigeria agriculture to a large extent still possesses the characteristics of a peasant economy that was prominent in the pre-independence period. This may partly explain why the crude oil sub-sector has been growing, but the traditional agricultural sector has been declining, which are symptoms of the Dutch Disease syndrome.¹ The next

¹This concept was invented based on the experience of Netherlands in the 1960s, when as a result of the exploitation of the newly discovered large deposits of natural gas in the North Sea, the non-oil tradable sector became less competitive and declined, with a ripple effect on the whole economy which also declined.

subsection detailed theoretical and empirical literature on these issues.

Theoretical Literature Review

Over the years, economists adumbrated different theories that attempt to explain the process through which an economy can develop. In the literature, theories of growth and development are categorized into two groups, the classical and modern theories. The classical models: include the linear stages of growth, including structural change models, international dependence models and neoclassical counter-revolution models. For the modern theories, the theory of coordination failure and the new growth theory are prominent. Usually, growth is often measured through the growth rate of gross income per capita while improvements in human standard of living indicate the level of development.

The early ideas of growth were propagated by Adam Smith (1776) and Karl Marx (1867)-two political economists who sought to theorize on how societies grow. Smith proposed a capitalist approach to growth but Marx pursued a socialist argument for the welfare of society. Smith argued that the division of labour will enhance society's ability to specialize, in order to drive the productive capacity and increase wealth. This will enable economic agents pursue free trade by selling goods and services acquired through specialized skills. Free trade will lead to the acquisition of private capital in the absence of government intervention. Marx on the other hand was of the view that the State was best equipped to intervene in the distribution of wealth to its citizens in order to ensure that society remains above the poverty line. Marx's view followed a centrally planned approach to the acquisition and distribution of wealth, a strategy that is expected to keep the masses above the poverty line. The theories and models discussed below follow one of these approaches but in some cases have elements of both.

Classical Theories of Growth and Development

The classical theories of economic growth and development attempt to explain the processes involved in economic growth and development from the primary to the advanced stage.

The Linear Stages of Growth Models

After the Second World War, economists began to think of how best to drive the recovery process of the several battered economies in Europe. This led to the development of some models which focused on the huge injection of liquidity into economies to drive investment in the productive sectors. Popular amongst these models were the Rostow Growth Model and Harrod-Domar Growth Model (Domar 1947; Harrod 1948; Rostow 1960; Ingham 1995; Ghatak 2003 and Todaro and Smith 2009).

These growth models recognize that economies follow specified growth paths as they move from the underdeveloped to the developed stage. Rostow identified five paths to include: *The Traditional Society*; *The Preconditions for Takeoff*; *The Takeoff*; *The Drive to Maturity* and *The Age of High Mass Consumption*. One fundamental factor common to all these growth models is that an economy requires a high level of constant investment and capital flow in order to achieve growth. These models, however, follow the rudimentary assumption that all economies will pass through these stages of growth as they move from the underdeveloped to developed stage. In reality, however, some economies jump the stages while some are unable to cross some stages as they lack the technical and technological infrastructure to progress to the next stage. Chenery (1960) and Chenery and Syquin (1975) provided further evidence to support the view that economies do not always pass through these stages of development in the sequence highlighted above but tend to follow a non-linear growth path in frequent cases.

Structural Change Models

The structural change models of growth are led by two key models (Lewis 1954 and Chenery 1960). The Lewis model is a two sector model which emphasizes that surplus labour would move from the primitive agricultural sector to the more advanced industrial sector. It assumes that workers will continue to earn their traditional wages even though their output has led to increased modern production. In effect, profit in the modern sector would increase monumentally, leading to higher savings, investment and economic growth. This model is similar to the Harrod-Domar model, as it also emphasises on savings and investment as the key driver of economic growth. This is premised on the idea that increase in savings and investment is expected to alter consumption patterns by raising the demand for modern goods and services (demand shifts from primary (agricultural) goods to manufactured goods) as the continuous accumulation of human and physical capital further fuels production. The excess of production over domestic consumption will increase international trade.

Another structural change model is that by Chenery, which focuses on the pattern of development rather than the two sector transformation described above. A key motivation of the two sector model is the shift from the agricultural sector to the industrial sector as a transformation to development of growth which Chenery argued was a reason why many developing countries neglected the agricultural sector, thus leading to food shortages. In order to address this problem, the structural change model shifted its emphasis to investment in human capital by improving education and health care. This approach is expected to exponentially increase skills sets and improve life expectancy with a cumulative increase in production levels. Chenery (1960), Chenery and Taylor (1968) and Chenery and

Syrquin (1975) further adduced other factors such as government policies, resource level, availability of external technologies and capital apart from investment in human capital as key drivers of the pattern of structural change in the economy. Therefore, these models have been the foundation theory for agricultural-related techno-entrepreneurship sector as the basis for economic growth and development, particularly in developing countries, where the sector has the potential of generating huge income and employment for the teeming population.

The Neoclassical Models

Neo-Classical models extended the Solow growth model by emphasizing the need to increase the quality and quantity of labour through improved education and population growth; increase availability of capital by increasing the savings rate and the rate of inflow of foreign investment and improved access to foreign technologies by developing new and market friendly policies to attract new technologies. The overall drive of this group of models was a focus on the markets as the vehicle of development and growth. This involves the formulation and implementation of effective market efficient policies to anchor sustainable growth.

Contemporary Theories of Economic Development

Under this category, we examine two theories, the Endogenous Growth Theory and the Theory of Coordination Failure.

The Endogenous or New Growth Theory

The emergence of the endogenous growth model in the late 1980s was to help explain the slow development process in the developing countries which had placed reliance on earlier growth theories. While technological change had long been acknowledged as a recipe for development and growth, the endogenous models' core argument was based on the fact that it occurs as an endogenous rather than exogenous transformation and leads to the accumulation and increase in knowledge, rather than labour and capital. This increase in knowledge will then lead to an increase in productivity (agricultural sector inclusive) with the appropriate policy intervention to translate to long run development and growth (Romer 1986; Lucas 1988; Aghion and Howit 1992). This position directly conflicts with Solow (1956) who earlier presented technological change as being exogenous. The new growth models recognize unequivocally that individuals cannot on their own capture the full benefits of knowledge gained from technological change and thus emphasize the role of government and public policy in the effective functioning of the markets. The endogenous growth theory, however, has the shortcoming of not recognizing the key role of institutions in the

development process. The theory also fails to disaggregate the economy into multiple entrepreneurship units by treating the entire economy as a single firm that does not encourage the growth-generating redistribution of capital and labour that are expected to occur within the economy during the structural process. In order to harness the full benefits of development under this growth theory, developing countries must thus, focus their attention on infrastructural and institutional development as these are key ingredients of the development process (Cornwall and Cornwall, 1994; Skott and Auerbach, 1995).

Theory of Coordination Failure

The Coordination Failure theory dates back to the 1950s but was only popularized in the early 1990s. It focuses mainly on the coordination of market participants by relevant government agencies and how the failure to coordinate may lead to disequilibrium in the markets. While this theory is not clearly prescriptive of how government should coordinate the markets towards equilibrium, it argues that market participants may decide to seek their own individual equilibria in the absence of a central body to administer control (Hoff and Stiglitz, 2000; Rodrick, 2004; and Bowles *et al*, 2006).

In sum, the contemporary theories recognized that growth process follows stages and requires the importance of technological know-how as well as intervention of government policies. The models basically extend the classical and neoclassical theories, and show how agricultural-related techno-entrepreneurship sector can contribute to economic growth and development, for the purpose of achieving high income and employment, as well as economic growth.

Empirical Literature Review

The economic literature has shown that for farmers to become more competitive in modern societies, they need to improve on their entrepreneurial skills and take advantage of modern technologies to achieve high yields and productivity growth. Although there is a body of emerging literature on agricultural entrepreneurship and the importance of technology in achieving the set objectives, it is still largely at its infancy stage, and more research still needs to be done in this area (McElwee and Smith, 2014; Pato and Teixeira, 2016). Several notions have been ascribed to the entrepreneurship use of technology in agriculture with some referring to it as technical entrepreneurship while others describe it simply as techno-entrepreneurship (Therin, 2007). One of the most prominent scholars in this area defined techno-entrepreneurship as a business leadership strategy that identifies capabilities of both physical and human resource and combines these resources with high-technology in order to explore commercial opportunities though with some risk-taking potentials with the

objective of generating enhanced-growth and development (Dorf and Byers, 2005). Other scholars described techno-entrepreneurship as the practice of gathering resources, technology-based procedures and policies by an innovative entrepreneur in order to exploit business opportunities (Shane and Venkataraman, 2004). In recent times, entrepreneurial approaches in agricultural-related technology industry have become important sources of value generation and growth, particularly in some advanced economies such as United States of America and Europe, where technology impact significantly on business and the quality of life. These countries have recognised the significant roles that technology plays in the economy, and society and have, therefore, established strategies to ensure, promote and advance the development of new areas of information technology. In this regard, the agricultural-related techno-entrepreneurship have high potentials that can generate huge profits but at elevated risks for both investors and new users (Roja and Nastase, 2014).

It has however, been observed that in many African countries, Nigeria inclusive, the agricultural sector has not been able to significantly apply the required entrepreneurship policies in order to achieve the set objectives. The sector has been characterised as a price-taker which blindly trails the market direction and thus produce docile market participants. This view is premised on the low utilisation of the concept of entrepreneurship (Horlings and Marsden, 2014). Some sections of the literature have viewed entrepreneurship as a way of diversifying farm activities, by organising resources to increase the range of farm business activities for the survival of households and development of society (Seuneke et al., 2013; Hansson et al., 2013; McFadden and Gorman, 2016). Some of these studies opined that the farmer-entrepreneur must be an agent of innovation diffusion, in such a way that it would encourage extension services and other networking, as well as develop infrastructure that are capable of promoting information technology (Galloway et al., 2011; McFadden and Gorman, 2016; Salemink et al., 2015; Hill et al., 2017). In this wise, it has been shown that one of the major reasons why some countries are rich and others are poor largely lies in the rate at which new technologies are introduced into the production process in rich countries. These scholars assume that the agricultural entrepreneurship is expected to play a leading role in the diversification of the economy in both the medium and the long term.

The large size of the Nigerian economy puts it in a vintage position to accommodate innovation and entrepreneurship, particularly in the agricultural sector where the country has the major comparative advantage. Thus, there is need for a broad-based approach to develop the agricultural entrepreneurship as it is expected to play an important role in the current economic diversification drive

of the government. Studies have also documented the stages and strategies of economic diversification (Clark, Lima, & Sawyer, 2016; and Imbs and Wacziarg, 2003). These studies argue that economic diversification would have to evolve along the growth paths of the economy. Early stage of development is characterised by predominantly primary-based economic activities and a high concentration of crude implements for such activities. Within this period, the source of revenue for government is rent from the exploration of natural resources. Over time, society may evolve into manufacturing, which allows for diverse or spread of economic activities across many industries. During the second stage of the diversification process, countries specialize in their areas of comparative advantage. The final stage is the evolution into a vibrant service dominated industry. Thus, successful agriculture-led economic diversification involves the production of different goods and services that largely utilise primary products as inputs at different stages of economic development that would improve income per capita.

In achieving economic diversification, critical stakeholders including reform agencies, government development departments, entrepreneurial trainers, funding institutions, technology, business development consulting and research parastatals, quality control regulators and the required regional and international bodies have important roles to play. Studies have placed analytical spotlight on the role of agricultural-related techno-entrepreneurship in driving diversification process including Nigeria. Currently, there is perhaps, no specific theoretical or empirical study in Nigeria that clarifies our understanding of the role of agriculture-based techno-entrepreneurship in promoting economic opportunities. This study strives to fill this important research gap.

Global and Domestic Analysis of Agri-business Technology-Based Entrepreneurship Development

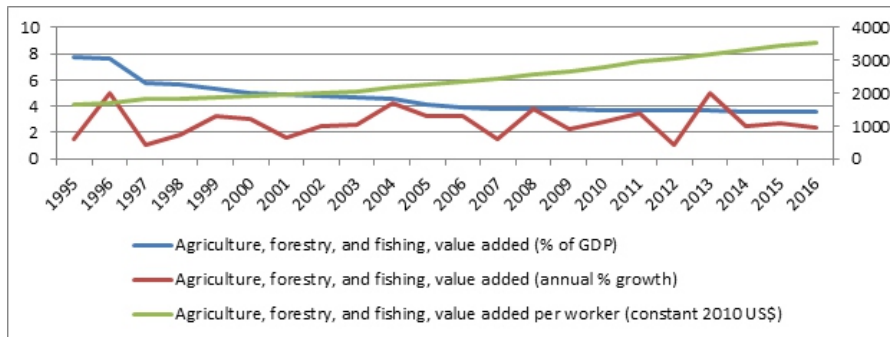
Global Trend in Agriculture Production

Global agriculture has witnessed tremendous growth since the 1960s. As the world population more than doubled from 2.9 billion in 1960 to 7.6 billion by July 2018, according to United Nation estimates², agricultural production has risen to the challenge by mitigating the problem of increased demand for food and other products to sustain the population. This is evidenced by growth in agricultural output and substantial reduction in commodity prices. Agricultural growth has provided food security and supported poverty reduction in a wide range of developing countries. However, there is no denying the overwhelming undernourishment in developing countries. Some countries (particularly in sub-Saharan Africa) are left out of the benefits of the agricultural sector success experienced low or stagnant agricultural productivity, rising food deficits, and high levels of hunger and poverty (Wik et al, 2008).

²Data extracted from www.worldometers.info/world-population/

Figure 2 below shows the recent trend in global agriculture. The growth rate of the agricultural sector has continued to fluctuate, however, within positive range. However, the sector's share of total world GDP has declined consistently over the period 1995 to 2016. It fell from about 8 per cent in 1995 to below 4 per cent in 2016. On the other hand, agricultural value added per worker in constant US dollar has been on the rise since 1995. From US\$1,631.26 in 1995, the agricultural value added, per worker more than double in 2016, as it rose to US\$3,542.13.

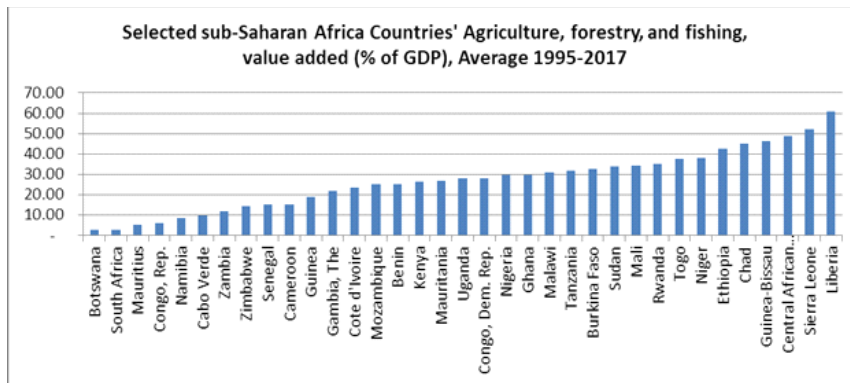
Fig. 2: Global Trends in Agricultural sector Value Added, 1995-2016



Source: WDI 2018

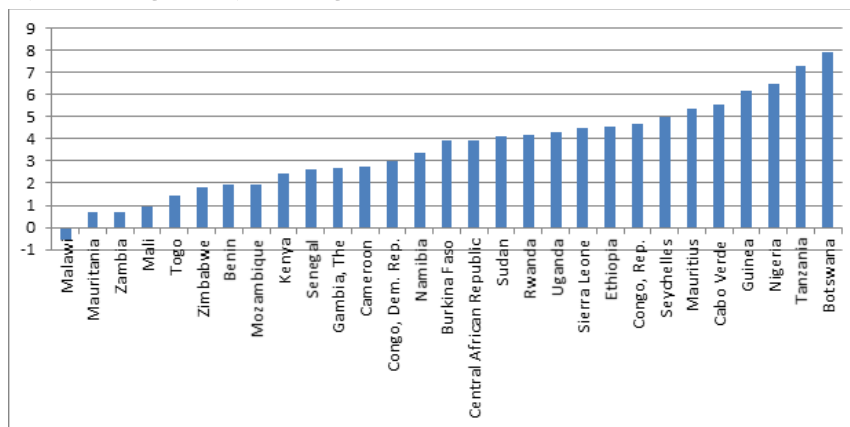
Developing countries, particularly those in sub-Saharan Africa, did not share equally from the benefit of the global agricultural success. Figure 3 shows the percentage of agricultural sector value added in total GDP for selected sub-Saharan Africa countries over the period 1995 to 2017. The share of agricultural sector ranges from 2.63 per cent for Botswana to 60.82 per cent for Liberia. In spite of the large share of the sector in some countries, very low growth rate and in some case even negative growth rates were recorded for other countries. Figure 4 shows the trend in annual growth rate of the agricultural sector in selected sub-Saharan Africa countries. Ironically, Botswana with the least share of agricultural value added in GDP recorded the highest growth rate of 7.92 per cent per annum. The poor growth rate of agricultural value added translated to poor returns or agricultural sector value added per worker. Except for 5 countries, (namely, South Africa, Congo Democratic Republic, Niger, Sudan and Mauritania) all other countries' agricultural sector value added per worker was below US\$2000 per annum.

Fig. 3: Percentage of agricultural sector value added in total GDP for selected sub-Saharan Africa countries over the period 1995 to 2017



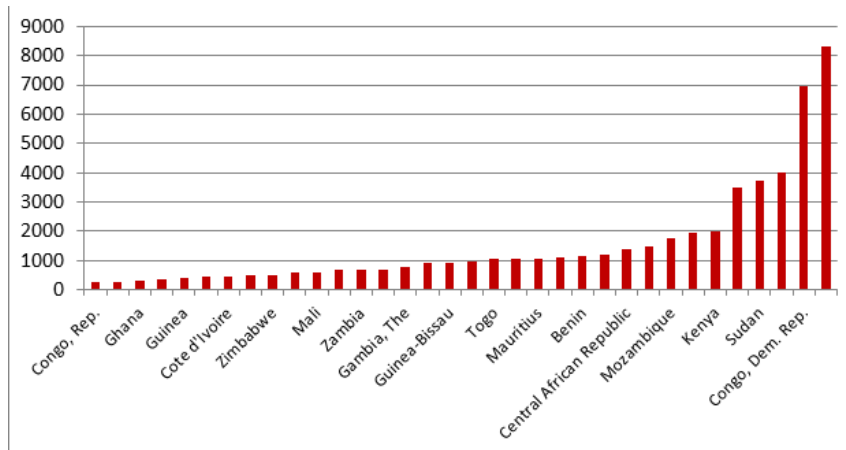
Source: WDI 2018

Fig. 4: Selected sub-Saharan Africa (SSA) Agriculture, forestry, and fishing, value added (annual % growth), Average 1995-2016



Source: WDI 2018

Fig. 5: Selected SSA countries' Agriculture, forestry, and fishing, value added per worker (constant 2010 US\$), average 1995-2017



Source: WDI 2018

Agriculture, Global Value Chain and Entrepreneurial Development

It is widely believed that agricultural growth offers one great opportunity for poverty reduction in developing countries through increasing exports of agricultural products from poor countries to world markets. Some econometric studies have empirically shown that agricultural growth is more effective for poverty reduction than the growth in other sectors such as mining, manufacturing or services (see for instance, Eastwood and Lipton 2000). According to Department for International Development (DFID):

“Agriculture remains the most likely source of significant economic growth in many developing countries. Historical experience suggests that agricultural growth and increases in agricultural productivity may be a prerequisite to broader-based sustained economic growth and development” (DFID, 2002: p. 9).

However, realizing the potential benefits of agricultural export growth requires deep analysis of the trends in world markets and policies capable of unlocking the potential for growth and poverty eradication. Global value chain perspective analyses inter-firm linkages in global agribusiness, placing agricultural production and processing in developing countries in the context of the dynamics of the broader global agribusiness and agrifood system. It was first developed to analyse trends in global manufacturing. Gereffi (1994) in a pioneering study recognized

the role of transnational manufacturing corporations as the main agents of product design, supplier selection and value chain coordination even though they were not directly engaging themselves in manufacturing production. The increasing complexity in agribusiness and agrifood system has created variety of value chain relationships, such as vertical coordination or supply chains, etc. Such agribusiness value chains include out-grower schemes, contract farming, category management by supermarket suppliers, marketing contracts etc. The term 'chain' in this context connotes the fact that most goods and services are produced by a sequence of activities which are carried out by multiple enterprises, which can be tacitly coordinated through markets or explicitly through direct exchanges of information between firms known in the literature as 'value chain governance' (Humphrey and Memedovic, 2006).

Entrepreneurs are central to the success of agribusiness value chain in Africa because economic transformation and growth depend crucially on doing new things. Entrepreneurs are the agents of change. The vast percentage of the population still in the agricultural sector is indicative of the great potential for economic transformation which the sector holds across Africa. In sub-Saharan Africa, this population can be employed in higher productivity and light agro-allied industries through effective absorption of new ideas and technological spillovers from developed and industrialized nations. The global production networks have grown over the years and new opportunities are created with changes in information and communications technology (ICT) and other infrastructure. With appropriate public infrastructure and entrepreneurial development, African countries can make crucial contribution to the world markets for green or sustainably produced commodities, and other goods and services. Potential areas of investment includes ecotourism, horticulture etc.

Lessons from rapidly developing countries of Asia emphasize the important role of public and private investment in human capacity building as well as increasing capacities in technological innovation and dynamic learning opportunities. According to the Commission on Growth and Development (2008), since 1950, there has been only 13 economies that have grown at an average of 7 percent or more a year for 25 years or longer. Nine of them are in Asia. All successful Asian economies invested in people and actively engaged in external trade to exploit their comparative advantage in labor-intensive manufacturing products (Lim, 2011). With appropriate investment in technological innovations, R&D can unlock great potentials in the agribusiness that would serve as strong drivers of rapid economic growth in developing countries. It is most vital in this current stage of global development to recognize the role of technology as the driving force of the fourth industrial revolution. The 1990s marked the age of globalization driven

by market liberalization. Globalization opened doors for increasing global connectivity in business and trade. It resulted in accelerated international flow of ideas and capabilities to meet the need of businesses and people. In the new era, the technology is the driving force, changing conventional ways of life, work and business models. Though sometime disruptive in nature, it also presents huge opportunities in fields such as information and communications technologies, new material science, financial technology (fintech) and the like. However, the government must encourage people to be the pioneers of their generation, to commit themselves to continuous learning to prepare for the unknowns (Yeung, 2017).

The Nigerian Context

Nigeria is a country with different ecological zones ranging from semi-arid, Sudan Sahel and Guinea Savannah to the Mangrove rainforest with high rainfall and moist humid environment. With the variety of ecological zones, diverse types of farming activities, including, crops and food preference are adopted among the people. Generally, it is estimated that about 75% of Nigeria's total land area amounting to 68 million ha has agricultural use potential while about 33 million ha is actually under cultivation. Out of the estimated 3.14 million ha irrigable land, only about 220,000 ha or 7% is under cultivation. Also, the country is blessed with diverse and rich vegetation that can support heavy livestock population.

The importance of agriculture in Nigeria pre-dates the political independence of the country. It can be traced to the colonial era when groundnut, rubber, timber, cattle, palm oil and other agricultural products were exported to Britain from the country. At independence, agriculture continued to hold sway as the mainstay of the Nigerian economy in terms of provision of food and employment to the teeming population as well as national income generation and industrialization. In terms of statistics, agriculture provides about 88% of non-oil earnings, and 40% of the Gross Domestic Product (GDP). However, over 90% of Nigerian agricultural output is attributed to small-scale and subsistence farmers with less than two (2) hectares farm holding. In other words, agriculture in Nigeria is still largely peasant-driven.

Historical Evolution of the Nigerian Agricultural Sector

In the 1960s, the focused regional policies based on commodity comparative advantage, enhanced the role of the agricultural sector as the main source of employment, income and foreign earnings for the country. The sector employed over 70 percent of the labor force, fed the population estimated at 55 million and 60 million in 1963 and 1965 respectively, guaranteeing the greater percentage of the

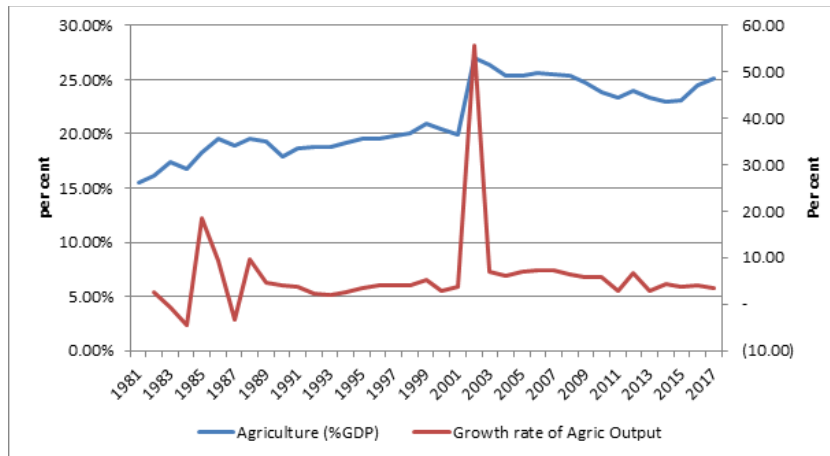
food security of the average household. In the same period, export of cash crops earned 70 and 62.2 percent respectively, of Nigeria's total foreign exchange and contributed 56.7 and 66.4 percent of GDP in 1960 and 1965, respectively (Azih, 2008). The dominant position of the agricultural sector in the Nigerian economy during this period is not debatable.

