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Evaluation of the Effectiveness of Accounting Information System of Selected Public Organizations in Anambra State

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Abstract: *Accounting Information System (AIS) indicates an integrated framework within an organization that employs physical resources to transform economic data into financial information for conducting the firm's operations and activities, and providing information concerning the entity to a variety of interested users. The effectiveness of AIS can be determined by the role of the human element in generation, storage, retrieval and deletion of information. The study employed descriptive survey to determine the effectiveness of AIS in selected public organizations in Anambra State. Three public organizations were purposively selected from three sectors, namely education, finance and core civil service for the study. A sample of 205 staff was selected for the study. The sample was purposively selected from the following departments: Administration, Revenue/Finance/Bursary and Establishment. A questionnaire titled Accounting Information System Effectiveness Survey (AISES) was developed by researcher, validated by specialists, and used for the collection of relevant data. Data obtained were analysed with descriptive statistics on SPSS version 23. The study found that apart from information retrieval, these organizations were found lacking in information generation, storage and deletion. The study therefore recommended, among others, appropriate checks and balances to be put in place by organizational management to ensure that accounting information system works in their organizations.*

Keywords: *Accounting Information System, Effectiveness, Generation, Storage, Retrieval, Deletion.*

INTRODUCTION

Information is a business resource. Like the other business resources of raw materials, capital, and labour, information is vital to the survival of the contemporary business organization. Information is often defined, rather inadequately as processed data. This is because information is determined by the effect it has on the user, not by its physical form (Hall, 2011). One person's information could be another person's data (that is unprocessed pieces of facts that have no effect on the receiver). Thus, information is not just a set of processed facts arranged in a formal report. Information allows users to take action to resolve conflicts, reduce uncertainty, and make decisions. It is a valuable data processing that provides a basis for making decisions, taking action and fulfilling legal obligation (Sori, 2009).

The value of information to a user is determined by its reliability. This is because the purpose of information is to lead the user to a desired action. For this to happen, information must possess certain attributes – relevance, accuracy, completeness, summarization, and timeliness (Al Azmi, Al-Lozi, Al-Zu'bi, Dahiyat, & Masa'deh, 2012). When these attributes are consistently present, information has reliability and provides value to the user. Unreliable information has no value. At best, it is a waste of resources; at worst, it can lead to dysfunctional decisions.

Over time, accounting information system has evolved to provide accurate, fast and reliable information for the various users of accounting information for effective decision making.

Accounting information system is meant to enable organizations to conduct their operations and activities, and provide information concerning the entity to a variety of interested users. For AIS to be effective, due care should be exercised at the various levels of tasks, namely, information generation, storage, retrieval and deletion. An error at any level can undermine the effectiveness of the AIS. Thus, the effectiveness of any AIS will be determined by the manner in which information are generated, stored, retrieved and deleted. The problem however, is that given the human input, there could be certain errors of judgement that could undermine the effectiveness of the AIS in selected public organizations in Anambra State. Thus, the effectiveness of AIS could be evaluated at its different phases of information generation, storage, retrieval and deletion.

Objectives of the Study

The main objective of the study was to evaluate the effectiveness of Accounting Information System (AIS) in selected public organizations in Anambra State. Specifically, the study sought to:

1. Evaluate the effectiveness of information generation in selected public organizations in Anambra State.
2. Evaluate the effectiveness of information storage in selected public organizations in Anambra State.
3. Evaluate the effectiveness of information retrieval in selected public organizations in Anambra State.
4. Evaluate the effectiveness of information deletion in selected public organizations in Anambra State.

Research Questions

The following research questions were posed to guide the study:

1. How effective is information generation in selected public organizations in Anambra State?
2. How effective is information storage in selected public organizations in Anambra State?
3. How effective is information retrieval in selected public organizations in Anambra State?
4. How effective is information deletion in selected public organizations in Anambra State?

Research Hypotheses

The following research hypotheses were formulated to guide the study

Ho1: There is no effective information generation in selected public organizations in Anambra State.

Ho2: There is no effective information storage in selected public organizations in Anambra State.

Ho3: There is effective information retrieval in selected public organizations in Anambra State.

Ho4: There is no effective information deletion in selected public organizations in Anambra State.

LITERATURE REVIEW

The word "Accounting" is an art, a method, a measurement methodology of communication system and an information system designed to produce selected quantitative data in monetary terms about an entity engaged in economic activity. In this explanation, accounting is a part of information system of an economic entity. Accounting Information is information which describes an account for a utility. It processes financial transactions to provide external reporting to outside parties such as to stockholders, investors, creditors, and government agencies etc. And non-accounting information is information which cannot be measured in monetary terms to make investment decisions by the investors (Amahalu, Abiahu, Obi and Nweze, 2018). This type of investment is called as ethical investment. Financial information is essential in making sound investment decisions and it will reduce the informational asymmetry problem between the firm's managers and the investors (Hossain, Khan, Yasmin, 2004; Amahalu, Nweze, and Obi, 2017). For financial reporting to be effective, accounting information must be relevant, complete and reliable. The primary purpose of the financial statements is to provide information about a company in order to make better decisions for users particularly the investors (Germon and Meek 2001). It should also increase the knowledge of the users and give a decision maker the capacity to predict future actions. Therefore, relevance accounting information can be described as an essential pre requisite for stock market growth (Oyerinde, 2009).

Every business day, vast quantities of information flow to decision makers and other users to meet a variety of internal needs. In addition, information flows out from the organization to external users, such as customers, suppliers, and stakeholders who have an interest in the firm. Every individual in the organization, from business operations to top management, needs information to accomplish his or her tasks. All user groups have unique information requirements. The level of detail and the nature of the information these groups receive differ considerably. For example, managers cannot use the highly detailed information needed by operations personnel. Management information is thus more summarized and oriented toward reporting on overall performance and problems rather than routine operations. The information must identify potential problems in time for management to take corrective action. External stakeholders, on the other hand, require information very different from that of management and operations users. Their financial statement information, based on generally accepted accounting principles (GAAP), is accrual-based and far too aggregated for most internal uses (Abu-Shanab, Abu-Shanab & Khairallah, 2015). Thus, to make for effective management of information, Accounting Information System (AIS) becomes imperative.

A system is a set of interdependent elements that collect, manipulate, store and disseminate the data and information and provide a feedback mechanism to meet an objective (Sori, 2009). A system must have organization, interrelationships, integration, and central objectives. A system can further be described as a network of interrelated components that function together as an integrated whole embedding checks and balances to ensure its smooth operation and the achievement of the common objective. Information system is manmade system that consists of an integrated set of computer-based and manual components established to collect, store, and manage data and to provide output information to users. (Gelinas et al, 2017). Information System (IS) includes people, data, processes, and information technology that interact to collect data, store, process, and provide output in the form of information needed to support and improve operational, tactical, and strategic activities of an organization (business).

The combination of the three words Accounting Information System (AIS) indicates an integrated framework within an entity (such as a business firm) that employs physical resources (i.e., materials, supplies, personnel, equipment, funds) to transform economic data into financial information for; (1) conducting the firm's operations and activities, and (2) providing information concerning the entity to a variety of interested users. Indeed, the combination or interaction between human, technology and techniques would permit an organization to administer its knowledge effectively (Sori, 2009).

Accounting Information System (AIS) is considered as a specialized subsystem of the IS. This involves the collection, processing, categorizing and reporting of information related to the financial aspects of business events. AIS are often integrated and indistinguishable from the overall information system. Like the IS, the AIS may be divided into components based on the operational functions supported. According to (Hall, 2011), the AIS is composed of three major subsystems: (1) the Transaction Processing System (TPS), which supports daily business operations with numerous reports, documents, and messages for users throughout the organization; (2) the General Ledger/Financial Reporting System (GL/FRS), which produces the traditional financial statements, such as the income statement, balance sheet, statement of cash flows, tax returns, and other reports required by law; and (3) the Management Reporting System (MRS),which provides internal management with special-purpose financial reports and information needed for decision making such as budgets, variance reports, and responsibility reports. Accounting information systems are considered as important organizational mechanisms that are critical for effectiveness of decision management and control in organizations.