In the 1970s, the agricultural sector suffered dwindling fortune following the discovery of oil in commercial quantity. The commercial exploitation of oil heralded an era of decay and decline in agriculture and in the overall contribution of the sector to the economy. At this point, the country got infected by the popular 'Dutch Disease': a decrease in the price competitiveness of exports of the affected country's tradable and an increase in the quantity of imports as a result of higher value of local currency or currency appreciation. It contributed to loss of foreign exchange earnings capacity from agriculture, domestic revenue importance and gradual policy neglect of the sector. The neglect of the sector led to food insecurity leading to massive and continuous importation of food to meet domestic demand. Initially, with the huge foreign earnings from the oil windfall coupled with the strong exchange rate of the local currency, the country was able to conveniently fund its food import bills. However, as the price of oil in the international market collapsed, it was becoming increasingly difficult to meet the import bills and the erosion in the value of the local currency encouraged exportation of agricultural products by local producers which further worsened food insecurity.

In spite of this, the agricultural sector showed some resilience in terms of contribution to gross domestic product (GDP) and exports. The share of agriculture in total GDP of the country remained above 15 per cent in the 1980s and rose to 20 per cent in 1998. The successful implementation of the National Agricultural policies from 1998 to 2001 culminated in a significant increase in the contribution of the agricultural sector to GDP in 2002, 26.99 per cent precisely. However, the agricultural sector was not exempted from the impact of the global financial crisis. The share of the sector in GDP dropped to 24.73 per cent in 2009. In spite of the sea of interventions from the Central Bank of Nigeria to provide funding for the sector, further decline was recorded for subsequent years as shown in the figure below; the share of the agricultural sector in aggregate GDP dropped to 22.90 per cent in 2014. The interventions started yielding visible results in 2015 and 2016 when the shares of the agricultural sector gradually increase to 23.11 and 24.45 per cent, respectively. This progress was achieved inspite of the general economic recession in the country. Analysts believe that the tremendous growth recorded in the agricultural sector and stability in the foreign exchange market

were instrumental to eventual recovery of the economy from recession in 2017. The agricultural sector contributed 25.08 per cent to real GDP in 2017.

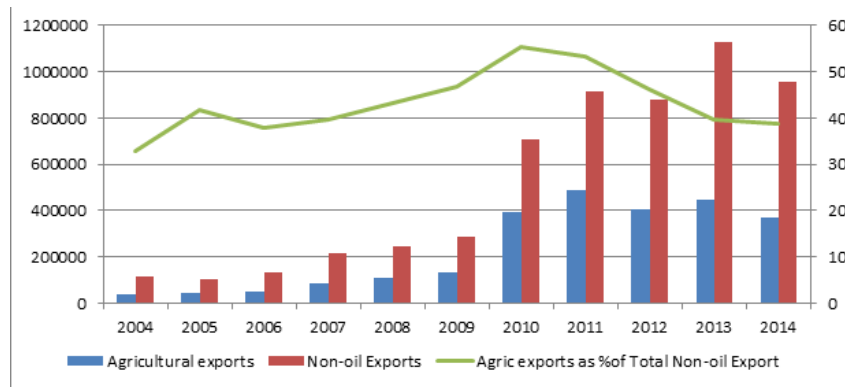
Fig. 6: Agricultural Sector Performance, 1981-2017



Source: CBN online Statistical Database.

The contribution of the agricultural sector to non-oil exports in recent times is also worthy of note. From a moderate contribution of 33 per cent in 2004, the sector's contribution has risen to more than half of the non-oil exports in 2010. Precisely, the proportion of agricultural sector exports in total non-oil exports was 55.4 per cent in 2010 and 53.2 per cent in 2011. This was expected to increase further in 2016 and 2017 following the recent agricultural development initiatives of the central bank of Nigeria.

Fig. 7: Agricultural Produce Exports as per centage of total Non-oil Exports, 2004- 2014 (Million Naira)



Source: Extracted from various editions of CBN Annual Report and Statements of Accounts

The new agricultural intervention schemes introduced by the Central Bank of Nigeria, including the Anchor borrowers' programme, have been quite significant in overcoming one of the main challenges to agricultural production, namely, the problem of limited access to credit by small-scale farmers. The Anchor borrowers' Programme (ABP) was established in November 2015 to help local farmers increase production and supply feedstock to processors, reduce importation and conserve Nigeria's external reserves. Under the programme, the sum of N40 billion is set aside for farmers at a single-digit, all inclusive interest rate of 9.00 per cent. This fund is taken from the N220.0 billion Micro, Small and Medium Enterprises Development Fund (MSMEDF). The anchor firms serve as off-takers in recognition of their track record and experience in working with out-growers involved in production. The finance model involves the anchor firms, CBN, NIRSAL and State Governments as well as the out-growers. The anchor firms, CBN, NIRSAL and State Governments work together to ensure that the out-growers comply with the terms of the funding and production contract thereby reducing the incident of side selling by producers (Polycarp, 2017).

Agricultural Sector Development Policies

Before 1970, Nigerian agriculture was fully under the control of the states and regions with minimal support from the federal government. This decentralized structure enabled the region/states to introduce state-centered/region-specific strategies involving a combination of private sector small farm holders and government direct production approaches. These strategies were highly successful

in making agricultural sector the mainstay of the economy in terms of its contribution to aggregate output, employment, supply of raw materials for nascent industrial production and foreign exchange for imports as well as ensuring sufficient supply of food for the population.

The main policy instruments for agricultural development in the 1970s and early 1980s was the series of National Development Plans [the second (1970-74), the third (1975-80) and the fourth (1981-85) National Development Plans. In spite of the great promises these plans held, the implementation of these plans failed to yield the desire restoration of the agricultural sector to its past glory. The structural imbalances resulting from the failure of past policies led to precarious economic conditions in the mid-1980s which prompted the government to embark on the Structural Adjustment Programme (SAP) in 1986. The SAP aimed at addressing Nigeria's defective mono-cultural economic imbalance through a diversification programme that would reduce dependency on the oil sector and imports. The key elements of the programme included rapid improvements of domestic food production, domestic supply of agricultural raw materials, production of exportable cash crops and rural employment. This programme, greatly increased awareness on the catalytic role of the private sector-led agricultural development in economic diversification. This was in contrast to the pre-SAP policies which were generally public sector-led, such as:

- i. **National Accelerated Food Production Programme(NAFP)** which started in 1972 primarily to raise farmers' income, accelerate the rate of diffusion of new agricultural technology and serve as a medium for testing and adopting agricultural research findings in on-farm conditions. The objectives of this programme were not fully achieved.
- ii. **Agricultural Development Projects (ADPs)** were set up in various parts of the country starting from 1975. Partly financed by the World Bank, these projects were to promote integrated rural development by providing facilities for intensive extension services, modern input supplies and distribution system and rural infrastructure, especially feeder roads.
- iii. **Livestock Development Projects** started in 1976 to commercialize beef production by the establishment of large scale public breeding ranches to encourage small scale private ranches development of grazing reserves and the provision of supervised credit for small holder fattening schemes.
- iv. **Operation Feed the Nation (OFN)**, which started in 1976, was aimed at curtailing massive food importation into the country. The stated objectives of the programme were to meet the acute shortage in food supply, and make farming more attractive with the view to stemming the movement of youths from the rural areas to the cities. Urban dwellers were also encouraged, through the programme, to engage in backyard

integration farming schemes. The programme also attempted raising production and productivity by distributing inorganic fertilizers and improved seedlings.

- v. **Agricultural Credit Guarantee Scheme** was set up in 1978 by the Central Bank to mobilize funds from the banking sector for rural development to guarantee loans by commercial banks for investment in agriculture in order to minimize the risk involved in financing the sector. The implementation of this policy has been too slow to reach all applying farmers.
- vi. **The Land Use Act** was meant to facilitate an effective utilization and exploitation of land resources for agricultural purposes. The law sought to bring the existing land tenure system under one common law. This law has been largely abused as public officials with authority for land use approval have expropriated large portions for self-based compromises. Besides the law has become a key bottleneck to land access and alienation for investment uses, necessitating the call for its amendment.
- vii. **Green Revolution**, which was launched in 1980, essentially a reformulation of “Operation Feed the Nation” Programme but focused on the small farmer and the development of the rural areas. The Green Revolution intended to address agricultural production from a fully mechanized and capacity upgrading perspective. To this effect, the government supported the policy with deliberate program of procuring machineries for full mechanized farming. It also established the Universities of Agriculture to enhance the nurturing of a young, educated population of modern farmers learned in mechanized production. A new Green Revolution effort has been launched continentally championed by the Alliance for Green Revolution in Africa (AGRA).

Just like the public sector driven policy initiatives discussed above, SAP did not significantly revolutionize the agricultural sector in the sense of positioning it as the mainstay of the economy neither did it solve the problem of food insecurity in the country nor the chronic unemployment crisis. Thus, in 1988 the National Agricultural Policy was launched and revised in 2001. The policy re-emphasized the role of agriculture in the economic structure of Nigeria and sought to improve investment in the sector and its competitiveness in both local and international markets. Other major efforts at improving the agricultural sector include the National Economic Empowerment and Development Strategy (NEEDS), the Presidential Initiatives on Commodities, the Agricultural Trade Policy, the Food Security Policy, President Yar' Adua's 7-Point Agenda, President Jonathan's 13-point Agenda, President Buhari's Economic Recovery and Growth Plan (ERGP).

In general, these new national agricultural development initiatives have a common goal of engineering the rapid improvement and growth of the agricultural sector through private sector driven initiative and government support in the area of provision of basic infrastructure. Private investment would enhance competitiveness and efficiency while the public investments play complementary role in infrastructure and rural development. This form of public-private sector partnership for agricultural development is the main target of the current agricultural policy.

Agri-business Entrepreneurship Development

Globally, agri-business has been acknowledged as a strong agent of rapid economic growth, development and stability. The United States of America, India, Israel, Ethiopia, South Africa and Malaysia used agri-business entrepreneurship as the engine to grow their economies and inspire enormous development and stability. In simple terms, agribusiness encompasses agricultural production, manufacture and distribution of farm inputs, equipment and supplies on one hand and processing, storage and distribution of farm commodities, on the other hand. Agribusiness entrepreneurship involves innovations in the entire agricultural production, processing, distribution and consumption gamut. It ranges from the stage of farm input supplies, inclusive of wood producers, furniture manufacturers, food processors, food packers, food transporter and food marketing companies to restaurants and shopping malls. It also covers input industries for agricultural production, post-farm gate industries, as well as third party firms that facilitate agribusiness operations, including bankers, brokers, advertising agencies and market information firms. Essentially, it is the totality of activities that brings food from the farm to the dining tables in our homes. The long chain of activities involved include auxiliary services like the insurance, transportation, assembly and ware housing, processing and manufacturing, shipping, marketing, financing, consultancy services and restaurants. The variety of associated services creates wealth and employment which together constitute a food production value chain.

In spite of the importance role of agribusiness entrepreneurship globally, Nigeria has only come to embrace it recently through the National Agricultural Policies, 1988 revised in 2001. As part of efforts to encourage entrepreneurial skill development among young Nigerians especially in agriculture, the agribusiness and entrepreneurship has been introduced as an academic programme in Nigerian universities. The target is to change the mentality of young Nigerians to view agriculture as business and not cultural practice that should be limited to peasant and subsistence capacity. Other initiatives in this direction include the Presidential Initiatives for rice, cassava and sorghum, processing zones for major staple foods,

resuscitation of Bank of Agriculture and several Central Bank of Nigeria (CBN) agricultural loans as well as establishment of entrepreneurial development centres (EDCs) in the six geopolitical zones.

Recently, an index for comparing country performance in terms of encouraging entrepreneurial skills development was being developed. The global entrepreneurship index (GEI) which ranks 137 countries on 14 pillars of performance, namely: opportunity perception, start-up skills, risk acceptance, networking, cultural support, opportunity start-up, technology absorption, human capital, competition, product innovation, process innovation, high growth, internationalization and risk capital, is a useful indicator of a country's standing in terms of entrepreneurial development. In 2017, Nigeria's overall score was 20 per cent while individual and institutional scores were 66 and 30 per cent, respectively. With this score, Nigeria ranked 100th out of the 137 countries evaluated on the index. Even in sub-Saharan Africa, Nigeria was number 8th of 30 countries considered in the index. The GEI identified Nigeria's strongest area as its wealth of human capital and the weakest area as opportunity start-up. The greatest lesson from the index is the point that Nigeria can add up to \$354 billion to the economy by improving entrepreneurship conditions by 10 per cent. In the same token, agriculture has been projected as one of the major driving forces of Nigeria's economic resurgence. With contribution of over 22 per cent to GDP and over 90 per cent of the employment, an agricultural sector resurgence programme that seeks to improve the productivity in the agricultural sector via genuine entrepreneurship and technological innovation would be a step in the right direction. This will end the era of treating agriculture as a development programme and chart a new course for the sector as a business venture.

Challenges and Prospects

In spite of the crucial role of the agricultural sector in the economy, the sector has been beset by several structural bottlenecks over the years. Some of these problems are presented below;

1. Policy Inconsistency and Weak Implementation

Most agricultural policies and initiatives have failed as a result of poor conception and inefficient implementation by the relevant agencies in the country. Recurring inconsistency, weak and ineffective implementation of agricultural policies has been the bane of Nigerian agricultural revolution such as the presidential initiatives. Often government policies are announced for political gains without properly setting up the necessary structural backup to ensure its successful implementation. Some examples of agricultural programmes that have suffered

setback due to inconsistency and weak implementation include the presidential initiatives on cassava. The policy was aimed at promoting production of cassava for exports but it failed as cassava exports has not remarkably contributed to total exports volume or earnings till date. Inconsistent trade policy has also had its toll on the agricultural sector. There is the fear amongst producers of rice that government may lift the restriction on the importation of foreign rice and this uncertainty is affecting their investment in rice production.

2. Poor Infrastructure Base

The poor state of infrastructure in the country is a general problem for all entrepreneurs and businesses. However, agricultural sector growth has been further inhibited by poor state of transportation, irrigation facilities, storage facilities and other infrastructure. The weak infrastructure has particularly hindered the development of downstream and upstream agribusinesses. Absence of basic infrastructure for agriculture and industrial activities in the country acts as a strong bulwark against rapid development of agriculture value chain and entrepreneurial skills acquisition and development.

3. Environmental Challenges

Aside from the man-made challenges and problems associated with public policies, natural disasters such as flooding in some regions of the country as well as desertification in other parts constitute an impediment to agricultural sector growth and its effectiveness in poverty reduction. There are also the problems of global warming and green house depletion due to human activities.

4. Slow Technological Assimilation and Poor Service Delivery Environment

Nigeria, like other African countries, is still depending on crude and less sophisticated technology in agricultural production. The slow pace of adoption of appropriate and modern farming techniques combined with poor agricultural service delivery environment has continued to act as a strong deterrent and disincentive for long term private sector investment in agribusiness. The consequence is a pool of low skilled farmers, labour intensive production and limitation to value addition and processed agricultural produce. This also leads to wastages, heavy post-harvest losses and inefficient pricing of farm products.

5. Lack of Long Term Financing for Agriculture

Over the years, the Central Bank of Nigeria has exerted tremendous efforts to bridge the financing gap in the agricultural sector. Some of the schemes include the Central Bank of Nigeria Agricultural Credit Guarantee Scheme, Nigerian

Agricultural Cooperative and Rural Development Bank (NACRDB), NIRSAL, CACs and recently, Anchor Borrowers' Programme (ABP). These financing interventions are mostly reactionary in nature and targeted at small-holders. There is the need to move away from this approach to a more sustainable funding window through which investors can obtain long term loans for investment in the agricultural value chain development.

6. Weak Market Base

Say's Law states that, production must always be equal to demand. If there is no market for the goods produced, the price would be unattractive and productivity would fall. Access to market is important for agricultural sector competitiveness and increased production. The domestic market for most agricultural produce is undeveloped, narrow and fragmented. Poor sanitary and phyto-sanitary standards adherence by local producers hinders access to foreign markets and constrained participation in export activities to low and raw-commodity based commodities. Tied to the above is the lack of reliable and sustainable market information system to aid the development of market for both input and output in order to ensure competitive prices for producers and agribusiness operators.

Conclusion and Recommendations

The Nigerian economy has been under intense pressure in recent times to meet the demands of the populace in terms of provision of job, foreign exchange for imports, food for the population, and basic raw materials for the industrial development of the country. These pressures can only be addressed through the growth and sustainable development of the agribusiness value chain through investment in technological innovation and the right spirit of entrepreneurship cultivated via deliberate policy on entrepreneurial development. As a way forward, the following recommendations would serve as a step in the right direction.

1. Bridging the Infrastructure Deficits

Provision of both soft and hard infrastructure is crucial to the development of agribusiness value chain. It is also an enabler of the competitiveness of agricultural exports in the international commodities markets. The standard infrastructure is particularly important for success in global agribusiness markets. Also, logistics-capability development (particularly physical and informational infrastructure) is vital for successful agribusiness. Airports, seaports, good communication infrastructure are all required for coordination of communications between enterprises and facilitation of rapid shipment of products. Sometimes, relatively simple and cheap infrastructure is all that is

required to significantly facilitate communication between buyers and producers. Humphrey et al (2003)'s research on e-commerce in horticulture revealed that relatively simple, cheap and reliable ICT infrastructure that enable suppliers to coordinate their activities with buyers would be relatively more useful than high-bandwidth applications capable of processing transactions online in real time. In other words, too much sophisticated infrastructure may contribute less than the basic, cheap, and relatively simple infrastructure can contribute.

Solving the problem of infrastructural deficits would also expand the market base for agricultural exports and improve the competitiveness of our products in the international market. In the specific case of Nigeria, there is urgent need for the government to take appropriate steps in the extension of the railway lines to major farming areas, improve the condition of existing roads, and stabilize the pump price of fuel. This will reduce transaction costs and enhance access to markets.

2. Investment in R&D and Technological Innovation

The investment in R&D should focus on three areas of the agribusiness value chain, namely, production, processing and marketing. In the area of production, research should be directed at improving the quality of inputs and adoption of high yielding seeds, as well as best approach to management of irrigation facilities. In the area of processing, technological innovations in agri-allied products and improving phytosanitary standards as well as the search for better storage techniques should be the main focus. In respect of marketing and trade, the main area of research focus should be on elimination of constraint to exportation of farm products and low quality of farm products. Research efforts should also focus on methods of upgrading the flow of agricultural market information in Nigeria. This will enable farmers to take appropriate steps and decisions concerning the production and marketing of certain commodities.

3. Entrepreneurship Development Programmes

Promotion of entrepreneurship education at all levels is important to ensure capacity building for diverse enterprises in agriculture. Government at all levels should be involved in the process of encouraging and educating our small-holder farmers to engage in agriculture as a business, and also provide funding to entrepreneurs to eliminate the opportunity start-up problems. In the same spirit, agricultural extension agents in the states and local governments should be trained to provide necessary technological packages required to teach and guide farmers on entrepreneurship development. Potential young entrepreneurs should also take advantage of the services provided by the CBN entrepreneurial Development centres located in all the 6 geopolitical zones to enhance their entrepreneurial ability and business start-up capacity.

4. Provision of Long Term Funding for Agro-Allied Business

The CBN has contributed immensely in breaking the barrier of lack of access to funding in agricultural sector via a number of programmes, Nigeria Incentive-based Risk Sharing System for Agricultural lending (NIRSAL), Commercial Agriculture Credit Scheme (CACs), Agricultural Credit Guarantee Scheme Fund (ACGSF), Agricultural Credit Support Scheme (ACSS), Nigerian Agricultural Cooperative and Rural Development Bank (NACRD, now Bank of Agriculture), Anchor Borrowers' Programme (ABP), etc. However, the CBN alone cannot do it all. Other agencies of government have a role to play in encouraging both government and private sector funding of agricultural projects. Credit facilities should be extended to all stages of the commodity chain in order to improve the competitiveness of the agricultural sector.

5. Policy Coordination and Consistency

Appropriate policy coordination among the various tiers of government and agencies of government is vital for the sustainable growth and development of the agricultural sector. Besides, some level of consistency is required for successful delivery of the agribusiness value chain. Agricultural investment depends on the elements of government policy amongst other factors. If a favourable government policy is frequently and suddenly replaced by unfavourable policy, it will bring apathy and weak response to government positive policies in future. A good example of policy inconsistency problem is the case of ban on certain commodities that are produced locally. If farmers increase their investment and cultivation of such commodities expecting the prices to increase, government should not suddenly lift the ban as this would result in huge losses to the farmers.

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2
Chapter

Boosting Entrepreneurship in Nigeria: The Need for a New Management Approach

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Abstract

Developing nations obviously need ever-improving entrepreneurial activities to keep afloat given the dynamics of the global environment. This study examined the need for a new approach to entrepreneurship in Nigeria if its related activities must receive the necessary boost. Data was obtained from secondary sources including books, journals, magazines, newspaper internet, etc. The theory of entrepreneurial growth by Mahajan (1970) was adopted as its theoretical framework while data analysis was by the mode of content analysis. Result revealed that a dynamic approach which is capable of evolving changes in line with the global business trends is required in Nigeria if entrepreneurship must be given the necessary boost. The paper recommended that government should give serious consideration to such an approach.

Keywords: *Entrepreneurship, Nigeria, Content analysis, New management approach.*

Introduction

The mono-product feature of the nation's economy has left Nigeria heavily dependent on crude oil for more than 90% of its foreign exchange earning in spite of its endowment with large agriculture potentials in arable land space of over 70%. The nation is classified as one of the poorest in the world. "Its industrial sector, which is expected to create substantial job opportunities and reduce

unemployment, is fast deteriorating due to low productive capacity” (Chibundu, 2006). Poverty and unemployment continue to grow rapidly due to ever-increasing population and the dwindle in production for both domestic and international markets. The picture becomes clearer as the National Bureau of Statistics (2010) reported that “about 70% (105 million) Nigerians live below poverty line against 54% which was reported in 2008”. Its harmonized living standard survey (2010) further reported that 90% of Nigerians live on less than \$2 a day and puts the current poverty rate at 79% out of which 30.3% are extremely poor.

Awe (2010) described an entrepreneur as, “an innovating individual who perceives needs, conceives goods or services to satisfy the need and organized factors of production”. The role he performs is called the entrepreneurial function and the process is called entrepreneurship. Entrepreneurship is the activity of venturing into new enterprises. It is distinct from management and involves the creation of new enterprises to meet new challenges and opportunities presented by a given situation. “It is a process of bearing a non-insurable risk as to achieve business objectives” (Awe, 2006). Thus, the entrepreneur perceives the commercial potency of an idea, mobilizes the needed resources, and provides the forces to detonate the commercial exploitation of the business idea; such business idea then turns into commercial ventures, which adds economic value and has profit as its main objective.

A direct outcome of technological improvements is the increased alternatives in production techniques. Information flows more freely and even more easily than ever. Industries become more complex and competitive even as countries develop, which calls to question the essence of entrepreneurship. It is against this backdrop that “entrepreneurial activities have been found all over the world to be capable of making positive impacts on the economy of the nation and quality of life of the people” (ACs and Storey, 2004). The present comatose state of the Nigerian economy is a sad reminder that the country's tremendous potential for growth and poverty reduction are far from being fully exploited” (World bank, 1996)

Entrepreneurship is pertinent to the analysis of how new ideas or recipes for reconfiguring objects in the material and social world can be harnessed to enhance a nation's wealth. In the long term, a country's economic progress depends on its ability to increase the value of what it produces with its resource base (people, land, and capital). The point to make is that neither the end to which these

resources are put nor the means for achieving the seeds (i.e. the set of resources and how they are used) are given or fixed. They are the result of entrepreneurial choices and are open to entrepreneurial initiative. Individual entrepreneur and entrepreneurial teams bring to light the resources, technologies and trading opportunities that make economic development possible. Indeed, “whenever entrepreneur is the first to discover the availability and potential economic value of new resources, they are in effect bringing those resources into existence in economic terms” (Kirzner, 1989).

Nigeria as a country has numerous business and investment potentials due to the abundant, vibrant and dynamic human and natural resources it possesses. Entrepreneurship activities and innovative ingenuity in Nigeria have developed enterprises in such areas as agriculture/agro allied, solid minerals, transportation, information and telecommunication, hospitality and tourism business, building and construction. Anyadike, Emeh and Ukah (2012), observed that “these human and natural resources notwithstanding, Nigeria is still one of the poorest countries in the world and has one of the highest rates of youth employment in sub-Sahara Africa”.

Statement of the Research Problem

The critical role of entrepreneurship in developing societies is no longer a subject of debate. However, while such a role is widely acknowledged, it also needs to be underscored that entrepreneurs can neither function in isolation nor vacuum. Government policies are needed to emplace effective judicial, educational, financial, e.t.c. systems synergizing to encourage and promote entrepreneurship. In addition, basic infrastructure such as power, water, and transportation are all required to enable entrepreneurship to flourish. Lastly, while entrepreneur refers to an individual (i.e. the person), entrepreneurship is a process and like every process needs to be properly managed to achieve better results. This study seeks to examine the need to boost entrepreneurship in Nigeria by adopting an improved management approach.

Objectives of the Study

The broad objective of this study is to assess the extent to which entrepreneurship in Nigeria can receive a meaningful boost through the adoption of a new management approach. Specifically, the study seeks to:

- a) Ascertain the potentials of a new management approach in the effort to boost innovation through entrepreneurship.
- b) Examine the extent to which a new managerial approach to entrepreneurship can enhance innovation among Nigerians.

Research Questions

This study will address the following questions:

- a) Does a new management approach have the potential to boost innovation through entrepreneurship in Nigeria?
- b) To what extent can a new management approach towards entrepreneurship enhance the innovation by Nigerians?

Literature Review

Conceptual Clarification

Entrepreneurship

Entrepreneurship is defined as; an activity that involves the discovery, evaluation and exploitation of opportunities to introduce new goods and services, ways of organizing, markets, processes and raw materials through organizing efforts that previously had not existed. (Venkataraman 1997; Shane and Venkataraman, 2000). Other definitions subscribe to the notion of innovation is a key attribute of entrepreneurship. From Kirzner's (1997) perspective, the entrepreneur is “an individual who is alert to opportunities for trade”.

“The entrepreneur is capable of identifying suppliers and customers, and acting as an intermediary where profit arises out of the intermediary function” (Deakins and Fineel 2006). In his perspective, Schumpeter (1934) “involves innovations that result in new combinations that spur creative destruction where the newly created goods, services or firms can hurt existing goods, service or firms” (Shane, 2003). Zimmen and Scarborough (2005) hold that, “entrepreneurs are new businesses or combinations that arise in the fall of risk and uncertainty for the purpose of achieving profit and growth”. The factors that distinguish entrepreneur most strongly are, “innovation, opportunity recognition, process, and growth in business and employment of strategic management practices” (Carland, Bonltons and Carland 1985; Watson, 2001).

Content Analysis

This is a research tool used to determine the presence of certain words or concepts within texts or sets of texts. It is a highly flexible research method that has been

Table 1.

Surname of researcher(s), title/ year of study, time frame of research.	Geographical & content scope	Data sources and analytical tools	Findings/recommendations/ conclusions
Idam (2014) Entrepreneurship development in Nigeria: a review	Nigeria: the paper is an attempt to identify the causal factors which militate against the effectiveness of government efforts at entrepreneurship development	Secondary data from both empirical and theoretical literature constituted the sources of data. Content analysis was the tools for analysis	Study recommended that entrepreneurial firms should be separated from other non-entrepreneurial small businesses to allow for distinct policies and programmes required by each category of small business
Bodunrin (2014) The problems and prospects of entrepreneurship activities and business management practices in Nigeria.	Nigeria: the research work examined the problems and prospects of entrepreneurship activities and business management.	Secondary data was used for evaluation.	Result of the study revealed that poor transportation system inaccessible market, inadequate capital, unstable political structure, poor response of financial institutions and shortage of infrastructure were the major problems to the development of entrepreneurship and business managements in entrepreneurship to the study area. Sustainable development practice in entrepreneurship was recommended.
Agu and Ayogu (2015) Assessing the prospects and problems of entrepreneurship development in Nigeria.	Nigeria: The study is an assessment of the prospects and challenges of entrepreneurship development in Nigeria.	Data was sourced from both secondary and primary materials including books, journals periodicals etc. while questionnaires and an interview, chi-square analysis was used.	Findings indicate that multiple taxes and levies, lack of knowledge of technology, and unfair competition are the challenges of entrepreneurship development in Nigeria.

Theoretical Framework

Mahajan (n.d) presents different perspectives on the theories of entrepreneurship development. One such theory is the political system theory of entrepreneurial growth. The theory states that favorable political environment has impact on the entrepreneurship growth because stable political system creates infrastructure promotes policies and encourage people towards entrepreneurship. Commitment in the political system creates a favorable business environment and enhances creative and entrepreneurial ability which leads to the entrepreneurial growth in the country.

widely used in the library and information sciences (LIS) studies with varying research goals and objectives. The research method is applied in qualitative, quantitative and sometimes mixed mode of research frameworks and employs a wide range of analytical techniques to generate findings and put them into context.

New management approach (NPM) or new public management approach. This is a new paradigm for public management which emerged since the 1980s. The emergence was prompted by the increasing awareness in society regarding transparent functioning of government which has improved on accountability concept. According to Hughes (1998) “traditional pattern theories on how to operate now is old and in any way not consistent with today's changing community needs”. Therefore, a new approach for public management with little new public management is evident. The approach was used for the first time in 1980 when Prime Minister of England Margaret Thatcher, with a neoliberal approach of governance formed the restructuring of the public sector. Hood (1991) opines that “this approach is the result of combining two different ideas”. The first idea of conventional economics which is based on representation theory founded management and the second idea oriented management which is the idea about reforming public sector and it originated from private sector (Yamamoto, 2003).

Empirical Review

Past and current works by researchers that are related to the subject matter are hereby reviewed. This is presented in a tabular form as follows:

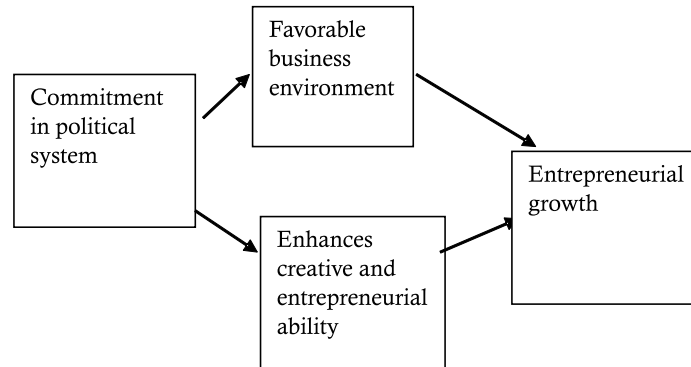


Fig. 1: Political system theory of entrepreneurial growth

Sources: [https:// ecestudy. Files.](https://ecestudy.files.wordpress.com/2015/02/theories-of-entrepreneurship-pdf)

[Wordpress.com/2015\02 theories of entrepreneurship pdf](https://ecestudy.files.wordpress.com/2015/02/theories-of-entrepreneurship-pdf)

Research Methodology

This study is a descriptive study which examined the needs for a new management approach in the effort to boost entrepreneurship in Nigeria. Data obtained from secondary materials are analysed using the techniques of content analysis. The analysis proceeds thus:

Research question one (1): Does a new management approach have the potential to boost innovation through entrepreneurship in Nigeria?

According to Aldrich and Wiedenmayer, (1993) “the socio-political environment maybe so powerful as to create or destroy entrepreneurship in a country”. “Developing economics of which Nigeria is an example are characterized by a number of structural institutional and infrastructure deficits which makes doing business a bit of a challenge” (Ojeifo, 2013). In his view, Utomi (1998) argues that poor policy formulation, inconsistent application of these policies and the so-called predatory (corrupt) actions of government officials, weak institutions (such as the judiciary, education), which are supposed to hold citizens to a minimum acceptable standard of behaviors and weak business associations (pressure and lobby groups makes of particularly difficult for entrepreneurship to thrive. Following Utom's argument, it stands to reason that certain combination of factors created a situation where the USA is the world's leading incubators for entrepreneurs and global enterprise. The same factors result to the situation where well over 50% of the Forbes lists of 100 richest persons in the world are Americans.

These factors are simply summed up in the deliberate effort of government and citizens to build robust institutions, including educational institutions, infrastructure and financing institutions. It is not an accident that the private equity and venture capital systems originated in the United States, without which ventures like face-book, yahoo, Google and amazons, etc. would have remained just ideas in the mind of their promoters.

Entrepreneurship development takes place within a framework of forces which constitute the system environment which maybe either internal or external. Hence, Gorber (2002) submits that “for entrepreneurial development to survive in these varying degrees depend on strategic management of the environment”. The study by Osemeka (2012) posits that though there is widespread knowledge of efficiency of entrepreneurial development mix, integrated entrepreneurial development efforts indicate that ”several of the institutions established by government concentrated on partial approach to entrepreneurial development programmer”. The paper recommended a new approach comprising of four priorities agenda to enhance entrepreneurial development in Nigeria.

Research question two (2): To what extent can a new management approach towards entrepreneurship enhance innovation by Nigerians?

An empirical investigation by Hemen, Uguru and Atuba (2016) assessed the various sectors of the Nigerian economy that need innovation, the defects in the legal framework for the protection of innovators in Nigeria, and the factors challenging technological innovation in the country. It discovered that the level of innovation and technology in Nigeria is low and the Nigerian patent law is week. The article therefore, recommended that government should evolve policies that would address the challenges in technological innovations. It further stated that the patent law indeed amendment. Modern research facilities should be established and human capital developed. The paper believes that given this new approach to the management and protection of entrepreneurship and its innovative skills, the Nigerian economy can complete favorably with any other on the global science. This empirical stance adds values to the views of scholars on a better management approach to innovation in Nigeria. In this vein, Uguru (2011) asserts that, “patent matters in Nigeria are governed by the patent and design act, Cap p2. Law of the federation of Nigeria, 2004”.

He defines such a patent document as:

A document issued, upon application by a government office (or a recognized office acting for several countries) which describes an invention and creates a legal situation in which the patented invention can normally only be exploited (manufactured, used sold imported) with the authorization of the owner of the patent.

According to Maskus (2005) and Martha, “economists have now recognized that there are simulative effects. It is as important for firm to adopt a new management and organizational system and a new product and quality control and mechanism as is to find a new technologies. Those interventions can be quite costly and will be undertaking only when the risk of their loss to unfair competition and trademark infringement is minimized in an environment of weak protection, it is difficult also to foster attitude of creativity, intervention and risk taking. Rather the economic stagnate in a mode favouring copying and counterfeiting and technology. According to Schumpeter (1934) innovation would not occur in the absence of patent protection of alternative mechanism for protection.

The strength of IPRS enforcement efforts differs with economic development levels as noted by Maskus et.al (2005), according to them on the part of pour countries, this reflect both an unwillingness to pay the costly administrative expenses and inability to manage complicated technological and judicial issues associated with IPRS. These call for a new approach in management. In a study on a frame work for technological entrepreneurship development: Key issues and policy directions(2011) by Siyanbola, and Sanni, it was under assured that innovation process is facilitated by technological entrepreneurship which is in turn pre-conditioned within the context of favorable policy, financial and institutional support.

Findings

The analysis in the study recorded a number of revelations of innovation, intellectual property right (IPRS) protection on economic development and growth”. An inadequate set of IPRS according to this author can stifle innovation and intervention processes even at low level of economic development.

Thus, as illustrated by them:

Patience protects innovation which in turn promotes economic development. Accordingly, economic development involves carrying out innovative activities.

Innovation involves taking of risk the basic functions of patience is to protect innovation. The study discovered that there was an urgent need for a new management approach to boost entrepreneurship in this country. Such need as arising out of the fact that:

1. Nigeria like other developing country mare characterized by a number of structural institutional and infrastructure deficiencies which make doing business a bit of challenge.
There is the predominance of poor policy formation, inconsistence, and application of policies and so called predatory (corrupt) act robs of government officials.
2. The need t follow the example of the United States(USA) where certain combination of factors oriented a situation which made the US the world's leading incubator for entrepreneurship and global enterprise.
3. The same factor as mentioned above has resulted to the situation in which over 50% of the Forbes list of 100 richest persons in the world is Americans need to constitute the role model for developing countries like Nigeria.
4. It is revealed also that entrepreneurship development take place within a framework of forces which constitute the system environment that may be either internal or external. New management techniques are needed to establish such a framework.
5. It was also revealed that the survival of entrepreneurship development depends on strategic planning.
6. Anew management is required in Nigeria for the purpose of protecting to establish protection of entrepreneurs through enactment of patent right.
7. Defects in the legal framework for the protection of innovators and the challenging factors challenging technology innovation necessitate the adoption of new management approach.
8. Nigeria's patent laws are weak in Nigeria and need to be revisited via a new management approach.

Conclusion

The study exposed the fact that Nigeria lacks the institutional legal framework to enhance entrepreneurship above all the nature of challenges facing the entrepreneur activities and enterprises in the country is such that require alternative measures as a present policies have not facilitated the development of entrepreneurship. It is in this vein that the authorities concern with the management of entrepreneurship either to policy making or otherwise, need to adopt a new direction.

Suggestion

Following the findings recorded in this study, the paper makes bold to suggest that: To foster the development of entrepreneurship in a developing country as Nigeria. The following step must be taken. These steps would constitute a new management approach that will ensure that:

1. Structural institutional and Infrastructural deficiencies' which hindered the ease of doing business be tackled in earnest.
2. The issue of poor policy formulation and implementation be addressed forth with.
3. There must be positive change towards adopting a management approach which makes the United States successful with regards to entrepreneurship development.
4. A framework which constitutes the system environment should be instituted and adopted.
5. Patent laws to give adequate protection to innovation should be enacted. Such patent law must be strong enough to stand the test of time.

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3 *Chapter* **Entrepreneurship Education in Nigerian Tertiary Institutions and National Development**

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Abstracts

The compulsory introduction of entrepreneurship education in the higher institutions especially in the universities in Nigeria will help to reduce unemployment, poverty and inequality leading to national development. With the purpose of exploring the impact of entrepreneurship education in tertiary institutions on national development, the paper adopted descriptive and analytical designed. It utilized secondary sources of data and employed sustainable development theory as a tool of analysis. The analysis of data showed that lack of entrepreneurship education is largely responsible for unemployment, poverty and inequality among the graduates of higher institutions which has adverse impact on national development. The paper, therefore, recommended that a more practical entrepreneurship education should be encouraged. The paper also called for adequate funding, planning and monitoring as well as provision of adequate teaching materials, equipments, infrastructure and loan for the graduates who have possessed entrepreneurship skills to ensure a sustainable national development in Nigeria.

Keywords: *Entrepreneurship Education, National Development, Sustainable Development.*

Introduction

It is very worrisome that over 80% of the university graduates produced every year in Nigeria lack meaningful employment owing to the nature of university education which is not only theoretical but emphasis white collar job rather than self employment and development (Adeyimola and Olufunmilayo, 2009). Accordingly, Akpan and Etor (2013) observe that the high rate of unemployment and poverty among the graduates in Nigeria is due to the university curriculum which was geared towards stereotyped goals and jobs without adequate practical work. Hence the graduates acquire education without practical skills that would enable them on graduation to practice what they learnt and create job for themselves towards national development. One of the major approaches devised by federal government through National University Commission in Nigeria towards making the youths self employed was the introduction of entrepreneurship education and linkage programmes with the purpose of improving the capacity and skills of graduates to recognize business opportunities, mobilize resources and exploit opportunities which will on a long run facilitate national development (Okiti, 2009; Nwabueze and Ememe, 2009). Put differently, the introduction of entrepreneurship education in our tertiary institutions will empower the graduates to undertake the risk of venturing into something new by applying knowledge and skills acquired in school (Nwosu and Ohia, 2009). It, therefore, help the graduates to be self-employed, self-reliant and self-sustained leading to national development.

Importantly, the high level of poverty, unemployment and inequality in Nigeria particularly among the graduates of tertiary institutions is caused by lack of entrepreneurship education. The nature of Nigerian education is such that does not encourage practical acquisition of skills and knowledge. There is poor funding of entrepreneurship programmes just as the few people with entrepreneurship skills lack access to income and loan which has made their development more difficult. There is still wide gap between education and entrepreneurship. as a result most of the graduates are unemployed, poorer and incapable of developing themselves as well as contributing to national development. Against the foregoing, this paper is aimed at exploring the impact of entrepreneurship education in tertiary institutions on national development in Nigeria.

Methodology

This study is purely descriptive and analytical in design. It relies on secondary sources of data such as academic journal articles, textbooks, newspapers and online materials. These data were subject to content analysis in order to show the

impact of entrepreneurship education in tertiary institutions on national development in Nigeria.

Theoretical Framework

There are various theories that link entrepreneurship education to national development such as human capital theory and sustainable development theory. For the purpose of exploring the impact of entrepreneurship education in tertiary institution on national development, sustainable development theory is deemed apt and appropriate. The central point of sustainable development theory as popularized by World Commission on Enforcement and Development of 1987 and the United Nations Conference for Environment and Development in 1992 (Okoroafor and Umoh, 2019) is that “societies and their environment change, technologies and culture change, values and aspirations change and a sustain such change, that is; sustainable society must allow and it must allow continuous, viable and vigorous development” (Amujuri, 2013).

The emergence of sustainable development theory was informed by the inability of the neoclassical models of development to address key development issues such as poverty, human welfare and environmental health, and its negligence of equitable distribution of growth benefits which are key elements in economic, political and social stability (Objuru and Okoroafor, 2018). Accordingly, Okoroafor and Umoh (2019) writes that the emphasis of Economic Study/ Action of 1991 on sustainable development encompasses equitable and social responsiveness, recognizing the extensive nature of poverty, deprivation and inequality between and within nations, classes and communities. The choice of sustainable development in this study is because of its inclination and penchant for continuous development of the people particularly the graduates of tertiary institutions in Nigeria through creation of employment and wealth, reduction of poverty and inequality via entrepreneurship education leading to national development. Sustainable development hub seeks to promote prosperity through growth, equity, and efficiency in all sectors of development. It also seeks to support a people through empowerment, participation of all stakeholders, social mobility and various institutional development etc. These are what entrepreneurship education pursue, which in turn facilitate national development. This, therefore, provides justification for the choice of sustainable development theory.

National Development

National development is a concept that has attracted multidimensional meanings and explanations. It implies a positive change and transformation in socio-economic and political conditions of the society (Abah and Nwokuwu, 2017).

National development cuts across social, economic, political, industrial and technological development (Okere and Okoroafor, 2019). However, most development scholars would have us believe that national development is continuous improvement and advancement in the socio-economic and political sectors of the society (Ezeayika, 2006, Unanka, 2001). In this vein, Akindele, Ogini and Agade (2013) see national development as the totality of improvement in collective and concrete terms across socio-economic, political, technology as well as religion which can be achieved through strategies mapped out by the government as contained in the nation's development plans.

Similarly, the south commission provides a background of what constitutes national development, which according to Ezeanyika (2006) comprises a process of self-reliant growth achieved through the participation of the people under their interest, and must end poverty, provide productive employment and satisfies the basic needs of the people. The foregoing definitions capture the need for self-development, self participation and accessibility to basic social amenities which underscores the indispensability of entrepreneurship education for sustainable national development. Taking a cue from Dudley Seers' view, the issue at stake in respect of development of any nation bothers on what has been happening to poverty? What has been happening to unemployment? What has been happening to inequality? If all three of these have declined from high levels, then beyond doubt, thus has been a period of development for the country concerned. If one or two of these central problems have been growing worse, especially all three have, it would be strange to call the result development, even if per capita income doubled (Seers, 1969). By necessary implication of seer's definition, national development could largely be determined by the level of poverty, unemployment and inequality which entrepreneurship education is designed to address in Nigeria. On the basis of the above premise, eradication, or minimization of poverty, unemployment and poverty through entrepreneurship education would boost national development.

Entrepreneurship Education

There are a plethora of definitions of entrepreneurship. For Allawadi (2010, cited in Ugwumba and Olorunfemi, 2013), entrepreneurship involves the carrying out of new combinations as enterprise and the individual whose function, it is to carry them out as entrepreneur. It focuses on the combination of five ideals, namely; the introduction of a new product, a new method of production, opening a new market, conquest of new source of supply and creating a new organization.

Entrepreneurship education is the development of the people (students), competencies and skills towards creating a business or career option it includes offering functional education to the youths to make themselves employed and self-reliant, providing youth graduates with adequate training to be creative and innovative in identifying novel business opportunities and establish a career in small and medium scale business (Paul, 2005). Similarly, Unachukwu (2009, cited in Macaulay and Ebelogu, 2015) posits that entrepreneurship education deals with the equipping of the students in a manner that they will have;

1. Ability to create and build something from nothing
2. Ability to have a vision matched with focus and determination of building an enterprise.
3. Ability of possessing the skill of seeking an opportunity where people fail to do so
4. Ability to build a working team to complement one's own talents and efforts
5. Ability to control resources judiciously
6. Ability of innovativeness and creating
7. Ability to undertake personal and financial risk.

Objectives of Entrepreneurship Education

Osuala (2010) clearly spelt out the objectives of entrepreneurship education. According to him, they include:

1. To provide meaningful education for students in order to make them self-reliant and self-independent
2. To provide graduates with the necessary training for career development
3. To provide graduates with training skills that will make them meet the manpower needs of the society
4. To provide graduates with enough training in risk management
5. To stimulate industrial and economic growth
6. To increase the creative and innovative ideas of graduates in identifying new business opportunities.
7. To provide small and medium size companies in order to reduce the rate of employment.

In the same manner, Nwangwu (2007, cited in Akpan and Etor, 2013) presents the objectives of entrepreneurship education in the tertiary education level in Nigeria as:

1. Offering functional education for the youth so as to enable them to be self-employed and self-reliant
2. Providing graduates with adequate training that will enable them to be creative and innovative in identifying novel business opportunities
3. Offering graduates adequate training in the acquisition of skills that enable them to meet the manpower needs of the society.

Beyond the above objectives of entrepreneurship education, it is essential to note that entrepreneurship education's ultimate aim in the tertiary institutions in Nigeria is to help graduates to have the fundamental skills to be self-reliant, self-sufficient, self-sustained and self-supportive leading to national development.

Empirical Studies

Igboeche (2019) focused on entrepreneurship development as a catalyst for economic growth in Nigeria. The paper was aimed at examining how entrepreneurship development can serve as a catalyst for economic growth and to explore the factors responsible for entrepreneurship development in Nigeria and its relevance for economic growth. The paper utilized expository research design which depended on secondary source of data. The data were analyzed using historical and explanatory analytical tool. Relying on dynamic entrepreneurship innovation theory as the theoretical tool, the analysis of data revealed that entrepreneurship development is a driver to economic growth in Nigeria through employment generation, promotion of innovation, diversification of sources of revenue, increase of GDP and development of small and medium enterprises in Nigeria. The paper recommended backup for entrepreneurship development and favourable entrepreneurship environment.

Similarly, Alike and Yomi-Akinola (2019) focused on entrepreneurship education as a tool for reducing unemployment in Nigeria. With the purpose of investigating if entrepreneurship education can serve as a useful tool for reducing unemployment in Nigeria, the authors postulated that entrepreneurship education has the capacity to drive socio-economic growth and development as well as reducing unemployment in Nigeria. The author employed descriptive research design based on the use of questionnaires for data collection which were analyzed using statistical package for social science. The analysis of data proved that entrepreneurship education is a viable tool for reducing unemployment in Nigeria. The paper, therefore, suggested collaborative partnership between industries and universities, strong government policy and funding to strengthen entrepreneurship education in Nigeria

Jacob and Ehijiele (2019) were concerned with unemployment in Nigeria and the role of entrepreneurship education. The paper examined the role of entrepreneurship education in eradicating unemployment in Nigeria. The paper used survey research design through questionnaires administration as the data were analyzed quantitatively and subjected to test using chi-square statistics. The findings of the paper indicated that entrepreneurship education has a significant and positive effect on unemployment eradication in Nigeria. The paper recommended encouragement of entrepreneurship education and vocational studies. In the same vein, Ekechukwu, Nwinyinya, Okorie and Albi-Oparaocha (2018) researched the role of entrepreneurship education on the empowerment of Nigerian youths for national economic development. The paper was principally aimed at determining the strength of entrepreneurship education in imparting the right skills and attitudes to students and the extent entrepreneurship education can help the students to undertake the establishment of their own. The authors argued that entrepreneurship education ensures generation of greater employment opportunities, stimulation of development of local technological base and source of foreign exchange earnings. The study made use of descriptive survey design via questionnaires as the responses were measured on a four point likert scale with mean score while the hypotheses were tested with the aid of test of proportion which showed that entrepreneurship education imparts skills and attitudes to students as well as favourably exposed them towards establishing their own businesses leading to national economic development. The paper recommended provision of enabling environment in the form of electricity, good roads and soft loan as well as redesigning the practical means of teaching entrepreneurship for result orientation.

Ogbondah and Nwogu (2017) were involved in the study of entrepreneurship education and sustainable youth empowerment in Nigeria. The paper, which was aimed at showing how entrepreneurship education could serve as a instrument for sustainable youth empowerment in Nigeria maintained that one of the greatest social challenges in Nigeria today is large scale youths unemployment due to non-empowerment of the youths through entrepreneurship education. The paper further maintained that if entrepreneurship education is fully implemented will serve as a panacea to social menace among the youths. The paper was historical and descriptive in approach. It utilized secondary sources of data which followed descriptive analysis. The paper revealed that the non empowerment of the youths through entrepreneurship education is largely responsible for the social menace being exhibited by them. The paper recommended redesignation of school curriculum for practical youths empowerment.

In another study, Ogeni (2017) focused on the relevance of entrepreneurship education to the development of micro, small and medium enterprises (MSMES) in Nigeria. They posited that incorporation of entrepreneurship education as a course and subject into the educational curricular of vocational studies, secondary, tertiary institutions and entrepreneurship agencies has become a globally accepted initiative to address the increasing unemployment rates. The study employed survey research design anchored on the use of questionnaire to assess the state of entrepreneurship education and the impact on the development of micro, small and medium enterprises (MSMES) in Nigeria. Relying on the use of non-parametric test of Kruskal-Wallis of K-independent sample test to test the independency of the formulated hypotheses the findings revealed that a direct and indirect relationship exist between entrepreneurship education development of MSMEs and job creation in Nigeria. Also, the study unveiled that entrepreneurship education positively impacts on youth significantly as it reduces youth unemployment as well as guarantees sustainable employment in Nigeria. The study recommended collaboration between the National University Commission (NUC) and Ministry of Education at the federal and state levels to ensure that entrepreneurship education is made compulsory.

Ogundele and Egunjimi (2017) were concerned with entrepreneurship education as an instrument for sustainable economic development in Nigeria. The study was aimed at discussing the relevance and benefits of entrepreneurship education towards enhancing sustainable economy in Nigeria. The paper argued that the major problems facing Nigeria are high rate of poverty, unemployment, overdependence on foreign goods and technology and lower economic growth and development. The paper further argued that entrepreneurship education equips individuals with skills to be self-reliant. The paper was qualitative in nature and descriptive in the analysis of data. Its findings showed that improved and sustainable economy depends on a strong entrepreneurship education. The paper called for effective technical education and youth empowerment, introduction of entrepreneurship programmes at all levels of education and adequate support of entrepreneurship development by government. Anyebe (2017) looked at entrepreneurship education and employment in Nigeria with the purpose of examining the relationship between entrepreneurship education and employment in Nigeria. The paper was qualitative in design and obtained data through secondary sources. The analysis of data revealed that schools in Nigeria are characterized by outmoded operational process and management structures

which are incapable of producing graduates with the capacity to generate creative ideas and turn such ideas into satisfying ventures. The paper recommended curriculum review in order to develop entrepreneurship skills and culture in the youth and adults and keep space with the present reality.