In this information age, the place of AIS in modern businesses cannot be over stressed. Al-dmour, Al-fawaz, Al-dmour and Allozi (2017) state that implementing a proper Accounting Information System is an enabler to competitive advantage. This however, does not preclude some weaknesses in the system, nor does it present the AIS as an excellent platform for business effectiveness. There is the human factor in the management of accounting information system that could undermine the effectiveness of the system. Since database management involves four fundamental tasks of information generation, storage, retrieval and deletion, error of judgement on the manager of this information could jeopardize information management with its costly consequences (Abu-Shanab et al, 2015). Information generation is the process of compiling, arranging, formatting, and presenting information to users. Information can be an operational document such as a sales order, a structured report, or a message on a computer screen. Regardless of physical form, useful information has the following characteristics: relevance, timeliness, accuracy, completeness, and summarization (Alalwan, Rana, Algharabat & Tarhini, 2016). Where any of these characteristics is lacking, information loses its quality. In like manner, there could be errors in the process of carrying out other tasks such as storage, retrieval and deletion of information. All these have made it necessary for organizations to exercise extra care in the management of its accounting information system.

Thus, it is important that some evaluation be carried out from time to time on organizations' accounting information system. In every human endeavour, evaluation is an inevitable component of any meaningful process. Evaluation is an independent, systematic investigation into how, why, and to what extent objectives or goals are achieved (Twersky & Lindbrom, 2012). It is the process of determining the merit, worth and value of things. Evaluations are the products of the process (Calidoni-Lundberg, 2016). Evaluation has two arms: one is data gathering; the other collects, clarifies and verifies relevant values and standards.

In spite of the role of AIS in modern organizations, there is dearth of empirical studies available in literature that evaluated the effectiveness of AIS. The study therefore seeks to evaluate the effectiveness of the AIS in some selected public organizations in Anambra State.

RESEARCH METHODOLOGY

This study is concerned with the effectiveness of accounting information system of selected public organizations in Anambra state. The study adopted a descriptive survey design. Three public organizations were purposively selected from three sectors, namely education, finance and core civil service for the study. A sample of 205 staff was selected for the study. The sample was purposively selected from the following departments: Administration, Revenue/Finance/Bursary and Establishment. A questionnaire titled Accounting Information System Effectiveness Survey (AISES) was developed by researcher, validated by specialists, and used for the collection of relevant data. The AISES is a 20-item structured questionnaire embodying the four key objectives of the study. There are three options provided for the items, and respondents were expected to check (√) on the option that best expressed their opinion. The available options are Highly Effective (HE), Moderately Effective (ME) and Not Effective (NE). These options are weighted 3, 2, and 1 respectively. The mean of a 3-point scale is 2 and with the addition of a margin of error of .5, the cut-off point was 2.5. Data obtained were analysed with descriptive statistics on SPSS version 23.

Techniques for Data Analysis

Descriptive Survey was adopted for easy appreciation and understanding of the analysis carried out in this research work. The 3-Point rating scale approach was adopted. Thus, points were duly assigned for the proper weighing of the different response obtained through the questionnaire administered.

Response Option	**Weight**
Highly Effective (HE)	3
Moderately Effective (ME)	2
Not Effective (NE)	1
Total	**6**

As result, the mean scale of 2 was ascertained.

$$\text{Mean Scale} = \frac{3+2+1}{3} = 2$$

Margin of Error = 0.5

Cut-Off Point = 2.5

For effectiveness, cut-off point of 2.5 required.

DATA ANALYSIS AND PRESENTATION OF RESULTS

This section of the study is devoted to presenting the results of the analysis performed on the data collected to test the prepositions made in the study and answer the research questions. Analyses were carried out with the aid of the Statistical Package for Social Sciences (SPSS Version 23).

Research Question One: How effective is information generation in selected public organizations in Anambra State?

Table 1: Descriptive statistics on effectiveness of information generation

	Minimum Statistic	**Maximum Statistic**	**Mean Statistic**	**Std Error**	**Std. Deviation Statistic**
Item 1	1.00	3.00	2.1833	.16276	.56381
Item 2	2.00	3.00	2.7583	.10763	.37285
Item 3	1.00	3.00	2.3917	.17121	.59308
Item 4	1.00	3.00	2.4250	.18138	.62831
Item 5	2.00	3.00	2.5000	.11415	.39543
Item 6	2.00	3.00	2.5492	.12417	.43013
	Grand Mean		**2.4679**		**.4973**

Table 1: Shows the grand mean rating of 2.47 for the effectiveness of information generation in public organizations. This is below the criterion mean of 2.5 required. Information generation in public organizations surveyed therefore was not effective.