Abiola (2017) was involved in studying strategies for improving entrepreneurship education in Nigeria with emphasis on entrepreneurship teachers in Katsina state. The study aimed at assessing the strategies for improving education in Nigeria. It adopted survey research design through the use of questionnaire. Data collected were analyzed with the use of mean and standard deviation and t-test statistics. The findings demonstrated that identified strategies are required in improving and fostering entrepreneurship education in Nigeria. The paper recommended the establishment of practical entrepreneurship ventures schools. Abimbola (2015) researched on entrepreneurship development and entrepreneurship education as panacea for unemployment and poverty reduction in Nigeria with the aim of ascertaining the need for promoting employment and poverty reduction in Nigeria through entrepreneurship education. The paper posited that entrepreneurship education has the capacity of creating wealth, reducing poverty as well as ensuring self-development, economic and national development. The paper utilized descriptive survey methodology through the use of questionnaire as the analysis of data revealed that most of the vices associated with the youth such as kidnapping, militancy and other social problems like unemployment and poverty can be reduced drastically by engaging the youths in entrepreneurship ventures. Against this observation, the paper recommended mobilization of competent entrepreneurship personnel based on the use of formal and informal approaches to train the youth and adults, literates and illiterates, employed and unemployed. Also, adequate funding of entrepreneurship programmes by government is solicited.

Similarly, Haruna (2015) studied entrepreneurship as a tool for poverty reduction and means of attaining the millennium development goals (MDGs) with the aim of showing the nexus between entrepreneurship and poverty reduction for the attainment of millennium development goals. The paper was narrative in its methodology and relied on the secondary sources of data. The content analysis of data uncovered that entrepreneurship education is a strong means of reducing poverty and stabilizing national economy as the high level of poverty in Nigeria is attributed to poor entrepreneurship education. Hence the paper called for strong

government support for agriculture, youth and women empowerment, education, free loan facilities and the creation of enabling environment for entrepreneurship development. Ebebe and Ofoego (2015) looked at entrepreneurship as a necessary tool for poverty reduction among women for sustainable development with the purpose of showing how entrepreneurship can contribute to minimizing poverty among women for sustainable development, the paper argued that the high level of poverty in Nigeria, particularly among women is largely due to lack of entrepreneurship which undermines sustainable development. The paper was purely descriptive in nature and utilized only secondary sources of data. The analysis of data uncovered that the increased poverty level among women not only undermines efforts to minimize poverty but also serve as an obstacle for the realization of their human rights and prohibition of violation of women's rights. The paper recommended functional entrepreneurship programme for Nigerians especially the women.

Entrepreneurship Education and National Development

Despite the fact that many scholars have argued that the factors militating entrepreneurship education towards national development are many, the more disturbing ones according to Anyadike, Emeh and Ukah (2012), Olorundare and Kayode (2014), Onwubiko (2011), Undie, Sule and Bassey (2012) are poor funding, poor planning and monitoring, inadequate teaching materials and equipment, paucity of competent instructors or teachers, lack of infrastructure and lack of access to ICT, and lack of income & access income and loan. These factors constitute bottlenecks to the realization of the purpose of introducing entrepreneurship education which is fundamental for national development. That, notwithstanding, the prospects of entrepreneurship education in Nigeria abound. There seems to be a nexus between entrepreneurship education and national development. Undoubtedly, entrepreneurship education facilitates economic development through increasing the production of goods and services. It raises incomes and consumption levels of the people as well as ensuring equitable distribution of resources. Entrepreneurship education facilitates wealth creation and poverty reduction Ekechukwu, Nwinyinya, Okorie and Albi-Oparaocha, 2018; Ogundele, Egunjimi, 2017; Reister, 2010). By these means, the national income which is the total monetary value of all final goods and services produced in an economy like (Nigeria) over some period of time, usually a year, is increased (Todaro, 1982). Hence, the economic growth of a country which constitutes part of national development is largely determined by its national income or gross national product which entrepreneurship education has the capacity to achieve.

Entrepreneurship education is also vital in stimulating social development. It is a panacea for unemployment as it creates employment opportunities and provides a means of livelihood to the people (Alvaro, Domingo and Salvador, 2008, Ogeni, 2017; Awogbe and Iwuamadi, 2000). In early 2000s, entrepreneurship studies were introduced into the Nigerian educational system, especially at higher institutions as a mandatory course. The Centre for Entrepreneurship Development (CED), which has the objective of teaching and motivating students of higher institutions (especially in science, engineering and technological (SET)) to acquire entrepreneurial, innovative, and management skills, was established. This was done to make Nigerian graduates self-employed, create job opportunities for others and generates wealth in the process (Anam, 2019). Entrepreneurship encourages creativity, innovation and skill acquisitions which promote the prosperity and progress of a nation. As Akiri, Onoja and Kananzang (2016) aver, if the citizens of a country possess adequate entrepreneurship skills, knowledge and potentials, driving the development of their country is easily attained. Importantly, entrepreneurship education promotes gender equality as it empowers all gender thereby reducing the rate of socio-economic inequality and disparity (Obijuru and Okoroafor 2018). In summary, entrepreneurship education helps to ensure the presence of basic needs of life, reduction of poverty, unemployment, crime rate, violence and restiveness among the youth. Lastly many have continued to wonder if entrepreneurship education could lead to political development, arguably, empowering the people through entrepreneurship education affords them the opportunity of increasing their voice and participation in governance particularly in the decision-making process to ensure that enabling environment is created for sustainable business venture. When all these are achieved beyond measure through entrepreneurship education, national development is assured. Hence, a strong relationship exists between entrepreneurship and national development.

Concluding Remarks

The deplorable condition of graduates in Nigeria is disturbing. Many of them are victims of poverty, unemployment and inequality owing to lack of skills and knowledge to be self-employed. As a means of improving their condition, the Federal Government of Nigeria through National University Commission introduced entrepreneurship education to help them acquire the necessary skills in order to be self-employed and self-sustained and to contribute meaningfully towards national development. However, in order to ensure that the purpose of introducing entrepreneurship development is met with success, adequate funding

planning and monitoring are advocated. Also, there is an overriding need to provide adequate teaching materials, equipment and infrastructure. Also, government should provide nor interest soft loans for those who have acquired entrepreneurship education in the higher institution particular in the university.

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4
Chapter

Assessment of the Effectiveness of Token Economy System (TES) as a Behaviour Modifier on Problem Behaviours in the Classroom: Implications for Increase in Students' Academic Performance in JSS1 & SS1 in Bayelsa State

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Introduction

The poor performance of students can be as a result of certain variables such as the environment, parental influence, peer group influence, classroom situations, socio-economic status of students and parents, internal and external locus of control. But paramount among there are the teaching method and teachers methods of instruction in the classroom. An assessment is necessary for a wholesome consideration of the classroom assessment of performance in all domains, the cognition, affective and psycho motor, domain of students. Assessment is an attempt to take care of a students performance not only in one short examination but in all parts of performance of students progress. (Ubulom, 2019) 2019. This can only be successful when certain modifying variables can be used to improve students performance.

The method of instruction and style of a teacher in the classroom can help to improve the academic performance of students. The Token Economic System (TES) is one of such modifying variables used by the teachers or school counsellors to improve on students academic performance in schools. (TES) application is done when students participants are given a token which later

culminates into reward on incentives or reinforcement, on certain undesired behaviours. The TES is carried out as an inducement or enhancers for predetermined backup reinforcement which will yield results later Kazdin (1977). The relevance of TES is that the token are the motivating and modifying variable on specific behaviours are tied to a significant reinforcement. Kazdin, 1977 and Sugai, 1998. Token economy system is also an emphasis on the effectiveness of applying tokens as energizer as with children with developmental delays as well as other problematic behaviours in developing children. Ayilon and Azrin (1968). It is paramount for teachers to adopt the token economy system in our everyday teaching process in the classroom. It merely acts as a reinforcement or motivator and a modifier, on any activity as part of a reward on students. TES when applied correctly has some peculiar characteristics of other behaviours modification interventions. Hall (1979) this consist of list if target behaviours that may not be reinforced, the method if TES is adopted to ensure that the token transforming agent on the behaviour which allows the token to become a reinforcing stimulus, goes on to be used for the backup reinforce. O'Learny and Drabman (1971). The following are steps to be taken to administer a token economy system (TES).

1. To identify a target behaviour
2. Develop an operational definition
3. Tokens must be made after the target behaviour has been identified
4. Backup reinforcement needs to be gathered
5. Rules regarding delivery and exchanging of tokens must be developed.
6. Tokens must be known as secondary reinforcers as the backup reinforcers.
7. When given out tokens as reinforcers, it is relevant to practice with students on how to earn tokens, the rules for exchanging and then how to exchange tokens for a reinforcer so that they have access to the contingency; the modifying result. Kazdin and Bootzin 1972).

The issue as to how the TES can be adopted in our schools depends on the follow up of these different steps outlined above. Teachers who want to improve on some undesirable behaviour if student should adopt these methods for a successful outcome. TES if properly used can reduce problems behaviours in various subject areas under different conditions. Kazdin (1982). TES has been used successfully for different behaviours such as;

1. Remaining in seat
2. Increasing attention
3. Increasing appropriate call-outs in class.
4. Decreasing disrupture behaviour within the class

5. Increasing academic behaviours such as completing homework assessments
6. Increasing academic engagement time accuracy
7. Increasing in improving children with developmental delay.
8. Cognitive defiant autism
9. Emotional & behavioural problems.
10. Conduct disorders and typically developing children
11. Adult with psychiatric diagnosis
12. Legal offenders, employees and teachers.

Token economy system can be administered by the following class of persons. Parents, teachers, school psychologists/counsellors, employees, doctors, nurses, clinical psychologists and psychometricians. TES is generally a technique that focuses on increase in positive behaviour by students in class and this has been rated very high by series of studies, is unlike techniques that focus on reducing negative behaviours. Fratz & Kelly (1986). token economy system is a well known therapy used for moderation in class room situations to increase positive behaviours that will accelerate an increase in academic performance of students.

Statement of the Problem

The poor performance of students in secondary schools in Bayelsa State needs to be given attention as this will help to ameliorate the extent of youths without the minimum requirement for admission into the university.

The need to moderate the behaviour of students in the classroom which are mostly influenced by peer groups, parental, environment, socio-economy, infrastructural control. This will go a long way to improve the performance of students in class assessment which will lead to improved academic performance.

The issue of putting the behaviour modifier which is token economy system into practice in our secondary schools is a focal point in this study. Principals of school need to embrace this system as a behaviour modifier so as to encourage the school counsellors, teachers to apply it to improve students academic performance. The State Ministry of Education should be intimated on the need to provide overhead costs for the successful implementation of the TES in secondary schools in Bayelsa State.

Parents assistance to apply TES at home will also eliminate cost assessment on teachers and will assist in so many ways to lesson the administrative and re-administrative cost of TES by teachers in classroom. Cost implication is a major issue to the success of TES the financial burden on teachers and principals has to be less. It might be a combination of school and the parent-teachers Associate to make funds available if the State ministry is not responding amicably to the request of principals, in the bed to foster improved academic excellence by student in secondary schools in Bayelsa State.

Aim and Objectives of the Study

This study aims to investigate the 'Assessment of the effectiveness of a token economy system as a modifying variable on student problem behaviours in the classroom; implications for an increase in student academic performance in Bayelsa State. In spite terms the objectives of this study seek to.

1. Determine the extent to which TES can moderate and increase positive academic behaviours. Like completion of homework/assignment in 20 JSS 1 & 20 SS1 students in Atesra secondary school in Bayelsa State.
2. Ascertain the extent to which TES can moderate and increase positive behaviours in students like self-help skills in Maths class, English class of 20 JSS 1 & 20 SS 1 and positive performance in Maths and English test of students in Atesra secondary school in Bayelsa State.

Research Questions

1. What is the extent of effect of administering TES on 20 JSS 1 & 20 SS1 student on completion of home work/assignment in Atesra secondary school in Bayelsa State?
2. What is the extent of effect of administering TES on 20 JSS 1 & 20 SS 1 student on self skills in maths class, English class on an increase on performance in maths and English?

Methodology

This study employed single & multi-baseline design. This research design is a special experimental methodology approach for effects of intervention measures on an individual's clinical behaviour it uses the subject as the control measure by changing the treatment by assessing via repeated observation or measurement. The impacts of the changes are noticeable as certain new behaviours are exhibited. Kpoloiue (2010). This design involves multiple measurements of the subject with respect to the dependent variable of the study pre-treatment known as the

Baseline. And the treatment condition to reflect the effect of the treatment. The study is both single and multiple-subject research design because it chooses to administer treatment on the baseline of classes of JSS 1 & class of SS1 student on single subject on performance of Assignment and multiple subject research design and the increase in performance of student in self helps skills in English and maths and performances of student in test on maths and English on the baseline and treatment on both classes of students in Bayelsa State. Single subject research design has four phases.

- i. At base line – this is the dependent variable under investigation before treatment.
- ii. Treatment condition – this is the experimental treatment condition which is the independent variable.
- iii. A2 baseline – after treatment has been administered measures are taken at end of B1. The dependent variable is back to original State.
- iv. B2 treatment condition – Re-administration treatment and multiple measures are taken.

This stage involves a comparison of subjects performance in A1 B2 A2 & B2 in all the Baseline and treatment conditions. The effect of the independent variable (on the dependent variable behaviours is determined (Kpolovie, 2010). While the multiple Baseline design is the use of more than one Baseline for experimental treatment effect on the dependent variable. This design shows a time causal of treatment when the replicated subjects indicate the same result in all treatments. The multiple Baseline treatment increases internal validity by reflecting history. And also has a high external validity as it gives room for more accurate generalization and room for comparison with other treatment conditions administered.

The population of the study consist of twenty (20) students of JSS1 and twenty (20) students of SS1 class of Atesra Secondary School in Yenagoa Local Government Area of Bayelsa State. The researchers employed purposive samplings technique to select students for the study. This was appropriate due to the design of the study which entails pretest and administration stage and re-administration stages. The instrument for data analysis is simple mean and percentage using the Baseline/treatment graph to show the detailed result of information on the performance of students on A1, B1, A2 & B2 in both single and multiple Baseline treatment.

The validity and reliability is ensured by the multiple-baseline which measures the internal by extending all the subjects after treatment effect has been demonstrated while the external validity allows a more accurate generalization to other comparable or similar subjects when the effect of treatment intervention has been demonstrated.

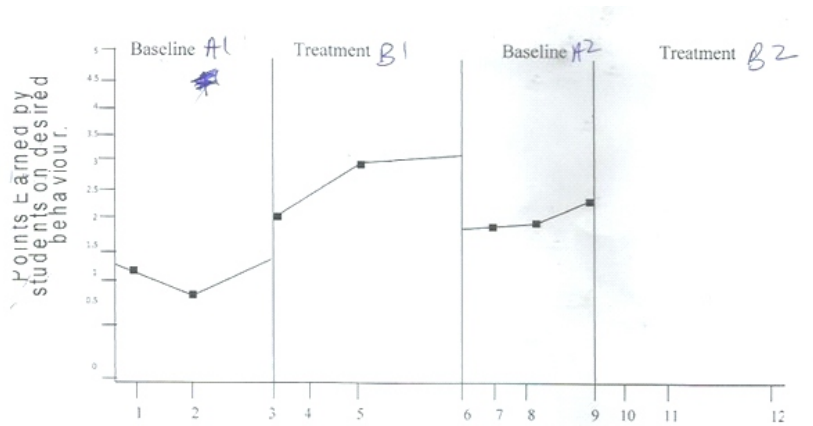
The validity and reliability is high as a result of treatment based on pretest-stage administration stages.

Results

Research question 1

What is the extent of effect of administering TES on 20 JSS 1 & SS1 students on completion of homework/Assignment in Astesra Secondary School in Bayelsa State.

Fig. 1.



Investigation on 20 JSS1 students on single baseline – Treatment design

A¹ —————> B¹

A² —————> B²

For improvement on use of TES

Baseline A 1

The result on Baseline A1 on students is as follows:

Table 1.

Total minimum score	Total average score	Total maximum score	Mean score	Criterion mean
0.7%	0.6%	1%	0.8%	2.5

The cumulative average score of 0.8% is below the criterion mean of 2.5%. This simply indicates that the behaviour of 20 JSS 1 students before the treatment of TES was low.

B¹ Treatment

The result is as follows:

Table 2.

Total minimum score	Total average score	Total maximum score	Mean score	Criterion mean
2%	3%	3.5%	2.8%	2.5

The mean score of 2.8% is above the criterion mean of 2.5% this means that the treatment of TES moderated the students behaviour in the first treatment on completion of assessments/homework.

Baseline A²

Table 3.

Total minimum score	Total average score	Total maximum score	Mean score	Criterion mean
1.5%	1.7%	2%	1.7%	2.5

The result of baseline A² shows that the mean score of 1.7 is still less than 2.5 criterion mean. The effect of TES on awaiting re-administration is low. This means more tokens and less exchange will be carried out.

B² Treatment

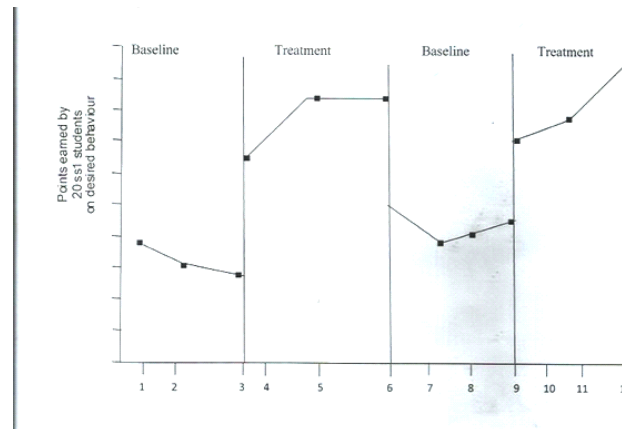
The result of B² on 20 JSS1 students are as follows.

Table 4.

Total minimum score	Total average score	Total maximum score	Mean score	Criterion mean
2.5%	3%	3.2	2.9	2.5

The result of mean score of 2.9 is more than the criterion mean of 2.5 which indicates that the B² treatment increased positive behaviour of 20 JSS 1 students on completion of assignments and homework.

Fig. 2.



Investigation of 20 SS 1 students on single baseline A¹ and treatment B¹ result.

A¹ → B¹

A² → B²

A1 Baseline

The result is as follows:

Table 5.

Total minimum score	Total average score	Total maximum score	Mean score	Criterion mean
1.7%	1.9%	1.9%	1.8%	2.5

The mean score of 1.8% is less than 2.5 the criterion mean. This means that the expected behaviour treatment of completion of assignment & home work is low.

B¹ Treatment

Table 6.

Total minimum score	Total average score	Total maximum score	Mean score	Criterion mean
3.5%	4.5%	4.7%	4.2%	2.5

The result showed that there was positive behaviour towards completion of assignment of Atesra Secondary School in Bayelsa State.

A² Baseline

The result of baseline A² is as follows:

Table 7.

Total minimum score	Total average score	Total maximum score	Mean score	Criterion mean
2.2%	2.3%	2.5%	2.3%	2.5

The result showed that the performance of A² is below that of A¹ but the mean score of 2.3% is still less than the criterion mean of 2.5%. which means the desired behaviour is still low.

B² Treatment

The result of B² treatment is as follows:

Table 8.

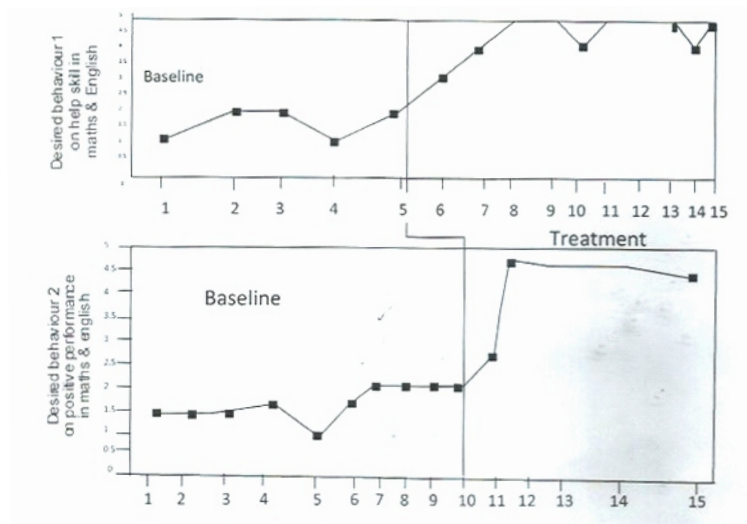
Total minimum score	Total average score	Total maximum score	Mean score	Criterion mean
3.5%	4%	5%	4.2%	2.5

The mean score of 4.2% is far higher than the criterion mean of 2.5%, this indicates that the performance on positive desire behaviour by 20 SS II students of Atesra secondary school was achieved.

Researched Question 2

What is the extent of effect of administration of TES on 20 JSS1 & SS1 student of Atesra secondary school in Bayelsa State on self help skills in Maths & English and on test performance in Maths and English.

Fig. 3



Multiple Baseline Treatment on desired Behaviour I self help skills in Maths and English Behaviour 2 positive performance in Maths & English of 40 students comprising of SS1 of Atesra Secondary School in Bayelsa State.

Baseline – Self-help skills scores A¹

Table 9.

Day 1	Day 2	Day 3	Day 4	Day 5	Mean Score
0.5%	0.7%	1.2%	0.3%	0.7%	0.7

Treatment on self-help skills scores B¹

Table 10.

Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Mean score
5.0%	5.0%	4.5%	4.5%	5%	4.5%	4%	4%	4.5%	4.5%	5.05

The result of investigation indicates that the mean score of 5.05 is far higher than the criterion mean of 2.5. This indicates that all 40 students of JSS 1 & SS 1 has a positive behaviour on self help skills.

Result of multiple baseline treatment of performance of 4.0 SS1 students and JSS1 students using TES are as follows:

Baseline A²

Table 11.

Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Mean score
1.7%	1.8%	1.9%	1.5%	1.6%	1.8%	1.7%	1.8%	1.9%	1.9%	1.8

The mean score of 1.8 is less than the criterion mean of 2.5, indicates their desired behaviours before treatment was low.

Treatment

Day 11	Day 12	Day 13	Day 14	Day 15
3.5%	4.5%	5%	4.8%	4.5%

The result of treatment for positive performance in maths and English mean score of 4.5 is far higher than the criterion mean of 2.5. The TES was successful in improvement of the desire behaviour.

Discussion and Findings

During the treatment period of the use of single Baseline A1 & B1, students responded to promptness in completion of Assignments as most tokens were retained for reinforcements and they became contingents as no token was exchanged. The treatment gave a positive result and the method used to enable the students to have a positive desired behaviour. As the mean score was always higher than the criterion mean during treatment. The single baseline treatment of TES revealed that at the beginning –baseline score was low but at the end, B2 treatment revealed that TES if applied is effective in modifying students towards completion of assignments or homework.

The result of multiple baseline treatment for self skills and increase in performance to maths and English test of both JSS1 and SS1 students showed that during the baseline the mean score was always lower than the criterion mean of 2.5 but on treatment the mean scores were always higher than the criterion mean of 2.5.

The result of the multiple baseline design had its implication in that it reveals some vital viable that helped in increasing performance in both self-help skills and increase in performance of maths and English such as:

1. More zeal and rudiments
2. Accuracy in working
3. More attentiveness in class
4. Quick response to answering questions in class. These were all interrelated dependent variables that were improved upon while treatment was on.
5. The tokens that were gotten were all retained and only few exchanged by those who promptly ailed faster than others. Both classes were very anxious to participate in the TES as they all wanted to show that they can improve upon all desired behaviours not minding the difference in class.

Conclusion

In view of the findings of this investigation, the researchers have come to realize that the TES is a very effective method of improving the positive desired behaviours of students for a better academic performance which is the main goal of education in society. The TES comprising of giving tokens, retaining of tokens for an exchange for reinforcement has a high cost of implications which is one of the limitations of the system.

Recommendations

Based on the findings of this study, it is recommended that,

1. The Counselling Association of Nigeria should create awareness on the usefulness of implementation of TES in Secondary Schools in Nigeria.
2. The State Ministers of Education should provide funds for the implementation of TES in schools.
3. The Parents Teachers Association PTA should also be involved in finding of TES in schools.
4. The idea that price giving or awards are all a part of TES is not proper for it does not improve the desired behaviours that will result to a lasting academic performance of students.
5. Principals, teachers and school guidance Counselors should ensure that the TES is carried out at least once every term.

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5
Chapter

Poverty Reduction, Unemployment and Rural Development; Aftermath of COVID-19 Pandemic in Nigeria

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Abstract

Nigeria has one of the countries whose experience of poverty and unemployment is on the high side makes this study to look into the effect of the economic lockdown during the global pandemic in the country, with the aim of making effort on how this effect can be translated into economic development. Survey research design method was adopted with self-administered questionnaire used to collect data. Findings revealed that in Nigeria COVID -19 outbreak effects was felt in almost all sectors and the aftermath greatly affected the country's GDP and this adversely affect rural development in the country, which translated to a worrisome rate of poverty and unemployment. Hence, both individual and government have now seen that campaigning for economic diversification is not sufficient for economic development but rather a prompt swing into action by all is needed for sustainable development of rural areas to respond to the worrisome rate of unemployment and in turn high level of poverty caused by the COVID-19 lockdown in the country. It was recommended that government at all level as well as individuals and stakeholders should put in place actions that would gear up rural development and set policies at their various helms of affairs that would encourage economic participation of all citizens in all sector of the economy.

Keywords: *Poverty, Unemployment, Rural development, COVID-19*

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Introduction

In December 2019, the World Health Organisation (WHO) declared COVID-19 as a global pandemic, having registered the effects this contagious virus has caused across the globe. The virus which emanated from Asian countries led to the total lockdown of all (social and economic) activities in all countries affected to curb its spread. Before WHO pronounced it has a global epidemic, Nigerians saw the disease as a foreign land infection that could never spread to the country and this affected the response to its confirmation in the country. Despite the rate of spread of COVID -19 in the country, many believed it was a disease for the high class citizens. High rate of poverty and unemployment with (stagnation in) development of rural areas are inherent characteristics of developing nations which has always been considered by researchers over the years, all with the aim to tackle development challenges. Weak progress on structural changes and low spending on research and development accounts for the deterred economic growth in developing countries. The rural poor in middle- and low-income countries will be particularly at risk (with the COVID-19 aftermath) due to the depth of their poverty, high population numbers, reduced remittances and the limited capacity of the state to respond (Ocampo, 2020). Even the G20 Leaders, the International Monetary Fund, the World Bank Group and the UN Secretary General, are all of the opinion that poor people and poorer countries are particularly at risk as a result of the pandemic.

The consequences of COVID-19 disease outbreak on the economy of Nigeria have gradually started unfolding. According to Woodhill (2020), the health and economic impact are likely to be felt more by the world's poorest people. This pandemic experienced all over the world in the year 2020 affected the job of many citizens (there was job creation and job loss), this resulted in reduction or loss of incomes to individuals, firms and government, thereby having a widespread impact on people's financial resources to the extent that acquiring even basic needs such as purchase of food became difficult for the poor citizens. One of the ways the economic effect was reflected is through the inability of government to fulfill her rural development plan in the year 2020, this would likely be the situation in the next few years due to economic aftermath of COVID-19 caused by the direct and indirect impacts (like shortfalls in government revenue) of the lockdown policy. To assess the economic impact of the lockdown, consideration has to be given to gross national product (GDP) as well as the number of people living below the international poverty line.

In Nigeria, the government has given development of rural communities' utmost priority over the years because most economic diversification options such as agriculture can be enroot through rural development. In most developing nation about 70% of the population lives in the rural areas and almost all of them still live in extreme poverty, buttressing the fact that the negative effect of COVID-19 would be felt more by low class citizens. According to Ocampo (2020), the economic effect of the pandemic is most likely to initially increase poverty level in the country thereby hindering poverty reduction strategy. Ocampo (2020), also stated that, actions need to be taken in areas such as trade, finance and tax corporations to put the global economy on a more suitable path. Another severe socio economic impact of COVID-19 which has greatly affected the Nigerian economy is the sharp drop in oil prices, which threatened to undo years of moderate economic growth in Nigeria and many other oil-dependent African countries (IMF, 2020a).

The socio-economic effect of COVID-19 in Nigeria and the world at large requires attention being given to strategy, business, people, risk and operations generally. This is because the disease outbreak has a significant influence on; business operations, health care systems, recession, lives and properties. Before the pandemic, the increase in the rate of unemployment and even underemployment in Nigeria contribute a lot to why poverty level is on the high side in the country and now the effect of this disease outbreak experienced all over the world has affected the job structure or nature of many citizens. While to some the experience has been job loss and to some others especially those endowed with Information Technology (IT) knowledge, it has being an opportunity for job creation as IT was the most reasonable means of communicating during the lockdown. But quite a number of Nigerian citizens lost their jobs due to the lock down, this resulted in reduction or loss of income thereby having a widespread impact on people's financial resources to acquire even basic needs such as purchase food. Though the lock down effect on jobs was felt by both the employers and employees it however opened the mind of many to the reason to look into diversifying their means of earning and likewise other creativity in them where geared-up by the lockdown.

The COVID-19 lockdown had a great impact on Nigeria economy and this has caused the rate of unemployment, poverty and rural development to worsen with a prediction of the situation getting worse in the future. It is not an under-statement to say that the experience brought by the pandemic in the year 2020 has shown the

need for all nations to plan appropriately for the future. Hence, critical future insights are more important than ever especially in a developing country like Nigeria. This study therefore intends to look into the effects of the economic lockdown during the global pandemic on the Nigerian society, with the aim of making effort on how these effects can be translated into economic development while other objectives of this study are to know the impact of rural development on poverty reduction, investigating the effects of rural development in curbing unemployment and examining the relationship between unemployment and poverty reduction.

Review of Related Literature

The arrival of the pandemic set off a chain of policy actions, including public health and education campaigns, fiscal and monetary measures, restrictions on large sections of the economy, and compensating measures in the form of social protection for poor and vulnerable people (Onyekwena and Amara Mma, 2020). The Economist Intelligence Unit warns that COVID-19 outbreak will be the most brutal recession in living memory that “could devastate poor countries”.

Impact of Rural Development on Poverty Reduction

The various control measures imposed by government during the lockdown in addition to restrictions in movement, led to the incidence of increase in the prices of goods and services, lack of food, restriction from accessing basic need such as shelters. Increases in the prices of goods and services are due to scarcity of resources, low supply and high demand, which led to inflation. Various researches have suggested that Nigeria economy requires economic diversification and development of rural areas is a good means through which this can be achieved.

Given the adverse outcomes of the pandemic, a pressing economic policy concern is to find ways to reduce the negative consequences of lower household income, higher poverty, and the greater likelihood of associated long-term impacts, such as deeper rates of malnutrition. In the short-term, while the focus has been on health, security, and the welfare of vulnerable population groups, the government has provided food from the national grain reserve and advanced payments of conditional cash transfers [(FAO, 2020; FGN, 2020a) as cited by ACAPS (2020); Nnabuife, 2020].

As stated by (UNHCR, 2020), the impact of the lockdown reduced family interactions (57.61%) whereby keeping the core family members only with no possibility of visiting relatives. The stressful situations caused by the restriction could stimulate mental and emotional disorder, particularly among households with poor income. The COVID-19 economic challenge requires a good foresight thinking to prepare for how shorter-term impacts of the lockdown will unfold, also to look at what await the economy in the future as well as how to ensure the best is made out of the situation such as vast investments that will be made to help recovery can contribute to a more equitable and sustainable society. Inequity and unsustainable resources use and climate change impact disproportionately on poor rural people and small-scale farmers. COVID-19 needs to be a wake-up call for creating systems that are far more resilient to shocks such as the current pandemic (UNHCR, 2020).

Slow down in rural development is also expected due to the fact that the cash flow and profits of firms have dropped substantially putting many, particular small and medium sized enterprises, at risk of financial default. This has a spiraling negative impact on the economy with flow-on effects to the financial sector and the availability of credit (Woodhill, 2020). Economic fallout from the crash in oil prices and the economic effects of COVID-19 would worsen poverty and economic inequalities in the country. Prior to the pandemic the Nigerian economy was characterized by slow growth, high inflation rates and currency fluctuation, and high levels of poverty (Daily Trust 20/05/2020 as cited by ACAPS, 2020).

About 15% of the world's poorest reside in Nigeria; urban crime, kidnappings, and herder-pastoralist clashes are widespread in some areas due to poverty, limited resources, and lack of economic opportunities. There is a risk that the economic impact of COVID-19 will exacerbate insecurity (The New Humanitarian 15/05/2020; Chatham House 12/05/2020 as cited by ACAPS, 2020). A study on remittances conducted in Nigeria between 2011 and 2012 found that over 74% of the total remittances flows to the country were spent by households on consumption, education and health (Progress in Development Studies 12/2014; IFAD 2011 as cited by ACAPS,2020). Decline of remittances to Nigeria will probably lead to increased poverty and reduced access to essential goods and services (The World Bank 04/2020 as cited by ACAPS, 2020). Nigeria is the biggest oil exporter in Africa and the largest gas reserves in the continent, with the huge reserves of both human and natural resources, Nigeria is expected to build a

rich and comfortable economy, reduce its poverty level significantly and be able to provide infrastructural services to cater for its population need (World Bank, 2014).

The dependent of the country on the oil sector have not helped to bring up development as expected especially to rural areas. It is therefore important that putting in place some factors which would aid the development of the rural areas in Nigeria should be given priority. Therefore, it is important to note that the impact of COVID-19 on the rural poor needs to be given attention especially with the economic, livelihoods, health and food security implications in the short, medium and longer term.

Effect of Rural Development in Curbing Unemployment

ACAPS (2020) stated that, oil revenues contribute 60% of the government's revenue and 90% of its foreign revenue. The recent global crash in oil prices, fuelled by an OPEC+ price war and subsequent drop in demand of oil derivatives amid COVID-19 containment measures worldwide, resulted in Nigeria reducing its oil production and exports. Depletion of foreign reserves in the Nigerian Central Bank (normally countries get foreign currency from exports to replenish their reserves) has made it difficult to stabilize the local currency (Naira) against the US dollar, causing a rapid depreciation of the Naira (ODI 07/04/2020 as cited by ACAPS, 2020).

The UN Refugee Agency- UNHCR (2020) as part of the prevention and mitigation measures in response to the pandemic explained that there were wide ranging restrictions to movement and closure of socio-economic institutions and infrastructure across the country, leading to reduction of access to services during the COVID-19 pandemic. The report indicated that access to education was the most impacted (at 62%) resulting from the country wide closure of schools and educational institutions. It is more like a shame that it was difficult during the lockdown for online schooling to be conducted in a country that is referred to as the giant of Africa. This explains that effective management of resources to coordinate various sectors like education is important. If resources has been effectively utilized before the pandemic lockdown the education sector would have not suffered that much. The situation to people in the rural areas would be worse because most members of these communities are actually being encouraged enroll in school through sensitization that it is an expenses that worth it in a future date even though their income seems to be low to cater for educational expenses as believed by them.

Analysis have projected that due to the sharp reduction in national GDP as a result of the lockdown, Nigeria is likely to experience recession. During an 8-weeks period in the lockdown the country's GDP reduced by about 23% and just as the global projection, a reduction of about 6% to 9% compared to the expected level of GDP before the COVID-19 outbreak was estimated for the second half of the year 2020 in Nigeria (see IMF, 2020b; World Bank, 2020a). The Nigeria poverty rate was also estimated to increase by 9% with the majority remaining poor till the end of 2020. The 2016 recession was the first in 25 years, and while painful, it amounted to a relatively manageable contraction of about 1.6% of GDP (World Bank, 2019). During the lockdown the agricultural sector was exempted from the lockdown policy, yet there was a prediction of a reduction in the agric-food production which was estimated to be about 11% as at the end of 2020.

The rural areas are where certain occupations like farming, fishing, mining, which serves as major options for economic diversification in Nigeria in order to reduce the country's dependence on oil can take place. The unemployment rate in the country could be address through rural development by provision of amenities that would encourage citizens to engage in different sectors (like mining, fishing, farming) that present job opportunities.

Relating Unemployment and Poverty Rate

Aside unemployment (brought about by the lockdown) that has contributed to the increased poverty rate, the value of the Nigeria currency also had it own impact. The high rate of poverty in Nigeria has been connected in the past to mismanagement of the economy as well as frequent changes in economic and social policies due to frequent change in government. When citizens are gainfully employed, it reduce the poverty level experienced in an economy, but the pandemic has made a lot of citizen especially the low level workers to loss their job. This coupled with the devaluation of Nigeria currency due to lockdown, has reduced the purchasing power of the citizen, making the low income earners to be at more disadvantage. Woodhill (2020) stated that at the very least the current crisis will lead to increased poverty levels in the short term and hamper longer-term poverty reduction ambitions. Akwara, Akwara, Enwuchola, Adekunle, and Udaw, (2013), unemployment was seen to be critical in the 1980s and has ever since been on the rise in Nigeria. The figure of 20% unemployed from the nation's work force in 2011 was up from 15% in 2008 (Lamido, 2013). People facing this challenge are the youth of Nigeria who up till date constituted the highest unemployment rate. Between the ages of 18 and 45 years old constitute about 40% to 60% unemployed in Nigeria (Akwara, et al, 2013).

The informal workers are particularly vulnerable to the negative economic effects of movement restrictions and social distancing measures. The depreciation of the Naira did not seem to have an immediate impact on inflation (Petroleum Economist 24/03/2020 as stated by ACAPS (2020)). Movement restrictions together with lockdown measures have decreased trade (import, export, and inter-state trade) and caused business closures, leading to higher prices for goods and services, unemployment, and loss of incomes. Higher transaction costs for trade of essential goods caused by movement restrictions and continued currency devaluation, following the global decline of oil prices, will likely result in a continued increase in prices and decreased households' purchasing power (FEWS NET 04/2020 cited by ACAPS, 2020).

The informal sector accounts for 80% of employment in Nigeria (ILO 2018 cited by ACAPS, 2020). There is often no record of informal workers; consequently, they are less likely to be protected by labour laws or included in social protection programmes. Informal workers often rely on daily work and payments are received in cash. 72.3% of all people employed in the informal sector in Nigeria are poor (ILO 2018). Poor households are unlikely to have savings, assets, or mechanisms that would enable them to cope with the sudden loss of income and economic shock caused by COVID-19 containment measures (ACAPS 2020).

The informal sectors that could help to tackle economic diversification (to create employment in order to solve the problem of poverty) could be found in the rural areas, hence the need for the development of rural areas.

Methodology

To collect data for this study, descriptive survey research design was adopted and a questionnaire was distributed to a sample size of 250 selected randomly from 50 local communities in the Southwest States in Nigeria. Statistical analyses were performed using SPSS (SPSS version 21 for Windows). Descriptive statistics (frequency, percentage, mean and standard deviation) was used to test the hypothesis and inferential statistics was tested by t-test. The results of the analysis are presented below:

Table 1: Social-demographic characteristics of respondents

Items	Characteristics	Frequency	Percentage(%)
Gender	Male	121	48.4
	Female	129	51.6
	Total	250	100
Age	Below 30years	77	30.8
	31-40years	95	38
	41-50years	65	26
	51years and above	13	5.2
	Total	250	100
Marrital Status	Married	168	67.2
	Single	79	31.6
	Others	3	1.2
	Total	250	100
Monthly income	Less than #100,000	155	62
	#100,000-#150,000	69	27.6
	#150,000-#200,000	21	8.4
	#200,000 and above	5	2
	Total	250	100
Religion	Islam	191	76.4
	Christianity	52	20.8
	Traditional	5	2
	Others	2	0.8
	Total	250	100

Table 1 shows descriptive analysis of respondents by demographic information. Out of 250 respondents sampled in the study area, 121 (48.4%) were male while 129 (61.6%) were female with majority of the respondents within the active population age bracket of 31 to 40 and 41 to 50. The income status of the respondents had majority earning less than #100,000 per month.

Table 2: To measure rural development

Variables	Yes		No		Mean	Std. Dev.	Decision
	f	%	f	%			
Before the lockdown, is there electricity, water and good road in your town/ village?	55	96.5	195	3.5	2.33	0.71	Disagree
Is there electricity supply in your town?	30	73.3	220	26.7	2.08	0.76	Disagree
Is there enough schools to cater for at least basic education in your town/village?	100	84.2	150	15.8	2.91	0.68	Disagree
Is there increase in the rate of school enrollment in your town?	105	40.8	145	59.2	2.43	0.71	Disagree
Is there hope that with the effect of COVID -19 government would provide these facilities to your town after the lockdown?	50	41.7	200	58.3	1.7	0.95	Disagree
Grand Mean					2.2	0.76	Disagree

Source: Field Survey (2021)

Table 2 shows that the study area has a deterred development and there is no prospect for the provision of facilities that would facilitate it by government due to the COVID-19 effect.

Table 3: To Measure the relationship between rural development and poverty level

Variables	Yes		No		Mean	Std. Dev.	Decision
	f	%	f	%			
Do you have a good waste drainage and toilet facility in your home before the lockdown	55	22.0	195	78.0	2.33	0.31	Disagree
The absent of drainage and toilet facility in your home is not connected to the level of your income	30	12.0	220	26.7	2.08	0.26	Disagree
Can you comfortably provide for your basic needs e.g food, cloth, shelter during and after the lockdown	100	40.0	150	60.0	2.5	0.18	Disagree
Government provision of facilities improved of poverty rate before the lockdown in your area	105	40.8	145	59.2	3.14	0.51	Disagree
Grand Mean					2.51	0.32	Disagree

Source: Field Survey (2021)

The response from the respondents gives a grand mean of 2.51 and 0.32 standard deviation, proving that rural development does not correspond with poverty level.

Table 4: To measure the relationship between rural development and unemployment level

Variables	Yes		No		Mean	Std. Dev.	Decision
	f	%	f	%			
Is farming embraced by the people of your community during and after the lockdown	241	96	9	3.6	3.33	0.71	Agree
Is fishing, mining and other available jobs embraced by the people in your area during and after the lockdown	11	4.4	239	96	2.08	0.76	Disagree
Do entrepreneurs in your area have access to bank loan	7	2.8	243	97	2.19	0.68	Disagree
Grand Mean					2.53	0.72	Disagree

Source: Field Survey (2021)

Table 4 shows that farming was more embraced by the people during and after the lock down, indicating that the campaign for income diversification from oil sectors got a good response in the agricultural sector. Fishing, mining and other available jobs in the study area were not embraced by many during after the lock down while access to bank loan that could encourage involving in other productive activities is not available. is table has proven that the campaign for income diversification from oil sectors got a good response in the agricultural sector.

Hypothesis One

H_{01} : There is no significant influence of rural development on the poverty level of the respondents during and after lock down.

H_{11} : There is a significant influence of rural development on the poverty level of the respondents during and after lock down.

Table 5: Relationship between Rural Development and Poverty Level

Variables	N	Mean	Std. Deviation	t-cal	sig. (2-tailed)
RD	250	2.203	0.760	3.045	0.072
PL	250	2.510	0.320		

Source: Fieldwork (2020)

** Significant at $p < 0.05$, (RD=Rural Development and PL = Poverty Level)

Table 5 reports the means, standard deviations, and t-statistics for the study variables. Results revealed that there is no relationship between rural development and poverty level. Null hypothesis was not rejected since the p-value is greater than 0.05 (i.e. sig. = 0.072) and conclude that there is no significant influence of rural development and poverty level of the respondents during and after lock down.

Hypothesis Two

H₀₂: There is no significant influence of rural development on the unemployment level of the respondents during and after lock down.

H₁₂: There is a significant influence of rural development on the unemployment level of the respondents during and after lock down.

Table 6: Relationship between rural development and unemployment level

Variables	N	Mean	Std. Deviation	t-cal	sig. (2-tailed)
RD	250	2.20	0.76	3.31	0.065
UL	250	2.53	0.72		

Source: Fieldwork (2020)

** Significant at $p < 0.05$, (RD=Rural Development and UL = Unemployment Level)

Table 6 reports the means, standard deviations, and t-statistics for the study variables. It revealed that there is no relationship between rural development and unemployment level. Hence, the null hypothesis was not rejected since the p-value greater than 0.05 (i.e. sig. = 0.065) and it was conclude that there is no significant influence of rural development and unemployment level of the respondents during and after lock down.

Findings

It is obvious from the analysis above that the lockdown of activities due to the pandemic would have a serious effect on the Nigeria economy. This study reveals that before the lockdown, many Nigerians live below the world acceptable poverty line and this is as a result of the high level of unemployment in the country. The COVID-19 restrictive measures, severely affect activities that promote economic and social development and coexistence in the country which actually resulted in a drastic increase in unemployment level especially among the low class citizens

(mostly residing in rural areas) in the country. The aftermath of the lockdown was felt in sectors like education, agriculture, oil, sport, tourism, commerce and industry and has also greatly affected the country's GDP causing a reduction in the government revenue due to lower demand for oil. This has actually contributed to an increase in unemployment and therefore increasing poverty rate in the country. It was also discovered that despite the campaign of income diversification over many decades, a larger percentage of government's revenue still comes from oil proceeds. Though, response from the study area proves that the campaign for income diversification from oil sectors got a good response in the agricultural sector, but this is not the only option available for diversification and that participation in other sectors must have being low due to lack of encouragement.

The reduction in the oil income has greatly affected government ability to fulfill her responsibilities such as development of rural areas. It was however revealed that both individual and government have now seen that campaigning for economic diversification is not sufficient for economic development but rather a prompt swing into action by all is needed to put in place factors that would help to achieve sustainable development of rural area so as to be able to curb the worrisome rate of poverty and unemployment in the country.

Conclusion

It was concluded that the dependent of the Nigeria economy on the oil sector have not helped to spring up development as expected to the rural areas and even to the country as a whole. This study also shows that the lockdown has opened the mind of individual, firms and government to various opportunities they could explore to generate more income. We could also infer from this study that Nigeria has a large rural sector that calls for modernization and that the economic diversification the country requires could be achieved through the development of rural areas. It is therefore important to put in place factor that would encourage participation in other sectors as this would aid the development of the rural areas in Nigeria. This would increase employment opportunities and when citizens are gainfully employed, it reduce the poverty rate experienced in an economy, as the pandemic has made a lot of citizen especially the low level workers to loss their job. This coupled with the devaluation of Nigeria currency has reduced the purchasing power of the citizen, making the low income earners to be at more disadvantage.

It is therefore concluded that the development of rural areas has resulted in reduction in unemployment, individuals would have access to reliable and secured

income and as the income of individuals/citizens increases, (through citizens patronage) source of income to organizations and government would increase making each stakeholders have higher purchasing power to cater for their needs and meet up with tier responsibility which would in the long run translate to economic development.

Recommendations

In order to be able to strategize responses to tackle unemployment and poverty as an aftermath of this disease outbreak and translate such to economic development, an effort to reduce over dependence on oil income in Nigeria should be made. It is recommended that government at all level as well as individuals and stakeholders should put in place actions that would encourage rural development as a means to diversifying income of individual, firms and government. Policies that would guarantee job security, encourage rural development and ease participation of any citizens in all sectors of the economy should also be established as a means through which economic diversification could be attained. Also, strict and effective policies to tackle several factors (like mismanagement of the economy, frequent changes in economic and social policies due to frequent change in government) responsible for high rate of unemployment and poverty should be put in place.

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6
Chapter

Food Insecurity and Economic Growth in Nigeria

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Abstract

Globally, one of the practical indicators for assessing the wellbeing and development of any nation is the level of food security. Food security is one of the Sustainable Development Goals. In Nigeria, the problem of food security has not been critically and adequately investigated, in spite of different approaches at tackling the challenge and the enormous amount of money spent in attempting to assure the food security of Nigerians. Therefore, this paper examined the rising food insecurity in Nigeria and its implications on the economy. A qualitative approach was used and secondary data were obtained from Food and Agricultural Organization to examine the prevalence of food insecurity from 2000 to 2016. The proxy of food security such as food inadequacy, undernourishment and gross domestic product in Nigeria were used. Finding of the study revealed that about most Nigerian were persistently under-nourished with inadequate food for a healthy and active life. Finding also deduced that the inadequacy of food and trend of undernourishment have been on increase in Nigeria which in turn negatively and significantly influenced the economy growth. The study recommended that attention should be placed on social development, structural transformation and provision of social protection for the poor and vulnerable people in the country.

Keywords: *Economic growth, Food inadequacy, Food insecurity, Undernourished*

Introduction

One of the most vital need that is essential to human survival is adequate food. Food together with clothing and shelter are generally classified as the human basic needs. Access to adequate nutritional food has been widely declared as a basic human right (Food and Agricultural Organisation, 2012). Up till now, regardless of progress in human understanding of how to guarantee this basic need and to conceptualize or monitor it, lack of food still persists to affect millions of people all over the world. According to FAO (2014), about one in eight people across the world experienced chronic undernourishment as a result of physical unavailability of food, lack of social and economic access to adequate food. Food insecurity exists when people are undernourished (Otaha, 2013). Food insecurity is a global phenomenon and not new. Many attempts to assess, monitor and eliminate hunger and food insecurity have been happening for decades. In 1996, this issue was brought to attention during the World Food Summit in Rome when it dawned on the government that each and every one nation in the world must strategize to improve agricultural production so as to match the per capita needs of the population (FAO, 1996). The United Nations 2030 agenda for Sustainable Development Goal (SDG) No. 1 and 2 also seek to end poverty and food insecurity in all its forms all over the world (United Nation, 2015). Past effort at improving adequate food through agricultural production has not yielded successful results, because of some factors which are natural and artificial depending on the circumstances and the countries.

Food insecurity is more prevalent in African nations including Nigeria (Matemilola and Elegbede, 2017). *Nigeria as giant of Africa* is fortunately blessed with abundant fertile land for agriculture and enormous human resource. Its economy happens to be the largest in 2014, but not less than 70 percent of Nigerian population is surviving on less than a dollar per day while food insecurity prevalence stands at 79 percent and 71 percent in the low income urban households and rural areas respectively (Akerele, Momoh, Aromolaran, Oguntona and Shittu, 2013). Furthermore, poverty and hunger rate in Nigeria is alarming (Omorogiuwa, Zivkovic and Ademoh, 2014). In the rural Nigeria, inadequate and poor distributions of food have combined with poverty to form an almost insurmountable challenge and especially with unpredictable variations in weather conditions (Akinyele, 2009).

In spite of the amount of resources the country has, hunger and poverty have remained deeply rooted as about 70 percent of the population still lives below the

poverty line. On the other hand, economists both locally and internationally have severally revealed that Nigeria's economic output is underperforming. Therefore, the extent to which indicators of food insecurity such as number of malnourished people and poverty head count ratio contributes to economic output of Nigeria need scholarly and professional attention. This study filled this gap by investigating the rising food insecurity and its implications on the economy output in Nigeria.