Research Question Two: How effective is information storage in selected public organizations in Anambra State?

Table 2: Descriptive statistics on effectiveness of information storage

	Minimum Statistic	Maximum Statistic	Mean Statistic	Std Error	Std. Deviation Statistic
Item 7	1.90	3.00	2.2667	.12452	.43135
Item 8	2.00	3.00	2.6250	.13603	.47122
Item 9	2.00	3.00	2.3917	.11900	.41222
Item 10	1.00	3.00	2.3417	.17644	.61120
Item 11	2.00	3.00	2.4167	.11135	.38573
	Grand Mean		**2.4084**		**.4623**

Table 2: Shows the grand mean rating of 2.41 for the effectiveness of information storage in public organizations. This is below the criterion mean of 2.5 required. Information storage in public organizations surveyed therefore was not effective.

Research Question Three: How effective is information retrieval in selected public organizations in Anambra State?

Table 3: Descriptive statistics on effectiveness of information retrieval

	Minimum Statistic	Maximum Statistic	Mean Statistic	Std Error	Std. Deviation Statistic
Item 12	2.00	3.00	2.6083	.13621	.47186
Item 13	2.00	3.00	2.7083	.12641	.43788
Item 14	2.00	3.00	2.4750	.12317	.42667
Item 15	2.00	3.00	2.5167	.13753	.47641
Item 16	2.00	3.00	2.5500	.12643	.43797
	Grand Mean		**2.5717**		**.4502**

Table 3: Shows the grand mean rating of 2.57 for the effectiveness of information retrieval in public organizations. This is above the criterion mean of 2.5 required. Information retrieval in public organizations surveyed therefore was effective.

Research Question Four: How effective is information deletion in selected public organizations in Anambra State?

Table 4: Descriptive statistics on effectiveness of information deletion

	Minimum Statistic	Maximum Statistic	Mean Statistic	Std Error	Std. Deviation Statistic
Item 17	2.00	3.00	2.4000	.14355	.49727
Item 18	2.00	3.00	2.4583	.14059	.48703
Item 19	2.00	3.00	2.3917	.11900	.41222
Item 20	2.00	3.00	2.2833	.12603	.43658
	Grand Mean		**2.3833**		**.4583**

Table 4: Shows the grand mean rating of 2.38 for the effectiveness of information deletion in public organizations. This is below the criterion mean of 2.5 required. Information deletion in public organizations surveyed therefore was not effective.

Table 5: Effectiveness of accounting information system

S/N	Proxy	Grand Mean
1	Information generation	2.4679
2	Information storage	2.4084
3	Information retrieval	2.5717
4	Information deletion	2.3833
	Mean of grand Means	**2.4578**

Table 5: Shows the mean of grand means of 2.46 which is below the cut-off of 2.50 required for effectiveness. This suggests that accounting information system in the selected public organizations is not effective.

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

Summary of findings

Accounting Information System (AIS) is meant to ease business operation. The effectiveness of the system however depends on the quality of information generation, storage, retrieval and deletion. The study has shown that information generation, storage and deletion are weak in the public organizations studies.

Information retrieval however, is found effective in the organizations. Over all, accounting information system was found to be ineffective in the organization studied. This is in line with a priori expectation. Al-dmour et al (2017) state that while implementing a proper AIS is an enabler to competitive advantage, there is the concern over some weaknesses associated with the human element in the system.

Thus, the AIS are not an excellent platform for business effectiveness due to the human factor in the management of accounting information system that could undermine the effectiveness of the system.

CONCLUSION

This study investigated the effectiveness of accounting information system of selected public organizations in Anambra state. The study adopted a descriptive survey design. Three public organizations were purposively selected from three sectors, namely education, finance and core civil service for the study. Accounting Information System (AIS) is considered as a specialized subsystem of the IS which involves the collection, processing, categorizing and reporting of information related to the financial aspects of business events. The effectiveness of the AIS in public organizations is determined by how well information is generated, stored, retrieved and deleted. Based on the aforementioned components, it may be concluded that the AIS in the selected public organizations is not effective. This therefore, requires the need to overhaul the system for effectiveness.