Literature Review

Food Insecurity in Nigeria

The concept of food insecurity is comparatively the same in all the literature. The FAO (2003) described that food insecurity exists when people do not have adequate physical, social or economic access to food. Similarly, the United States Department of Agriculture Economic Research Service (2014) defines food insecurity as limited or uncertain availability of nutritionally adequate and safe food or limited or uncertain ability to acquire acceptable foods in socially acceptable ways. From these two definitions, the key feature to food insecurity concept is that, both identify “limited or uncertain availability or accessibility” of food. For that reason, food insecurity includes having a limited amount of food and lack of guaranteed access to the food. Though these three aspects of the definition are related, the difference is important to note. Food insecurity is not just about quantity of food; it also pertains to certainty of availability and access. The definition is descriptive in its arrangement of “nutritionally adequate and safe” food. These terms exemplify two different aspects of food security. Safe food is more straightforward and can be considered food that is safe for consumption. For example, safe food is produced under sanitary conditions and is not spoiled. On the other hand, nutritionally adequate has a separate meaning. One could argue that having access to endless amount of processed food and nutritionally deplete items may qualify as “nutritionally inadequate,” as it may result in lack of vitamins, minerals, phytochemicals, or protein. In considering food insecurity, it is essential to also look at undernourishment and other related terms.

Undernourishment according to Olaniyi (2011) exists when caloric intake is below the minimum dietary required intake (MDER). The MDER is the amount of energy needed for light activity and to maintain a minimum accepted weight for attained height (Olaniyi, 2011). Food insecurity or lack of access to nutritionally adequate diet in a country can take two different forms, these are: chronic food insecurity and transitory food insecurity (Azad and Kaila, 2018). Chronic food

insecurity exists when food supplies are persistently inefficient to supply adequate nutrition for all individuals, while transitory food insecurity occur when there is a temporary decline in access to adequate food because of instability in food production, food price increases or income shortfalls (Olaniyi, 2011). Among the most difficult problems to understand and measure is that food insecurity is an individual concept, and different members of specific households can experience different outcomes—men versus women, adults versus children, and potentially even different children within the same household.

Today, the numbers of individuals experiencing food insecurity is rising in Nigeria. FAO (2015) reports that, regardless of Nigeria having achieved the reduction of undernourishment of the population by more than half from 12.07% in 2015 to 10.0% in 2016, the number of people who are undernourished in Nigeria increased from roughly 13 million to almost 14 million from 2015 to 2016 (see Table 1). Furthermore, there is regional, rural, urban, and cultural variation in food security across the country. Food insecurity in Nigeria is also likely to vary within the households and as a direct function of intra-household characteristics, such as household structure and decision-making processes.

Table 1: Trends of Food Insecurity in Nigeria from 2000 to 2016

Date	Undernourished People (Value in Million)	Prevalence of undernourishment as a share of population (Value in %)	Average dietary energy supply adequacy (Value %)	Depth of the food deficit (Value in %)
2016	14.3	-	121	48
2015	13.0	7.9	124	44
2014	11.6	7.3	124	40
2013	11.0	6.7	125	39
2012	10.5	6.5	125	39
2011	10.1	6.4	125	38
2010	9.6	6.3	125	37
2009	9.2	6.2	125	37
2008	8.9	6.1	126	36
2007	8.8	6.0	126	37
2006	9.2	6.1	125	40
2005	10.2	6.6	123	46
2004	11.1	7.5	121	52
2003	11.7	8.4	121	56
2002	11.5	9.0	120	57
2001	11.5	9.1	121	59
2000	-	9.4	-	-

Source: FAO (2018)

Nature of Current Economic Growth in Nigeria

The nature of economic growth can be seen by presenting the distinctiveness of the economic growth during the study period. Nigeria is one of the most developed countries in Africa. In 2017, real GDP growth for Nigeria was 0.8 %. Though Nigeria real GDP growth fluctuated substantially in recent years, it tended to decrease through 1998 - 2017 period ending at 0.8 % in 2017 (See Table 2). The Gross Domestic Product (GDP) in Nigeria expanded 2.90 percent in the second quarter of 2018 over the previous quarter. GDP Growth Rate in Nigeria averaged 1.08 percent from 2010 until 2018, reaching an all time high of 10.59 percent in the third quarter of 2010 and a record low of -13.98 percent in the first quarter of 2016 (International Monetary Fund, 2018). Services is the largest sector of the economy, accounting for about 50 percent of total GDP. One of the fastest growing segments in Services are Information and Communication, which together account for about 10 percent of the total output. Agriculture, which in the past was the biggest sector, now weights around 23 percent. Crude Petroleum and Natural Gas constitute only 11 percent of total GDP, while being the main exports. Industry and Construction account for the remaining 16 percent of GDP (Central Bank of Nigeria, 2018).

Table 2: Nigeria Real GDP Growth Rate (1990-2017)

Date	GDP current prices (U.S Dollar)	GDP per capital (U.S Dollar)	GDP Growth Rate (%)
1990	62.17	686	-
1991	60.13	645	-0.6
1992	52.28	546	2.2
1993	56.81	578	1.6
1994	80.13	793	0.3
1995	132.23	1,273	1.9
1996	172.69	1,618	4.1
1997	187.87	1,713	2.9
1998	209.68	1,861	2.5
1999	57.48	496	0.5
2000	67.82	570	5.5
2001	73.13	598	6.7
2002	93.98	748	14.6
2003	102.94	798	9.5
2004	130.35	983	10.4
2005	169.65	1,245	7.0
2006	222.79	1,591	6.7
2007	262.22	1,823	7.3
2008	330.26	2,234	7.2
2009	297.46	1,959	8.4
2010	369.06	2,365	11.3
2011	414.10	2,583	4.9
2012	460.95	2,798	4.3
2013	514.97	3,042	5.4
2014	568.50	3,268	6.3
2015	493.84	2,763	2.7
2016	405.44	2,208	-1.6
2017	376.28	1,994	0.8

Source: CBN (2018), IMF (2018)

Relationship between Food Insecurity and Economic Growth

In recent times, many scholars have tried to question the economic growth achieved in Africa during the last twelve years because of food insecurity. Economic growth is a key policy objective of any government. It refers to an increase in the national output or income in the given country. Economic growth, proxies by Gross Domestic Product (GDP) confers many benefits which include raising the general standard of living of the populace as measured by per capita national income (Adugan, 2016). Therefore, economic growth indicates the

percentage changes in the national output in the domestic economy in the given year (usually one year). From these definitions, it can be understood that economic growth is a single dimension that can raise income and reduce hunger, but higher economic growth may not reach everyone.

Many studies on economic growth have been carried out as related to food security. Asayehgn (2016) investigated the causal linkage between food security and economic growth in Ethiopia. The study found that food insecurity, low food intake and the variable access to food endemic is not due to the lack of economic growth and income distribution. The study also confirmed that transitory food insecurity and chronic food insecurity seems to derive directly from inflationary pressures, resulting from excess in the money supply. A similar study conducted by Agboola (2014) investigated the long run impact of food security using food availability as a proxy on economic growth within 124 countries with a five year average data from 1970/1974-2000/2009. This study also examined the difference in the impact of food availability on economic growth between food secured countries and food insecure African countries. The findings from this study posit that the impact of food availability on economic growth is negative in the long run for food insecure African countries. The study also revealed that for food insecure African countries increasing food availability in the long run is detrimental to growth. The major reasons identified for this outcome is that the source of food for these food insecure African countries has been identified as donation from developed countries; these food donations at times lead to disruption of food market within these countries leading to discouraging of farmers in the production of these crops; thereby making these countries even more food insecure instead of ensuring food security in the long run.

Another recent study by Olofin (2016) examined the interaction among per capita income growth, climate change and food security in fifteen West African Countries between the period of 1990 and 2013. The study provided evidence of income growth spurring food security in the short run and reducing it in the long run. The study also revealed that climate change increased food insecurity throughout in West Africa.

Methodology

In this study, a qualitative approach was used and secondary data were obtained from Food and Agricultural Organization, Central Bank of Nigeria and International Monetary Fund. Published data sets for the period of 2000 to 2017

were collected on GDP and the proxy of food insecurity such as undernourishment, dietary energy supply adequacy and food deficit. Data obtained were analysed using Ordinary Least Square (OLS) multiple regression.

Analytical Framework

The analytical framework leans very closely to the newer endogenous growth theory prescription and extends the food insecurity trends to focus on the variables which are Economic Growth (GDP) as dependent variable, proxies of food insecurity (undernourishment, dietary energy supply adequacy and food deficit) as independent variables. In accordance to this new growth theory, economic growth is determined by food availability (Agboola, 2014). The endogenous growth model here is linear and could be mathematically written in both functional and natural-log form as stated below to make the analyses less tedious:

$$Y = f(\text{UndN}, \text{DESA}, \text{FD}, \mu) \quad (1)$$

$$\Delta \ln Y_t = b_1 - b_2 \ln \text{UndN}_t - b_3 \ln \text{DESA}_t - b_4 \ln \text{FD}_t \quad (2)$$

Where: Y = Economic growth (GDP)

UndN = Undernourishment

DESA = Dietary energy supply adequacy

FD = Food deficit

U = Error term

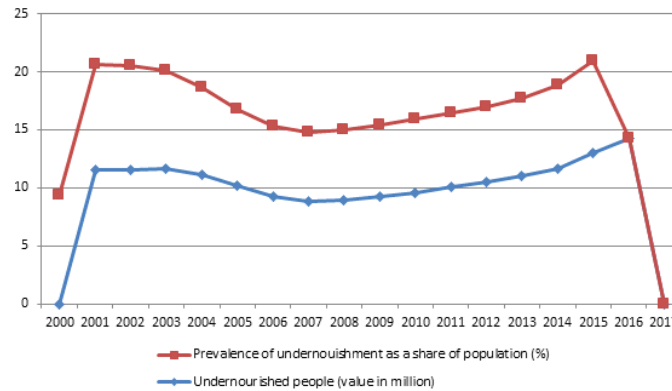
Theoretical priori expectation: b_2, b_3 and $b_4 < 0$.

Hence the above estimable long-run linear equation 2 posits that 'Y' the economic growth (GDP) in Nigeria is a function of UndN, DESA and FD. Economic growth (GDP) 'Y' is the dependent variable, 't' indicates time dependent and μ_t is an unobservable component that is assumed.

Results and Findings

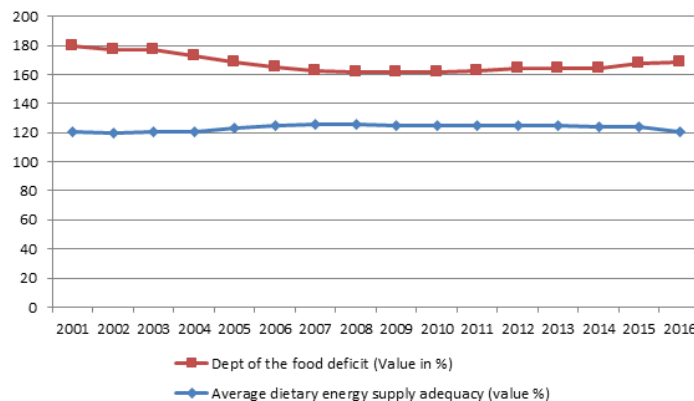
This section presents the empirical results and discussions on the relevant findings from the model specifications tested in this study. Figure 1 below shows the trends of undernourished people and prevalence of undernourishment as share of population in Nigeria.

Fig. 1: Trends of undernourished people and prevalence of undernourishment as share of population in Nigeria (2000-2017).



The result in figure 1 shows that in 2016, number of undernourished people for Nigeria was 14.3 million persons. Number of undernourished people of Nigeria increased from 11.5 million persons in 2002 to 14.3 million persons in 2016 growing at an average annual rate of 1.76 %. The result further shows that, the prevalence of undernourishment for Nigeria was 9.1 % in 2001. Prevalence of undernourishment of Nigeria fell gradually from 9.1 % in 2001 to 7.9 % in 2015. Population below minimum level of dietary energy consumption (also referred to as prevalence of undernourishment) shows the percentage of the population whose food intake is insufficient to meet dietary energy requirements continuously. Data showing as 5 signifies a prevalence of undernourishment below 5%.

Fig. 2: Showing Average dietary energy supply adequacy and Food Deficit in Nigeria (2000-2017)



The result shows that In 2016, dietary energy supply adequacy for Nigeria was 121 %. Dietary energy supply adequacy of Nigeria increased from 120 % in 2002 to 121 % in 2016 growing at an average annual rate of 0.06 %. The result further shows that food deficit for Nigeria was 48 kcal per person per day in 2016. Food deficit of Nigeria fell gradually from 57 kcal per person per day in 2002 to 48 kcal per person per day in 2016. As shown in Figure 3 below, the real GDP growth for Nigeria fluctuated substantially and tends to decrease through 2000 to 2017 period ending at 0.8% in 2017.

Fig. 3: Showing the GDP Growth Rate in Nigeria (2000-2017)

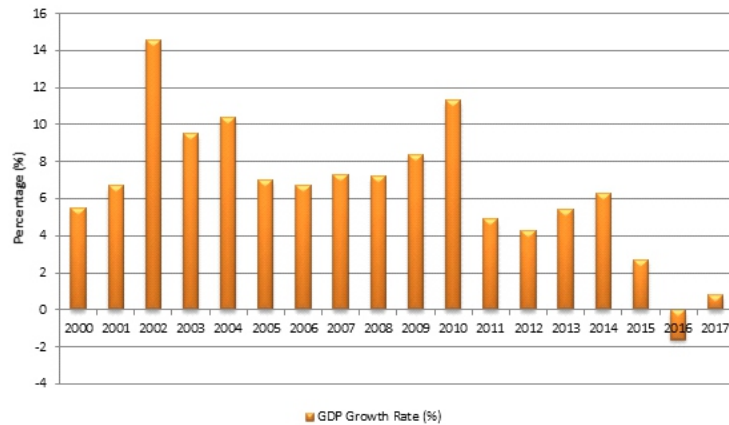


Table 3: Ordinary Least Square Analysis

Table 3: Long-Run Ordinary Least Square Regression Analysis

Data Presentation				
LnGDP= $f(\ln\text{UndN}, \ln\text{DESA}, \ln\text{FD})$				
Dependent Variable: GDP				
Method: Least Squares				
Date: 16/11/18 Time: 12:37				
Sample (adjusted) 2000-2017				
Included observations: 28 after adjusting endpoints				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-198.957	221.170	-.900	.386
lnUndN	50.425	18.614	2.709	.019
lnDESA	1.335	1.600	.834	.420
lnFD	-7.391	2.612	-2.830	.015
R-squared	0.481	Mean dependent var		4.3188
Adjusted R-squared	0.352	S.D. dependent var		3.003
S.E. of regression	3.482	Durbin-Watson stat		1.480
Sum squared residua	145.462	F-statistic		3.712
Prob(F-statistic)	0.042			

Source: Researcher's SPSS Result, (2018).

The result in Table 3 above presents the OLS regression analysis. The result shows that there is positive and significant impact of undernourishment on Gross Domestic Product (GDP) with a coefficient of 50.425. Hence, undernourishment is positively significant to Gross Domestic Product in Nigeria. Also, the regression result shows that food deficit has a negative impact on GDP with a coefficient of -7.391. This negativity of the coefficient of food deficit conforms to the economic a priori expectation of a negative impact of food deficit on GDP. Furthermore, the result obtained from the regression shows that dietary energy supply adequacy is insignificant to GDP. The implications is that the selected variables are correctly signed in accordance with the priori expectations except food insecurity with negative sign, indicating that while undernourishment was contributing positively to the economic growth, the food deficit is contributing negatively and significantly to economic growth in Nigeria, but dietary energy supply adequacy is not contributing significantly to economic growth in Nigeria.

Furthermore, the R-square (0.481%) indicates 'a good fit' showing that 48 percent of the variations in GDP are explained by the combined effect of variations in the undernourishment, dietary energy supply adequacy and food deficit. The F-statistics (3.712) confirms further that the independent variables are jointly and statistically important in explaining the variations in the economic growth process. The implication is that proxies of food insecurity affect economic growth in Nigeria. However, a cursory look at the low D.W (1.480) ratio show possibility of first order positive serial correlation in the face of non-stationary properties of the times series variables regressed at level. This indicates some degree of time dependence of the series at level and this can lead to spurious regression.

Conclusion and Recommendations

This study assessed the implications of food insecurity on economic growth in Nigeria. The study deduced that while undernourishment contributes positively to the economic growth, the food deficit is negatively and significantly to economic growth in Nigeria. Studies showed that dietary energy supply adequacy is not contributing significantly to economic growth in Nigeria. The study concluded that food insecurity have significant effect on the economic growth in Nigeria. The study recommended that attention should be placed on social development, structural transformation and provision of social protection for the poor and vulnerable people in the country.

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7
Chapter

Effective Management of Communal Crises and the Achievement of Food Security in Nigeria: A Study of the Tiv-Jukun Crises in Taraba State

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Abstract

Nigeria's quest for achieving food security is under threat by incessant communal crises. Among several violent crises, the frequent Tiv-Jukun crises in a widely acclaimed foremost agricultural producing area constitute a threat to the integrated Agricultural Transformation Action Plan, (IATAP) for achieving food, and cash crops security in Nigeria. Descriptive and exploratory designs were used, relying on both quantitative and qualitative evidences for examining; these crises, strategies for managing it, and its implications on food security. This study is critical for national orientation, the achievement of national integration and cohesion among the people, and for peaceful agriculture. Reviews and analytical techniques revealed that the crises centered on socio-economic and political factors. Governments' strategies for handling communal crises were devoid of both preventive, and effective management, as approximately 10% annual slack in food supplies due to the crises could significantly be accountable for Nigeria's inability to achieve food security. The constitution, national integration and food programmes reviews are imperative.

Keywords: *Communal-Crises, Constitutional-Reviews, Disparity, Displacements, Farmers, Food-Programmes, Food-Security, Killings.*

Background to the Study

The first sets of Tiv people in southern and central areas of Taraba State, North East Nigeria were believed to have migrated to the area in the 1800s (Adesoji and Alao 2009, and Alozie 2019). These researchers posited that the Tiv people gained socio-political prominence in the former Wukari province, especially when a Tiv man won a seat to the Federal House of Representatives in 1959. The people have been great farmers of many sorts, and driven by land hunger, hence their inclination for migration. On the other hand, the Jukun people have inhabited Wukari and many other parts of the state around the 15th and 16th Centuries. The latter have been warriors and great farmers as well. Both the Tiv and Jukun farmers of Taraba State usually contributed approximately more than 10% of annual staple food crop supplies in Nigeria, largely by small scale farm holders.

The long running Tiv-Jukun crises dated back to the 1840s (Akanji, 2019). The emerging prominence of the Tiv people coupled with their clamour for equal rights and entitlements to economic and socio-political rights triggered several crises, usually leading to the killing of people, with hundreds rendering homeless, and many others fleeing to either other parts of the state, or to Benue State which is home to most Tiv people.

Communal conflicts in Nigeria usually take the form of clashes of varying interests, sometimes violently, either between two or more communities, or between different ethnic groups, religious groups, cattle herders versus farmers, and among others within a community, The violent nature of most of such conflicts continued to threaten the peace and security of people across the local government areas of Wukari, Ibi, Donga, Takum, Kurmi, Bali, Gassol, and the state in general. These incessant crises have threatened the mutual cohesion of the people and food security in Nigeria. The magnitude of these frequent crises has grown to an intolerable scale amounting to a national challenge.

The resulting frequent destruction of human lives, animals, homes and farms no longer guarantee peaceful co-existence among the people. Hence, Alimba in Alozie (2019) asserted that the Tiv-Jukun crises have denied the people the dividends of democracy. Like similar communal crises of Birom-Hausa/Fulani communities in Jos, Plateau State, Ife-Modakeke in Osun State, and in Oyo, Nassarawa, Abia, and Kano States were all centred around the indigene-settler sentiments. Indigene-Settler sentiments in Nigeria usually manifest in form of

disparity, and eventual crises between the warring groups. Hence, the indigene, native or 'son of the soil' versus settler controversy is meant to stigmatize the latter groups.

Alubo, (2003) and Akanji, (2019) described the so called 'Settlers' as citizens of Nigeria either born in a place, but whose parents were from elsewhere or emigrants, subjected to discrimination and various forms of exclusion or deprivation from certain rights, privileges or opportunities enjoyed by the 'indigenes'. The Tiv-Jukun incongruent competition for available opportunities and resources have assumed a fierce dimension characterized by claims and counter claims in unique projection for self-actualization (Alozie, 2019). Hence, each group taking their destiny into their hands by the show of force at any slightest conflict which usually surround the enforcement of their rights and privileges. While the Tiv people the area claimed to be indigenes, the Jukun people see their Tiv neighbours as people who have other homes elsewhere (Adesoji and Alao 2009, Akombo 2016). The implication of the Tiv-Jukun crises on food security in Nigeria is obvious from the destruction of human lives, animals and farms, the expulsion and the mass movement of hundreds of the 'settler' farm holders considered to be persona-non-grata from their locations or communities in the agriculturally virile staple food crops producing areas would remain a significant slack in the country's food security.

Nigeria's quest for a diversified economy from crude oil is under threat from incessant communal crises which have made life difficult across the country. Worst of all, the aim of reinvigorating agricultures at risk due to the gradual but devastating blow to agricultural practices. A major aim of Nigeria's national agricultural policy is to achieve sustainable food security which can guarantee adequate nutrient intake, creation of income and wealth, export expansion and foreign exchange earnings. This was to be achieved through the Integrated Agricultural Transformation Action Plan (IATAP) launched in August 2011 for developing value chain of five key commodities – rice, cassava, sorghum, cocoa and cotton. The first three of these commodities are typically the major farm outputs of the Tiv and Jukun farmers of Southern and Central Taraba. The success of this action programme depends largely on peaceful agricultural production in Nigeria. Nwajiuba (2012), listed three issues to be addressed for achieving green agriculture (resource efficiency, social inclusiveness and low carbon in agriculture) among which is safe and sustainable agricultural practices, protein, the soil and few external inputs.

Problem Statement

Apart from rural-urban migration, population growth, and climate, communal crises are perhaps the next greatest threat to food security in Nigeria. The Tiv-Jukun crises of Taraba State affect about 0.2 million farmers producing approximately 10% of Nigeria's annual food crops which can hardly be ignored. Livestock produced in large quantities from these areas were never spared. Successive Nigerian constitutions from political independence in 1960 as amended to date shed light on citizenship and fundamental rights, chapter iii section 25 to 27 of the 1999 constitution stipulates the condition for citizenship of a place of birth, registration, and naturalization. While chapter iv of the constitution spells the conditions for enjoying fundamental human rights of every Nigeria irrespective of ethnicity, and place of birth but in-exhaustive of indigene-ship and ethnic considerations. For instance, political consideration of indigene-ship is on the basis of either ethnic or sub-ethnic rights in nature. Hence, by this constitutional provisions, group or ethnic groups rights supersede individual citizen rights. Hence it is apparently clear that the constitution casts the cloud over the citizenship of a place or Nigeria in favour of indigene-ship of a place through one's parents or grandparents indigenes to a community, local government and state.

Research Questions

Several pertinent questions should be considered such as;

- i. Can Nigeria achieve sustainable food security in the largely volatile agricultural producing areas given the Boko Haram war in North East, herdsmen/farmers crises, and several insurgents across the country, carrying out acts inimical to peace?
- ii. Can Nigeria achieve food security with poor agricultural activities, hunger, and despair instead of self-sufficiency and guaranteed food production and food exports?
- iii. Can Nigeria achieve food security when human lives, livestock, crops and homes being destroyed frequently in their hundreds and thousands?
- iv. Can Nigeria surmount her food security challenges in which over 15% of her farmers who earned more than US\$1.5 (N547.5) on average per day (Nwajiuba, 2019) end up in the internally displaced persons (IDPs)' camps, while others were either killed or maimed?
- v. Can Nigeria achieve food security when there is fear, apprehension and uncertainty in place of hope due to crises like the Tiv-Jukun crises?

The World Food Summit,(1996) defined 'food security' as the access by all to sufficient food for an active and healthy living. A country which has achieved sustainable, adequate food nutrition for every citizen is said to have achieved food security. Such a country is also said to be wealthy. Hence, food security is necessarily a good measure of standard of living and an indicator of Human Development Index (HDI).

Objectives of the Study

The major objective of this study is to examine the implications of the Tiv-Jukun crises on food security in Nigeria. Specific objectives of the study include the examination of the;

- i. Major causes of the communal crises in Nigeria, and in particular the Tiv-Jukun crises in Taraba State.
- ii. Strategies employed by the governments for managing and containing communal crises in Nigeria, and in particular the Tiv-Jukun crises in Taraba State.
- iii. Implications of communal crises, particularly the Tiv-Jukun crises on food security in Nigeria.

Significance of the Study

After gaining proper insight into the Tiv-Jukun crises, both the Taraba State, and Federal Government of Nigeria can cast more attention to the weakness of section 147 of the 1999 constitution widely considered to be a fundamental flaw underlying 'indigene-settler' crises in Nigeria. This evaluation of the implication of Tiv-Jukun crises on food security in Nigeria can be a 'wake-up' call to both the national orientation and national integration policymakers to stand up to the challenges of national cohesion as a panacea to communal crises in Nigeria. This paper can also rekindle the interest of the Nigerian military and police authorities to re-assess their tactical strategies for curbing militia tendencies in crisis-ridden areas of the country. The Taraba State and National Assemblies will act in resolving several communal crises fundamentally fueled by party politics if the recommendations of this research are properly implemented.

Again, this study can bring into focus the loss of lives and colossal losses of food crops and animals in several tones especially rice, cassava, yams and maize in the Tiv-Jukun habitat of Taraba State. Hence, this study can effectively draw the agricultural authorities into the struggle for ending communal crises in Nigeria.

Ending communal crises in Nigeria can enhance the realization of the dream of the Integrated Agricultural Transformation Action Plans (IATAP) and food security in Nigeria. As a contribution to knowledge, this study can be useful to different categories of stakeholders, including researchers inclined in negotiations and conflict resolutions. This study can be of great interest not only to the wholesale and retail food sellers but also to the individual consumers spread across the country.

Literature Review

Comparative Review

The Research Gap

Lack of focus on the impact of communal conflicts on food security in Nigeria provides the research gap for this study.

Table 1: Comparative review of related literature

S/No	Authors	Title	Study objectives	Methodology	Findings	Recommendations
1	Adosoji, A. D. & A. Alao	Indigene-ship and citizenship in Nigeria: Myth and Reality	Examination of indigene-ship, Myth and Citizen-ship Myth and Reality	Indigene-ship is a major factor in communal conflict in Nigeria	Constitutional reform to address indigene-settler dichotomy	Periodic reforms on National Integration Policy in Nigeria
2	Akanji, T (2019)	Understanding the issues in citizenship-indigene-ship crises in Nigeria: Lessons of Multi-Ethnic cities	Examination of how indigene-ship syndrome has created insecurity in Nigeria	Descriptive/ survey method	Section 147 of 1999 constitution , a flaw for communal volatility in Nigeria	Periodic reforms on National Integration Policy in Nigeria
3	Akintol, O. E & A. Alao (2009)	Indigene-ship and citizenship in Nigeria: Myth and Reality	To examine the indigene-settler question in Nigeria	Source of data collection explanatory and deductive analytical method		Indigene-settler syndrome has negative impact on federalism in Nigeria section 147 of 1999 constitution should be amended
4	Alozzie C. C. (2019)	Communal conflicts and challenges of National Integration in Nigeria	Examine communal crises as Interjecting National Integration in Nigeria	Exploratory and Deductive Design	Indigene-settlers syndrome as bane of National disintegration in Nigeria	Periodic reforms on National Integration Policy in Nigeria
5	Nwajiuba, C. (2012)	Nigeria's Agricultural and Food Security Challenges	Examination of Agriculture and Food Security in Nigeria	Survey/descriptive design	Challenges of agriculture and food security in Nigeria are enormous due to insecurity	Redefine agricultural and food security strategies in Nigeria

Conceptual Clarification

According to Okpoko (2012), There are divergent views of scholars on the precise meaning of conflicts as each one defines it according to the individual research,

circumstance, dimension, and space of time. Definitions of conflicts can also be a reflection on the class of interest and class struggle between warring groups, To Alozie (2019), conflicts involve competition among individuals for the control or exercise of dominion and counter activities over certain cherished values in a particular locality over a space of time.

Marxist scholars view conflicts in terms of class struggle for economic gains or supremacy between bourgeois (the rich, cohesive, and stronger groups) and the proletariats (the have nots, and weaker groups). In the 1937 popular book titled "The communist manifesto, Karl Marx posited that class conflicts have been a part of human society by nature. On the other hand, Angaye (2003) in Alozie described conflicts as the aftermath of the quest for domination over other groups by the dominant group. Alozie (2019), sees conflicts in a society or organization as an inevitable quest since achieving amicable ways of sharing wealth and opportunities are hard to come by. Usually, the dominant groups in conflicts do emerge from certain advantages over others. The term 'elite' derived from French meaning excellent as used by Pareto (1915-19), in his book titled 'The Mind and the Society' refers to the group of people who show the highest ability in their chosen field of endeavor. Whereas, Mosca in his work titled 'The Ruling Class' (1896) posited that the society or the political system comprises two groups, the rulers and the ruled. The rulers are the elites who control most of the wealth, power and prestige in the society. The ruled are the masses that are perpetually under the elite.

The elitist argument is that liberal democracy and authoritarian socialism are necessarily the manipulations of elite system. Hence, in 1935, Pareto justified this position in his piece of work, the law of elite circulation, while Mosca in 1939 argued on political class. On the other hand, Lopez (2013) cited Pareto notion of political class as elite's law of circulation to mean that elites can only be stated by other sets of elites keeping the masses perpetually under domination. In the classical elitist literature, Pareto explicitly likened the elites as lions by capacity, personality and the skills in using coercion to dominate the masses whose weakness relatively resemble those of fox. Hence the contemporary class struggle was clearly foreseen by the elite theory. The theory describes the economic elite as policy planners who possess superior power.

Theoretical Framework

Elite theory is adopted as the theoretical basis of this paper. In the elite theory, three famous sociologists; Vilfredo Pareto, Gaetano Mosca and Robert Michels in the

early 20th made separate but related sociological analysis of the term 'elite' (Akanji 2019 and Aknitola and Yabayanze 2017).

Empirical Literature

The Major Causes of Tiv-Jukun Crises in Taraba State

Political Factors: Most political literature have it that crises occur due to differences in intergroup relations which apparently seem to be inevitable as individual and group interest differ. Hence, crises are phenomena in inter-relationships. Buttressing this point, Smith, (1968) and Tilly, (1969) posited that every political process has a potential for violence due to the diverse political maneuvers or strategies for gaining individual or group power advantage. Akombo (2016.16) argued that the British Colonialists found the Jukun people more cohesive with their age long organized native authority administration and chiefdom compared to their Tiv counterparts in the Old Wukari Federation. The colonialists therefore promoted Jukun supremacy over their Tiv neighbours, and hence introduced the idea of exclusive tribal lands for the former among other preferential treatments (Akombo 2014.3). Attesting to this argument, the researcher cited cases of politically motivated crises of 1959 when a Tiv man, Charles Tanguil Gaza won the seat to the Federal House of Representatives for Wukari Constituency, the appointment of Simon Iorter Musa, another Tiv man as Wukari Local Government caretaker chairman, (1981-1983) by Abubakar Barde (Governor of defunct Gongola State), and the appointment of some Tiv people into the government of Rev. Jolly Nyame (former governor of Taraba State), supposedly leading to the 1990-1992 crises.

Social Factors: The Tiv people of Taraba State who were by all accounts late comers and whom by their social orientation continued to grow to the fear of the Jukuns. And between 1928 and 1937 the Tiv people of the state grew by approximately 2.5 times their Jukun counterparts and from 11.3% to 37.3% compared to the latter who grew from 8.6% to 10.0% in the same period (MA/PROF/FED/4/1/4377 in Akombo 2016). By 1948, the former was almost half of the Old Wukari Federation, but were socially excluded, like the exclusion from Wukari Native Authority administration), and from several opportunities (Gunn, 1947 in Akombo 2014.97, and Agaba and Akintola 2012). So, the preference for those who could trace their descendants to Wukari to enjoy social rights and privileges heightened the division between the two contenders (Adesoji and Alao 2009, Akombo 2016, and Albert 2001).

Economic Factors: To the materialists like Stuart Hall and Karl Max, the decision to gain economic advantage over others plays a central role in inter-group relations. In the Tiv-Jukun crises of Taraba State, the strive for retaining or gaining economic power over land, and other resources of the area by the Jukuns, contended by the Tiv people fuelled the hostilities between the two groups. The struggle for supremacy in political representation, social amenities and access to land, employment, education, e.t.c have been dully attributed as the major causes of the Tiv-Jukun crises in Taraba State.

Research Methodology

Descriptive or survey method was adopted for this study, using exploratory and qualitative methods of analysing the Tiv-Jukun crises, the farmers killed or displaced, animals and farm lost. In this study, gathering precise information was done through secondary data and personal interviews. According to Agu (1992) and Adefila (2008), a descriptive research method describes a situation, event or the scenario under consideration. This method is suitable for the description of the actual conflict between the Tiv and Jukun people of the eight local government areas of southern and central Taraba, and its impact on food production and supply in Nigeria.

According to Akintola and Yabayanze (2017) and Alozie (2019), the exploratory (deductive) or qualitative analytical approach is suitable for this study, based on the utilization of the analysis of data from Journals, Workshops/Conferences, Text Books and relevant unpublished research works.

Discussions and Findings

Government Strategies for Managing and Containing the Tiv-Jukun Crises in Taraba State.

Containment, Reliefs, Reconciliation, and Resettlements (CRRRs)

Containment is a mechanism for moving insecurity agents, usually the police but rarely the military for dislodging the militias in fighting or the use of peace agents to calm nerves where there were likelihood of breakdown of law and order. In every communal crises, the government usually intervene to contain it by detachments of security personnel not only to stop the fighting if any but also to maintain peace which can guarantee lives and properties, guarantying the exercise of voluntary occupations; farming, civil service, entertainment, e.t.c and free movement of labour and goods.

Relief is the act of reducing pain, anxiety, e.t.c which can give hope to people instead of despair by providing immediate necessities of life like tents, food and water, clothing, medicine, e.t.c. Reconciliation is an act of bringing opposing groups to an agreement, usually through mediation and round table discussions. This method of settling crises can be effective if the issues of disagreements are adequately addressed, and where warring parties to a dispute are pacified.

Resettlement may be a part of settling crises where land is involved. A careful analysis of land disputes or claims may favour resettlement of a part or whole group of people elsewhere. In all the Tiv-Jukun crises which involved land disputes, containment, relief, reconciliation and resettlements were applied by the governments. In some of the Tiv-Jukun crises beginning with the 1959 to the 2019/2020 disturbances, these strategies were applied and in particular the resettlement of the Tiv people of Kparev, Akwana, Ikyernum, Rafin Kada, Kente, Assa among others in the 2001/2002 and 2004 Zegeate and Atem Tyo, attacks (Akombo, 2016).

Containment, Reliefs, Reconstruction and Compensations (CRRCs)

These strategies constituted the second set of government interventions in many communal crises in Nigeria, including the Tiv-Jukun crises of Taraba State.

Reconstruction of damaged public facilities like roads, culverts schools e.t.c and private houses were usually done in order to reinstate people's confidence, hopes, and peace. On the other hand, compensation have been a mechanism for pacifying individuals who lost identifiable relative(s) personal properties like homes, cars, farms, e.t.c not only to restore asset losses, but also to reduce the chances of reprisal attacks.

Government strategies for managing and containing communal crises in Nigeria were restricted to the CRRRs and CRRCs. The inadequacy and ineffectiveness of these strategies may be seen from the frequency and number of communal crises in Nigeria, and in particular the Tiv-Jukun crises. Nigeria has witnessed the 1959 and 1964 Wukari Tiv-Jukun disturbances in which several houses, animals, farms e.t.c were lost, the 1977 Jukun youths' attacks on Tiv settlements and its inhabitants, the 1990-1992 bloody crises, the 2001 and 2002 Tiv-Jukun/Fulani fatal crises, the 2004, and the 2019/2020 bloody crises. The areas mostly touched were Wukari areas of Piye, Bantaje, Tsokundi, Nwokyo, Akwana, Assa, Kente, Rafin Kada, Chonku, Fyayi, Riti Sondi, Chediya, Ugber Jembe, Akomikyar, Abagye,

Nakombo, Gidan Idi, Takum, Kurmi, Bali, Ibi, Gassol and Donga Local Government Areas estimated hundreds of lives, thousand animals and farms were lost, with several houses burnt, and estimated losses of several millions of food crops (Akombo, 2016.155).

Findings

- i. Social, economic, and political factors were found to be the major causes of the Tiv-Jukun crises. These factors corroborate with those of several studies on communal crises in Nigeria.
- ii. Government strategies for managing and containing communal crises in Nigeria particularly the Tiv-Jukun crises were devoid of the application of proactive measures like legislative provisions, and prosecution of crises offenders.
- iii. Approximately 10% of annual food crop output losses in the Tiv-Jukun crises of Taraba State to the national output food production in the crises years were critical in the incapacitation of Nigeria's un-attainment of food security.

Conclusion and Recommendations

Social, economic, and political factors were central to the Tiv-Jukun crises in Taraba State. First, the clamor for equal rights and privileges by the Tiv people which were resisted by their better rooted Jukun people led to the several shows of force in the crises years.

Secondly, the struggle for retaining the control of economic resources like land by the Jukun people, and with the clamour for equal access to such resources continued to climax into violent clashes. Again, the quest for championing representations for each of the warring groups usually resulted in the elitist hijack of the process of dichotomizing the settler-indigene arguments. It was the difficulty in managing and containing this dichotomy that has continued to undermine the peace and tranquility of the people. It was the failure of government to provide the legislative framework and to apply sanctions for crises offences that has not encouraged national cohesion, and integration. And this has also made it impossible for Nigeria to achieve food security due to, incessant communal crises inimical to peaceful agriculture.

Recommendations

- i. Constitutional review to adequately address the settler-indigene dichotomy which has continued to fan the ember of communal crises in Nigeria.
- ii. Reinvigorating national orientation and integration policies has become imperative.
- iii. Aggressive national food programmes have also become imperative so as to achieve food security for the country.

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8
Chapter

Accessibility of Cassava Farmers to Radio Agricultural Information in Nigeria

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Abstract

Radio information is central to boosting cassava production in Nigeria. Past studies reveal that radio stations disseminate agricultural information to farmers in Nigeria. Despite the availability of information, there is still low productivity of cassava farmers resulting in their inability to meet local demand and export. However, this study investigated accessibility of cassava farmers to radio agricultural information in Southwest, Nigeria. The study adopted survey research design; while questionnaire was used as the instrument of data collection. The population of the study comprised cassava farmers in Ogun, Osun and Oyo States, Nigeria. Findings revealed that cassava farmers had access to radio and also to radio agricultural information. Findings showed that cassava farmers listened to radio agricultural programmes often. Findings further showed that radio stations disseminate agricultural information to cassava farmers on the average of twice a week ($\bar{x}=2.72$). Findings revealed that accessibility of cassava farmers to radio had a significant influence on their productivity. The study revealed that cassava farmers experienced challenges in accessing agricultural information due to the fact that agricultural information on radio is not relevant to their information needs. Also, agricultural information on radio is transmitted at odd hours when farmers who desire such information have gone to their farms. The study recommended that radio stations should transmit timely and relevant agricultural information to cassava farmers. Radio stations should increase transmission times of radio agricultural programmes

Keywords: *Cassava farmers, Radio agricultural information, Information dissemination, Productivity, Accessibility.*

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Introduction

Information has become one of the most important factors of production, and there is no doubt that this trend will continue (Olaniyi and Adewale, 2014). In this present information age, it is knowledge acquisition and application that will drive development and create opportunities for economic growth and poverty reduction. Having timely and relevant agricultural information especially on cassava production is germane to efficient and productive agricultural economy. Cassava (*Manihot esculenta*) is a major food crop in Nigeria. It is also a major staple food in Nigeria. It has contributed to the socio-economic development and well being of Nigeria both as a subsistence crop for households and as a commodity for domestic/commercial /transactions (Kalu, 2006). Information and knowledge are key components of an improved agricultural sector (Lwoga & Stilwell, 2011). Farmers require information in order to progress in their agricultural activities. Thus, there is a direct relationship between availability of information and agricultural development (Babu, Glendenning, Asenso-Okyere and Govindarajan, 2011). To improve the economy, information needs of cassava farmers have to be met. Cassava farmers need to have access to quality information for their productivity potentials to be realized. Therefore, information is an important resource for all agricultural activities. It is only when farmers are informed, that they will be able to feed any nation. In this regard, radio is important in agricultural information dissemination to farmers. Against this background is the need to investigate the accessibility of cassava farmers in Southwest, Nigeria to radio agricultural information.

Objectives of the Study

The specific objectives of this study were :

1. Investigated the level of accessibility of cassava farmers in Southwest, Nigeria to radio
2. Identified types of radio agricultural programmes cassava farmers in Southwest, Nigeria listen to.

Research Questions

The following research questions were designed to guide the study:

1. What is the level of accessibility of cassava farmers in Southwest, Nigeria to radio?
2. What are the types of radio agricultural programmes cassava farmers in Southwest, Nigeria listen to?

Review of Related Literature

Agricultural Information Dissemination

In Nigeria and all over the world, information is seen as important to human existence. For anything and everything, information is required. Information is a valuable resource needed in any society thus acquiring and using it are critical and important activities. Information can reduce uncertainty, and enhance awareness of possible actions to take to solve any type of problem. It can be argued that lack of information can be a hindrance to development. Popoola (2007) also lends his academic voice to the importance of information by stating that information is a critical economic resource, and that when utilized, it can increase the knowledge state of an individual in decision making. Issa (1997) believes that no individual can do without information. He argues further that information should be widely disseminated regardless of whether the person is an urban or rural dweller. From the standpoints of Popoola and Issa, it is clear that information is the oil that lubricates the wheel of progress of individuals, and corporate organisations as well.

Generally, agriculture is an information intensive industry. Agricultural activities in Nigeria are known to be sources of livelihood to many people, especially in the rural areas, and accessibility to knowledge and information services can hardly be denied as important in transforming the sector. Nenna (2016) asserted that agriculture depends largely upon the continuous flow of information from local, regional and world market. Farmers require relevant information in order to plan for their activities. Williams and Trywell quoting Adomi et al, (2010) recognised that, farmers need to have access to quality agricultural information in order to improve their production. Therefore, information is very important resource for all agricultural activities. Agricultural information provision and dissemination is a must for every responsible government because it is only when farmers are informed, that they will be able to produce enough to feed the nation, Nigeria.

Farmers, no doubt, constitute a particular group of people whose information need is very specific. In agricultural environment, relevant and timely information helps farmers' community to take right decision to sustain growth of agricultural activities. Timely access to radio market information helps farmers make correct decisions about what crops to plant and where to sell their products and also buy inputs. Without doubt, cassava farmers would feel discouraged to do large scale cassava farming if they discover that marketing their products could become

problematic. Njoku (2016) avers that the major missing link between research and sustainable food production is lack of effective information system. Marocchino cited in Oyeyinka, Bello and Ayinde (2014) argues that among the factors that tend to limit the contribution of the agriculture sector to economic growth and poverty reduction is poor network of agricultural information services. In addition, weak linkage among actors in the agricultural sector tends to be one of the limiting factors to the accessibility and usage of agricultural knowledge and information among farmers in most rural areas in Nigeria. Unarguably, farmers need to be informed appropriately and timely too, about happenings in the agricultural world. No doubt, Nigerian farmers would enhance their agricultural production if they could access the type of agricultural information they need on radio. Among other things, Nigerian farmers need information, especially on climate. This is supported by the submission of Churi, Mlozi, Tumbo and Casmir (2012) that crop production risk caused by climate variability cannot be managed in the absence of climate information. In their study on 'Managing Climate Risks in Rural Semi-Arid areas in Tanzania, Churi *et al.*, found that climate information was important factor for making farmers decisions. According to Oyesola and Obabire (2011), farmers need regular information and enlightenment on various organic methods of weed, pest and disease control.

Several challenges facing farmers in accessing agricultural information have been identified. For instance, Aina (2004) revealed that the factors affecting the flow of agricultural information to farmers in Africa include the limited number of radios and television sets, the low literacy level of farmers, and the inadequate number of personnel trained in agricultural information.

Theoretical Framework

The study anchored on uses and gratifications theory. That people use the media, is central to the uses and gratifications theory. The audience use the media to get what they need in terms of knowledge, education, enlightenment and information. Contextually, cassava farmers use the radio; they listen to agricultural programmes on radio, for instance, they listen to news, discussion programmes, radio drama, public announcements and jingles, that give information on their agricultural activities. And because cassava farmers are not just passive receivers of the messages, they are able to selectively choose, attend to, perceive and retain the messages on the basis of their needs. Since cassava farmers use the radio to get their information needs, then the uses and gratifications theory becomes relevant to this study.

Empirical Review

Scholars and researchers have conducted various investigations to assess radio and agricultural information dissemination among cassava farmers in Nigeria. Such researches have attempted to x-ray relevant concepts and proffered possible solutions to poor performance of the agricultural sector. Murumba & Mogambi (2017) carried out a study on 'Radio for Farming? An analysis of Regional Radio Programs and Agricultural Productivity in Kenya. The study sought to find out whether the people of Kimilili sub-county use West FM as a source of information and to assess the impact of West FM's farming programs on agricultural productivity in Kimilili sub-county. The study found that due to access to information from West FM station, farmers have managed to improve their yields over time. It was discovered that farmers learnt a lot of new farming ideas that enabled them venture into different farming methods. These methods include: mixed farming, crop rotation, livestock keeping, and fertilizers to use and also how to market and distribute their products.

Similarly, Oyeyinka, Bello & Ayinde (2014) in their study published in European Journal of Business and Management with the title 'Farmers Utilization of Farm-Radio Programmes for Marketing of Agricultural commodities examine the use of radio for marketing of agricultural products in Oyo State, Nigeria. They discovered that majority of the farmers (84.0%) used the radio agricultural programme as their agricultural market information source. The study concluded that apart from radio, the most widely use source of market information by farmers are extension agents and verbal contact with fellow farmers.

Methodology

The study adopted survey research design. The population of the study comprised cassava farmers selected from Ogun, Osun and Oyo states in South West, Nigeria totalling 6,353 from which a sample of 593 cassava farmers who participated in the study were determined, using the Taro Yamane formular. Multi-stage sampling technique was used. . Firstly, 3 states (50%) out of 6 in South West, Nigeria were selected using simple random technique. This led to the selection of Ogun, Osun and Oyo States. Fifty percent of local governments were selected in each state in order to adequately represent the cassava farmers in each state. This process led to the selection of 10 local governments in Ogun State, 15 in Osun State and 17 local governments in Oyo State.

The next sampling technique was proportional sampling technique which ensured that participants were represented relative to the size of their population in each of the selected sub-unit. Consequently, cassava farmers were selected proportionally by states and by local governments. Cassava farmers in Ogun State constituted 63.43% of the total number of cassava famers in the three selected states (3,765). Osun State constituted 26%, while Oyo State constituted 10.57%. Therefore, out of a sample of 593, Ogun State had 376 participants (63.43%); Osun State had 154 participants (26%); while Oyo State had 63 participants (10.57%). The study adopted structured questionnaire to gather data from the respondents. Five hundred and ninety-three (593) copies of the questionnaire were administered; 97.5 percent return rate was recorded with retrieval and validation of five hundred and seventy-eight (578) copies of the questionnaire.

Data Presentation and Analysis

Research Question One: How accessible is radio to cassava farmers in South West, Nigeria?

Fig. 1: Cassava farmers with Access to Radio

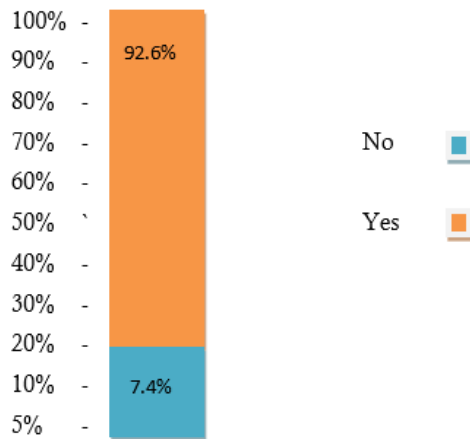


Fig. 1 indicates that majority of the participants had access to radio while only 7.4 percent did not have access to radio.

Fig. 2: Radio Stations Cassava Farmers Listened to

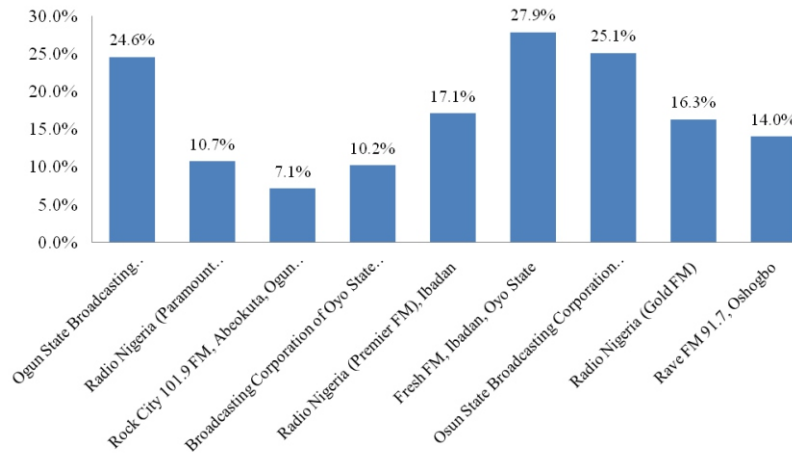


Fig. 2 illustrates that majority of the participants listened to Fresh FM, Ibadan Oyo State (27.9%), followed by those who listened to Osun State Broadcasting Corporation (OSBC) (25.1%); while fewer respondents listened to Broadcasting Corporation of Oyo State (BCOS), Ibadan (10.2%) and Rock City 101.9 FM, Abeokuta Ogun.

Table 1: How Often Cassava Farmers Listen to Radio

<i>Variable</i>	Frequency	Percent
Not at all	27	4.7
Not often	162	28.0
Often	188	32.5
Very often	201	34.8
Total	578	100.0
Mean (\bar{x})		2.97
SD		0.90

KEY: ***Decision rule if mean is ≤ 1.49 = Not at all; 1.5 to 2.49 = Not Often; 2.5 to 3.49 = Often; 3.5 to 4 = Very Often

Table 1 indicates that respondents listened to radio often ($\bar{x} = 2.97$). This implies that cassava farmers in South West, Nigeria listened often to radio.

Fig. 3: Radio Programmes Cassava Farmers Listened to

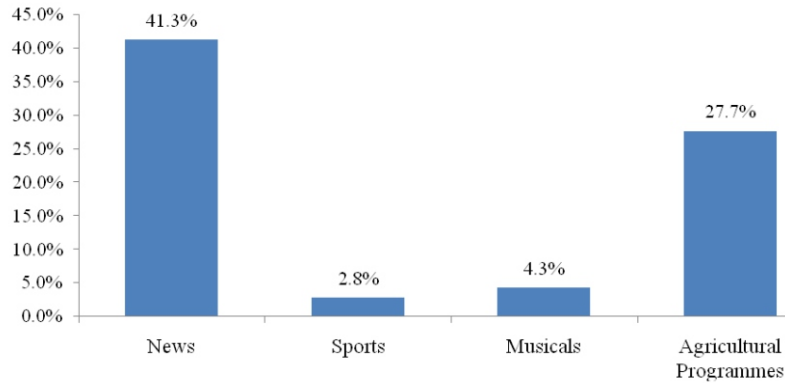


Fig. 3 depicts that cassava farmers listened more to news (41.3%) than agricultural programmes (27.7%). On the other hand, cassava farmers listened sparingly to musical and sports programmes on radio. This suggests that news broadcast on radio is listened to more than other programmes including agricultural programmes.