RECOMMENDATIONS

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

1. Appropriate checks and balances should be put in place by organizational management to ensure that accounting information system works in their organizations.
2. Since AIS in the selected public organizations is not effective, they should adopt ethical standards in the preparation and presentation of their accounting information in order to increase their earnings.
3. Personnel should be properly equipped technically to handle the system.
4. There is the need to train workers on the propriety of information generation, storage and deletion to ensure the integrity of information.
5. Public organizations should be encouraged to embrace the effective use of information technology in order to enhance and improve their competitive advantage.
6. Management should come up with policies and guidelines that will facilitate the implementation of Accounting Information Systems in the public environment.
7. Public organizations should be encouraged to invest in information systems for the best interest of their workers and organizations.

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APPENDIX

Items on the questionnaire

1. Information about actual authorized events and objects are generated.
2. There is correspondence or agreement between the information and the actual events or objects that the information represents.
3. Information includes data about every relevant object or event necessary to make a decision and includes that information only once.
4. Information is crosschecked for material errors.
5. Information generated is timely.
6. The information system captures only relevant data.
7. Information is backed up usually with external disc.
8. Information backed up is properly identified.
9. There is attempt to avoid data redundancy that overloads the system.
10. Contents of the database are presented in logical hierarchy.
11. Information stored is usually right protected to avoid unauthorized editing.
12. Any authorized staff can locate information easily without the assistance of a designated officer.
13. Information stored in the database can be accessed easily.
14. Information can be retrieved with dispatch.
15. Information can be shared across levels of hierarchy in the organization.
16. Organization can respond to inquiry from external bodies with relative ease.
17. Information passes through audit process before deletion.
18. There is adequate checks and balances to guarantee that information due for deletion is cross-checked.
19. Information due for deletion are usually stored in the archives in case of future demand.
20. Only authorized personnel are allowed to delete information from the database.

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Tax Administration and Stability in Developing Countries Economy

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Abstract: *Tax administration in Developing Countries is of paramount important in the stability of countries economy. Fundamentally however, it is a compulsory levy on income since the decision to pay tax is not that of the tax payers but compulsory levy by government on the properties and income of individual and corporation. This study is based on a two phased approach: First Phase: Desk Research, questionnaires and interviews (from a distance). The first phase was based on a desk review. During this phase, existing programmes in thirteen developing countries were in scope. The overview drafted is based on background information, mostly already available in the public domain. As a follow up, primary source information was obtained from people close to the automation experience of each country. Worldwide, tax administrations can be responsible for both domestic taxes and for customs related taxes/duties. The scope of this study is limited to the area of domestic taxes. Therefore, one of the criteria for selecting a provider, was that its product should support the area of domestic taxes. Where the term tax administration is used in this study, it also refers to a tax authority, a tax agency or a tax department. Second Phase: Field Assessment After evaluation of the outcomes of the first phase, four countries were selected to gather additional documentation and to have interviews with the main stakeholders: taxpayers/representatives, suppliers, and staff at different levels of the executing entity, other involved government institutions and donors. These activities were not exhaustive, but were designed to provide an overview of the overall experiences with the most relevant systems across the world and to provide recommendations for future support. Selection of the four countries was based on geographical location and country type distinction (Middle Income Country (MIC), Lower Income Country (LIC), fragile/post conflict). Recommendations to manage the impact of an ICT-solution on a tax administration. Every level in the tax administration should be involved in the tax administration. Ownership needs to be created at all levels within the beneficiary administration. A communication strategy needs to be developed for tax administration employees and for all other stakeholders.*

Keywords: *Tax Administration, Developing Countries.*

INTRODUCTION

Government all over the world needs tax to fund and control their economic activities and one of source of revenue is taxation. Taxation can be variously defined. Fundamentally however, it is a compulsory levy on income since the decision to pay tax is not that of the tax payers. According to Amaechina (2018), "taxation has been defined as a levy which a government imposes on the income of the citizens or corporation in a state for which the government gives no direct benefit to the taxpayer" or "a non- punitive but yet a compulsory levy by government on the properties and income of individual and corporation". The government cannot build a school or a hospital personally for somebody because he has paid his taxes, but the money realized is used to finance general government expenditures. The existence of taxation in Nigeria is linked with the era of the colonial master in the early 20th century. The introduction becomes necessary as a result of the tasks facing the government. In Nigeria, tax system has undergone significant changes in recent times. The tax laws are being reviewed with the aim of repelling of obsolete provision and simplifying the main ones. Under current Nigeria law, taxation is enforced by the tiers of government that is local, state and federal government. The tasks have to do with how government can control its economic activities and how government can achieve the desired level of price inflation and deflation and how to control supply of money.

Background Taxes were already levied in the various empires that existed before the creation of Nigeria. This was especially true in the cases of centralised empires such as the northern Emirates, and the kingdoms of the western and mid-western regions of the area that eventually became Nigeria. However, the era of colonialism marked a new dimension in taxation for these kingdoms. Not only were these taxes now being paid to a foreign government, the practice was extended into territories where it was hitherto unknown. Furthermore, the era of colonialism witnessed a change in the style and manner of tax administration.

A Comprehensive Tax History of Nigeria derived legislative authority from colonial enactments. Thus the first colonial income tax was introduced in Northern Nigeria in 1906 by virtue of the Native Revenue Proclamation No. 2 1906. This was later extended to the western and eastern territories through the Native Revenue Ordinances in 1918 and 1927 respectively. Several other legislations were subsequently passed by the colonial government to administer and regulate various types and aspects of taxation before Nigeria finally acquired independence in 1960.

Objectives of the Study

The broad objective of this study is to critically examine the tax administration and stability in developing countries.

1. To examine the reasons for taxation as an instrument of money control and its effects on government and its citizens, and on economic development of Nigeria.
2. Ascertain the effect of Information Technology in Tax Administration in Developing Countries as an efficient and effective revenue collection as a key driver for financing development.

LITERATURE REVIEW

Taxation and Tax History in Nigeria

A tax is a mandatory financial charge or some other type of levy imposed upon a taxpayer by a governmental organization in order to fund various public expenditures. A failure to pay, or evasion of or resistance to taxation, is punishable by law. A means by which governments finance their expenditure by imposing charges on citizens and corporate entities. Governments use taxation to encourage or discourage certain economic decisions. For example, reduction in taxable personal (or household) income by the amount paid as interest on home mortgage loans results in greater construction activity, and generates more jobs. T*axation* refers to the practice of a government collecting money from its citizens to pay for public services. Without *taxation*, there would be no public libraries or parks. In this case government has to meet the desired standard of living and cost of living of the citizens and adopt a suitable level of economy to boast investors and improve natural output.

Taxation is the practice of collecting taxes (money) from citizens based on their earnings and property. The money raised from taxation supports the government and allows it to fund police and courts, have a military, build and maintain roads, along with many other services. Taxation is the price of being a citizen, though politicians and citizens often argue about how much taxation is too little or too much. Taxation is the imposition of taxes; the practice of the government in levying taxes on the subjects of a state. Taxation is the charge against a citizen's person or property or activity for the support of government.

Every nation or government depends on taxes for its survival. Without taxes, there is no way a government can operate unless of course it borrows or charges its citizens outrageous fees for the services it renders them. With taxes government provides amenities and infrastructure for the improvement of its subjects. It is also through taxation that it funds governance for a stable polity. One of the cardinal factors in estimating the effectiveness of a government is its ability to collect taxes. Before the ongoing reforms in the sector, Nigeria's tax environment was characterized by poor assessment and collection, multiple taxation, misappropriation of tax revenue and general inefficiency. In relative terms the rich Nigerians pay far less tax in comparison with the poorer counterparts.

Nigeria cannot run and develop without taxes. Therefore, from the early stages of Nigerian tribes' existence, there were taxes. There are even countries who pay taxes to their citizens. For instance, Macau (Chinese Las-Vegas) pays about $1127 to its residents annually. There was no formal tax policy in Nigeria until the 1930s. Only traditional rulers had the authority to collect taxes and use them as they wanted. These rulers managed to create their own system of taxes. However, none of them managed to survive long enough to be printed in books of history.

History and Development of Taxation before the Colonization period in Nigeria

The tax system was traced to the Northern parts of the country. The Emirs created a system of taxes throughout the north. The basis for the taxation was the Islamic Religion. The Southern part of the country was not as organized as the North. Therefore, the South did not have the centralized system of taxation. According to the historical data, the parts of Nigeria that were under the Islam taxation had several forms of taxes: - Zakat – it is an obligatory tax presented by all representatives of the Islamic religion. It was gathered for educational, religious and spiritual purposes.