Fig. 4: Means by which Cassava Farmers Accessed Radio

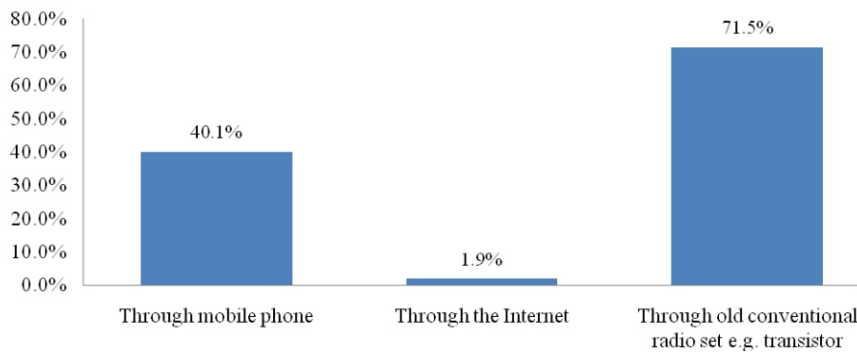


Fig. 4. shows that majority (71.5%) of cassava farmers accessed radio through the conventional transistor radio platform radio. In addition, 40.1 percent of cassava farmers accessed radio through mobile phones; while 1.9 percent accessed it through the Internet (1.9%). This suggests that the old transistor radio is popularly used by cassava farmers in South West, Nigeria.

Research Question 2: What are the types of radio agricultural programmes cassava farmers listen to?

Fig. 5: Cassava Farmers' Awareness of Agricultural Programmes on Radio

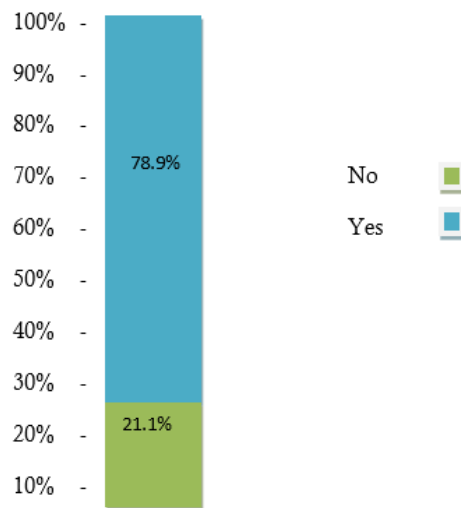


Fig. 5 indicates that majority of cassava farmers' were aware of agricultural programmes on radio.

Fig. 6: Types of Agricultural Programmes Cassava Farmers Listen to on Radio

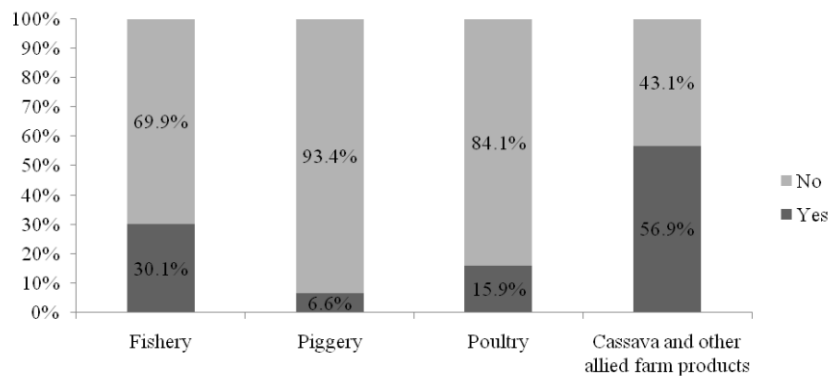


Fig. 6 shows that that majority of cassava farmers listened to cassava and other allied farm products radio programmes (56.9%), followed by fishery radio programmes (30.1%), poultry (15.9%) and piggery (6.6%).

Table 2: How often Cassava Farmers Listen to Radio Agricultural Programmes

<i>Variable</i>	Frequency	Percent
Not at all	102	17.6
Not often	100	17.3
Often (weekly)	261	45.2
Very often (daily)	115	19.9
Total	578	100.0
Mean (\bar{x})		2.67
SD		0.99

KEY: ***Decision rule if mean is ≤ 1.49 = Not at all; 1.5 to 2.49 = Not Often; 2.5 to 3.49 = Often (Weekly); 3.5 to 4 = Very Often (Daily)

Table 2 shows that participants listened to radio agricultural programmes often (\bar{x} = 2.67). This implies that cassava farmers in South West, Nigeria listened to agricultural programmes on radio often.

Table 3: How Often Radio Stations Disseminate Agricultural Information

<i>Variable</i>	Frequency	Percent
Not at all	113	19.6
Once a week	233	40.3
Twice a week	24	4.2
Thrice a week	120	20.8
Everyday	88	15.2
Total	578	100.0
Mean (\bar{x})		2.72
SD		1.39

KEY: ***Decision rule if mean is ≤ 1.49 = Not at all; 1.5 to 2.49 = Once a week; 2.5 to 3.49 = Twice a week; 3.5 to 4.49 = Thrice a week; 4.5 to 5 = Everyday

Table 3 shows that radio stations disseminated agricultural information to cassava farmers on the average twice a week (\bar{x} = 2.72). This suggests that cassava farmers in South West, Nigeria were not disseminated with radio agricultural information everyday.

Fig. 7: Challenges of Accessing Radio Agricultural Information by Cassava Farmers

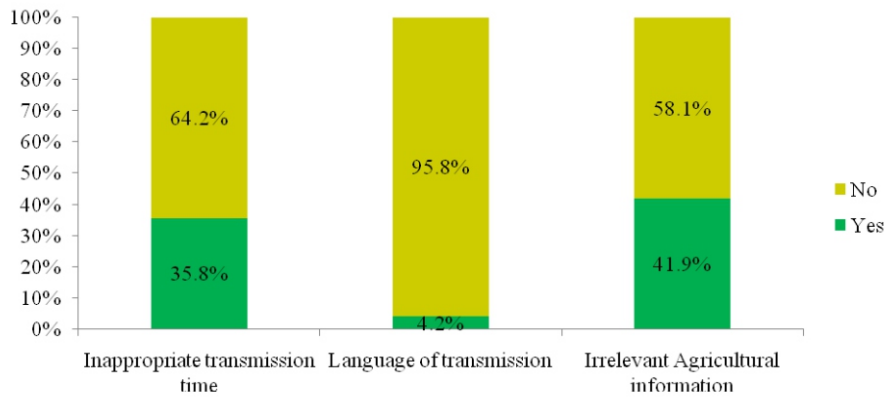


Fig. 7 shows that the most prominent challenge working against the acquisition of agricultural information by cassava farmers in South West, Nigeria was dissemination of irrelevant agricultural information (41.9%); this is followed by inappropriate transmission time (35.8%); while language of transmission constituted the least challenge.

Discussion of Findings

Research Question 1: What is the level of accessibility of cassava farmers in South West, Nigeria to radio?

As revealed by the findings of this study, majority of cassava farmers had access to radio while only 7.4 per cent of the farmers did not have access to radio. Majority (71.5%) of cassava farmers accessed radio through the conventional transistor radio platform as indicated in Fig. 4. Findings also revealed that cassava farmers listened often to radio for agricultural information. These findings agree with the findings of Haider (2014) that 94% of the farmers listen to radio in Pakistan. The findings also agree with the findings of Familusi & Owoeye (2014) that radio is the most important instrument in information dissemination because it reaches larger percentage of the people (farmers). In their study conducted to assess use of Information and Communication Technologies among farmers in Benue State, Nigeria, Mbah, Agada and Ezeano (2016) reported that 98.8% of the respondents (farmers) were using radio. Going by the findings of Mbah, Agada and Ezeano in Benue state and the percentage of farmers using radio in the study states, it can be said that almost all the farmers had access to radio. Findings of this study also

agree with those of other authors (Ajayi, 2003; Anigwe, 1990) who earlier reported radio as leading source of agricultural information to women farmers in their study areas. In an earlier study conducted in South West, Nigeria, Patel and Ekpere (1978) reported that 83 percent of the farmers listened to radio farm-programmes. Findings of Patel and Ekpere agree with the findings of Mbah, Agada and Ezeano who reported that 98.8% of respondents (farmers) in the study area were using radio. Findings of this study also confirms findings of Oyeyinka, Bello & Ayinde (2014) who also reported that majority of farmers, 84% in Oyo State, had access to radio, and also used the radio agricultural programme as their agricultural market information source. Findings of this study also resonate with the findings of Oyetoro, Adewumi & Sotola (2017) whose findings revealed that radio was the most accessible mass media channel by cassava processors in Saki agricultural Zone of Oyo State, Nigeria. Nenna (2016) also reported that mobile phones, radio and television ranked the most sources of awareness and utilized ICTs in receiving agricultural information related to cassava production in Anambra State, Nigeria. These findings by previous researchers point to the fact that cassava farmers generally had access to radio. As earlier stated in this discussion, cassava farmers having access to radio might not be enough, using agricultural information disseminated to them for productivity is much more important. Findings of this study therefore confirm findings of previous authors that cassava farmers in South West, Nigeria had access to radio.

The findings of this study is also in consonance with the findings of Tijani (2017) that radio is the most readily available ICT device (99.2%) to farmers in Imo State, Nigeria.

Research Question 2: What are the types of radio agricultural programmes cassava farmers listen to?

As indicated in Fig.6, majority of cassava farmers in Southwest, Nigeria were aware of agricultural programmes on radio. Result of the analysis showed that majority of the cassava farmers listened to cassava and other allied farm products radio programmes (56.9%, followed by fishery radio programmes (30.1%), poultry (15.9%) and piggery (6.6%). Findings of this study corroborate the findings of Omoregbee and Banmeke (2007) that there was high awareness among respondents about agronomic practices and low awareness about agro-chemical associated with cassava production in Delta state. In a sense, the findings showed that cassava farmers listened to radio programmes. When cassava farmers are aware of radio agricultural programmes and make an effort to listen to such

programme, there is tendency for such cassava farmers to use the agricultural information to increase productivity especially where such information is relevant to their agricultural information needs. For instance, findings from the study conducted by kembero (2014) established that farmers in Bomachoge constituency adopted the information disseminated through radio which was found to be highly relevant to their needs. This also corroborates Haider's (2014) study which revealed that farmers in Pakistan listen to radio agricultural programmes which help them to adopt innovations and apply new methods and practices in their farms. Findings of this study showed that part of the reasons cassava farmers in Southwest, Nigeria did not use radio agricultural information disseminated to them is because such information do not satisfy their agricultural information needs. When agricultural information needs of cassava farmers are not satisfied there is tendency they would listen to other agricultural programmes that may not be beneficial to them. This perhaps explains why cassava farmers listen to fishery, poultry and piggery radio programmes as revealed by the findings of this study even though they do not satisfy their agricultural information needs. Radio stations should remember that one of the reasons for agricultural information is to ensure national food security. Therefore, radio stations should try as much as possible to make sure that agricultural information, especially through discussion programmes, that they disseminate satisfy agricultural information needs of cassava farmers.

Conclusion and Recommendations

The study concluded that cassava farmers in Southwest, Nigeria had access to radio and, also to radio agricultural information. Findings also revealed that cassava farmers were aware of agricultural programmes on radio. The study showed that cassava farmers listened to cassava and other allied farm products radio programmes, followed by fishery, poultry and piggery radio programmes. The study revealed that cassava farmers experienced some challenges in accessing radio agricultural information; they include: dissemination of irrelevant agricultural information; inappropriate transmission time, and language of transmission.

It is, therefore, recommended that Government should ensure that cassava farmers have access to relevant radio agricultural information at all times. Similarly, radio stations should not deny cassava farmers' access to agricultural information; they should constantly identify agricultural information needs of cassava farmers and

try as much as possible to satisfy such information needs. Also, radio stations should disseminate timely and relevant agricultural information to cassava farmers. Further, radio stations should disseminate agricultural information to cassava farmers in the language they understand.

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9
Chapter

Analysis for Performance Management and Information Communication Technology (ICT) in Enhancing Effective Managerial Planning in an Organization

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Abstract

The study discussed analysis for performance management and Information Communication Technology (ICT) in enhancing effective managerial planning in an organization through the application of ICT that could provide effective transformation in both human and technological powers. ICT today has greatly advanced many organizations in terms of effective production of goods and services in relation to skills acquisition, motivation, rapid production and other necessary aspects in the organization. However, the study explores issues like research purpose, aims and objectives which shows the effectiveness and efficiency of performance management utilized in an organization through the use of ICT. Similarly, the study also discussed crucial understanding by explaining the general and the more specific term, such as organization in the 21st century and the role of ICT in the 21st century. The study, therefore, identified a direct need to understand and make consultations on other people work in the literature review. It stated that performance management, behavioural expectation and result expectation as the major avenue to improving managerial responsibility which could be only achieved through the applicant of ICT. The study further mentioned and explained the paradigm of ICT revolution in the 21st century, it revealed that Information Communication Technology is

one of the vital tools that could manufacture current manpower in an organization. Additionally, the research methodology was purely conceptual, methods used for data collection was secondary such as; books, journals, magazines, interments and other valid second-hand information. The study finally established recommendations as strategies for enhancing future organization through ICT revolution.

Introduction

Performance management appraisal is one of the fundamental tools in providing everlasting solutions to any organization in relation to skills acquisition, motivation and other necessary aspects in the organization. This paper discusses issues like the aims and objectives of the study which the researcher made crucial by explaining the general and the more specific terms in the study. The literature review stated that performances management, behavioural expectation and result expectation the major avenue to improving managerial responsibility. This paper further mentioned and explained the paradigm of inquiry, where the researcher introduced competency model as an instrument in explanation the topic. similarly, research methodology was also employed where qualitative, that is, non-numerical methods in collection of information was introduced. Increasingly, data collection methods were also picked to explain both primary and secondary data. Data analysis and ethical issues were also explained.

Statement of the Research Problems

Performance management appraisal is one of the fundamental development in understanding and explaining employee development. It is used in quantifying performance management. Recent survey by “Watson Wyatt” showed that only three out of ten workers agree that their company performance improving performance management. Similarly, managers are reluctant to provide vital and candid feedback and have honest discussion with employees with fear of reprisal or damaging relationships with employees. The focus of the study is French with 55 total numbers of employees, India with 123 total number of employees and Brazil with 35 total numbers of employees. Performances management is one of the fundamental mechanisms that will promote effective and efficient workplace and an enabling environment for proper sales in Brazil, French and India.

The fundamental problems of ICT in Nigeria resulted from the basic root of poor technology which affected several organizations that led to slow information and weak organizational planning. However, planning is one of the management

techniques that managers could introduce to promote effective management of their organizations, yet due to manual managerial planning among organization, it has contributed series of decay in our organization. The problems of Information and Communication Technology could be integrated without the contribution of the government and other stakeholders.

Figure 1 summarizes problems of ICT in an organization

Fig. 1.



Sources: Reviewed 2021

Figure 1 shows that lack of knowledge, poor managerial activities carried out in the organization, pace of change and findings are associated with problems facing a number of organizations in Nigeria.

Review of the Relevant Literature

Concepts of Information and Communication Technology (ICT)

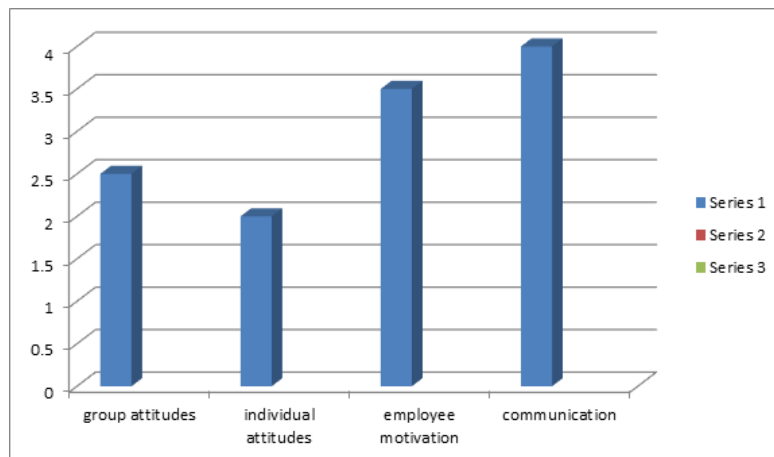
ICT is technology that supports activities involving information. Such activities include gathering, processing, storing and presenting data. Increasingly these activities also involve collaboration and communication. Today, we are in the 21st century era of digital information and the only way to promote any organization is through digital planning policy.

Possible Outcomes from Effective ICT and Management Planning

- a. Classification of jobs responsibilities and expectations which shall promote adequate managerial planning in many organization

- b. Enhancing individual group expectations so that individual member can be able to know its role and responsibility
- c. Developing employees capability to their fullest extent through effective feedback and coaching, that has a great positive impact on the organization
- d. Driving behavior to align with the organizational core values, goals and strategy
- e. Providing the basis for making appropriate human capital decision
- f. Improving communication between employees and managers

Fig. 2



Source: Reviewed 2021 paper work

The study revealed that group attitudes influence organizational performance in an organization and it directly promotes organizational stability. Eventually, individual attitudes also has direct correlations with productivity and promote organization performances. However, employee motivation has the greater effectiveness which carries the second rate in the line of organization and finally, communication has the highest rate in performance evaluation.

Specific Objectives of this Research Work

- 1. To understand the concepts of management
- 2. To explain the advantage of performance management
- 3. To examine the contribution of managers towards improving performance management

4. To explain the attitudes of workers toward their organization

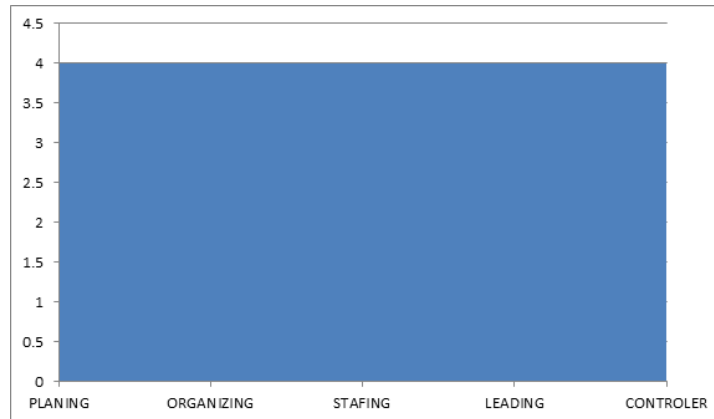
Concept of Management and how it could be Effective in Interpreting ICT Tools

Management is one of the fundamental disciplines that have provided for years effective and efficient control and management of the organization. No society, no organization, no industry and no firm that could develop without proper management, management for years serve as the heart of the organization and therefore indicate as a pillar of company survival. Management has the following five fundamental pillars of survival in any firm;

1. Planning
2. Organizing
3. Staffing
4. Leading
5. Controlling (Fayot,)
 - i. Planning meaning what needs to be done in the future (in advance)
 - ii. Organizing to adequately ensure the combination of human and non-human resources are in consideration
 - iii. Commanding or leading is another vital concept in management. What must be done and getting people to do it
 - iv. Coordinating is creating basic structure that an organization could achieve its fundamental goals and accomplish its objectives
 - v. Controlling is carefully checking the progress in view of the plans that has been established.

From the above conceptual framework of management, it is fundamental to ensure that proper and effective managerial techniques adequately enhances the effective utilization of ICT in any organization. However, it is a failure if any organization irrespective of whatsoever, need to build up the five pillars of management for survival. All of these are fundamental examples given below in table format.

Fig. 3: Fives Pillars of Achieving ICT in and Organization



Sources: Empirical Review 2021

Performance Planning

Performance management cycle is a tool in understanding the effectiveness and efficiency of any organization, therefore, employee's performances are expected which includes both behavioural and value expected.

Behavioural Expectation

The critical understanding of performance management systems and behavioural expectations also discusses employees as the key compliant area. During the performance planning process, these behavioural standards with employees are significant for a manager to make very critical look in order to make sure that employees understanding on behavioural standards relates to their specific jobs. Unlike Managers have to employ critical methodological ideas in dealing with the organization. French with high rate of industrialization, India with high rate of population will therefore compete in terms of technological ideas and populational ideas (Gelland and London, 1998).

Guidelines for Establishing Effective Performance Goals

1. Goals must be clearly defined and the end result must be accomplished
2. Possible goals should have a direct and obvious link to organizational success
3. Goals should be defined and achievable to motivate performances

Guidelines for Providing Feedback Effectively in Performance Management

1. Provide immediate positive and developmental feedback in a private location
2. Ask for employees' views about what could have been done differently
3. Be specific about what behaviours were effective and ineffective
4. Focus on what the person did or did not do and not on personal characteristic
5. Offer help in addressing developmental needs and providing resources

Advantages of ICT and Management

1. It enables the organization to enhance fundamental performance factors and expectations
2. It shows the distinction between effectiveness level that helps supervisors to explain why and how employees were evaluated in a particular way.
3. It provides job relevance basis for evaluating employees increasing fairness

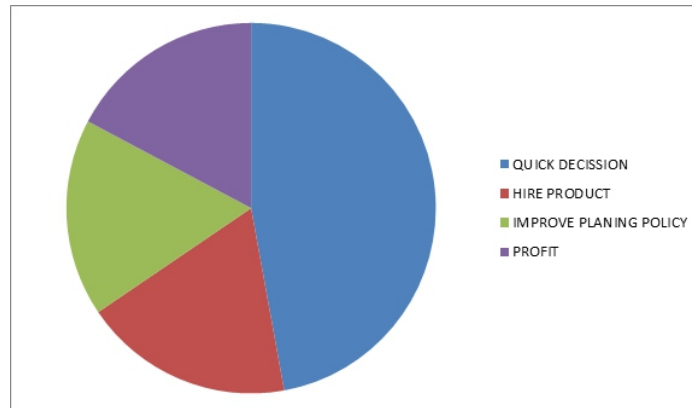
Components of (ICT) as a tool for Improving Performance Management

These people are the system users. They may include information consultants, business analysts, managers. ICT helps to connect and relate all departments like marketing, sales, inventory accounting and other departments in an organization. Everyone within an organization can access one and the same system and share the same information.

Procedures and Instructions

These include the ICT procedures for collecting, storing, retrieving and processing data. These can both be manual and automated and can also come from internal and external sources. The ICT software will be coded with the procedures and instructions and the employee will also have to be able to store information, it must have a database structure such as the Structured Query Language or SQL. This is commonly used for database.

Fig. 4: How to Effectively Implement ICT in the Process of Performance Management



Source: Review, 2021

The above table shows the effectiveness of ICT in an organization, it improves the quality of decision making in an organization because decision making is one of the tools that promote the quality and quantity of any organization whether big or small. Integrating ICT in the decision-making process is one of the managerial responsibilities. Additionally, ICT and managerial planning will increase the rate of hire purchase and this can be done if the organization inject ICT revolution in the organization. The planning process has for years served as building blocks that enhances the capability and improve the standard of the organization. For example, no organization can directly achieve its fundamental aims and objectives without proper managerial planning in the area of policy and programs that hold any organization, digital methods need to be imposed to indicate the level of compliance and adequacy in regards to effective organization.

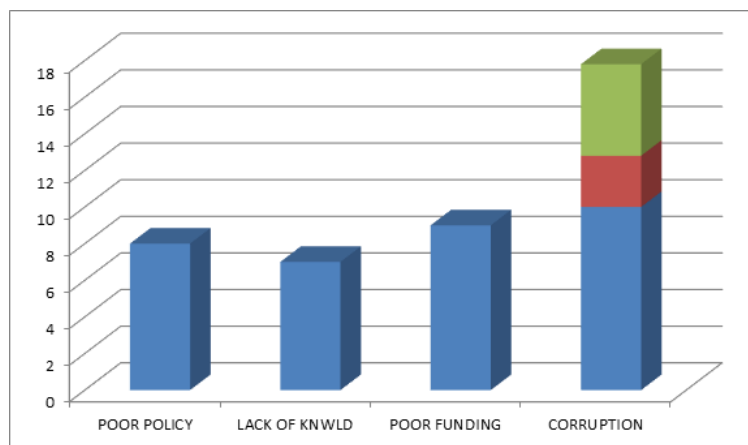
Paradigm of Enquiry

Competency model is one of the unique grounded theories in understanding and explanation of performance management process. Looking at the compositions of the following countries French, India, and Brazil, it is significance to understand the quality, team work, professionalism, accountability, job specification, knowledge and skills. Virtually, with the application of all of these, the sale division of these countries will be achieved. However, competency model or theory is one of the unique models established to promote the quality of decision

making within the organization. The standard of ICT and competency are interrelated and interdependent in the sense that no one can exist in isolation. The study justifies that the fundamental aspect is to make competency and innovation through ICT revolution.

Findings, Summary and Recommendations

Fig. 5



Source: Review, 2021

The table shows corruption is one of the vital myths that have killed the establishment of proper implementation of ICT in many public organizations in the country. Corruption has damaged a series of developments in our organization today. The study revealed that corruption has a negative impact on organizational patterns on the decision-making process. Increasingly, lack of knowledge contributed severely in promoting poor integration of ICT in an organization. At the same time, government should as a matter of fact introduce internal and domestic training for workers in all organizations so that they could compete with global standards. Government should ensure that policies are made to implement not to be used as eye-watching. Similarly, based on these findings, it is vital for the government to ensure that adequate concern is given to organizations so that Nigerian organizations can challenge and also enter into global organizations, this can only be achieved through adequate implementation and integrating ICT in all formal and informal organizations in the country.

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