Looking at the history of taxation in Nigeria, the beginning of the colonization period was connected with various trading posts and companies in the West Africa. The British Empire tried to fight for economic dominance in the region. The British Empire eventually secured Nigeria and started to implement its own taxes. The formal British administration in Nigeria began in 1861. In that time, Lagos was named the crown colony of the region. Even with the formal administration, taxation was not centralized. Lord Lugard was a British colonial administrator in Nigeria. He tried to harmonize and centralize the tax system in Nigeria. As a result, he implemented the Stamp Duties Proclamation in 1903. This proclamation was followed by the Native Revenue Proclamation in 1906. The Native Revenue Proclamation was created to harmonize the taxes. It created the four core principles of payment. Therefore, when a person wanted to pay taxes, he/she could just follow these questions: - What to pay? - Whom to pay? - Where to pay? - When to pay? This procedure simplified and clarified the taxation policy in Nigeria. These two proclamations became the first in the sequence of the taxation policies in Nigeria.

The present form of Nigeria taxation can be traced back to 1914. During that year, the Northern and Southern Directorate implemented the basics of taxation in Nigeria. In addition, it helped to start the sequence of tax ordinances in Nigeria. Raisman Commission introduced the standardized tax principles. The recommendations from the Commission were later accepted and adopted by the National Government. These recommendations became the part of the Nigeria`s Constitution. The constitution gave birth to the Income Management Act and Companies Income Tax Act in 1961. The following complexities in tax reforms created the sequence of tax laws. The latest representations of these tax laws are the Personal Income Tax Act 2004 and the Companies Income Tax Act 2004.

According to the Nigerian Laws, there are three legal bodies that can levy the taxes on Nigerians. - Federal Internal Revenue Service. They are responsible for Capital Gain Tax, Educational Tax, Value Added tax, Withholding tax, Companies Income Tax, Personal Income tax. - State Boards of Internal Revenue. This legal body is responsible for Road Taxes, individual capital gains, individual withdrawing. - Local Government Revenue Service. This legal body is responsible for collecting taxes on the local governments' level. The Federal Inland Revenue Service started as part of a colonial tax organization under the name Inland Revenue Department of Anglophone West Africa. The department's scope of administration covered Nigeria, Ghana, Sierra Leone and the Gambia. In 1943, the Nigerian Inland Revenue Department was carved out of the Inland Revenue Department of Anglophone West Africa and established as an autonomous body under the supervision of the Commissioner of Income Tax.

The Resident

In 1955, the Eastern Nigeria Local Government Law was passed to address the shortcomings identified in the implementation of the 1950 Ordinance. These shortcomings included, among other things, inadequacies associated with the assessment and collection of taxes. The new law essentially enhanced the powers of the Minister responsible for local government affairs as a check on the excesses and inadequacies of the councils. In 1956, the eastern region passed the Eastern Region Finance Law138 which superseded the Direct Taxation Ordinance, 1940, as it applied to the region. The new law handed over the primary responsibility for income tax assessment and collection to the government Department of Inland Revenue. This change was informed by the realisation that income tax was collected more efficiently on a regional rather than on a local level. During the first few years, councils were used as collecting agents until the department built up its own organisation and took over this function completely from the councils. In lieu of tax revenue, government paid block grants to the councils on population basis, ranging from four shillings and six pence per head of population in each rural council area to six shillings per head for the urban counties and municipal councils.

139 Local councils existed within the areas of authority of all rural county councils but not within either municipalities or urban county council areas. A point of difference between rural county councils on one hand and urban county and municipal councils on the other. The difference between municipal councils and county councils was that the former had mayors and deputy mayors while the latter had chairmen and in most cases presidents, in addition. With the exception of these differences, all county and municipal councils in Eastern Nigeria had practically the same powers and functions as those performed by local authorities in other parts of the federation.

The first semblance of local government was introduced in Lagos when, under the Public Health Ordinance No. 5 of 1899 a Central Board of Health was established, consisting of the principal medical officer (as president), the sanitary engineer (or whosoever was performing his duties), the health officer of Lagos and not more than four other persons appointed by the governor from time to time. Subject to the approval of the Governor-in-Council, the Board was empowered to make, alter or amend such regulations as might be required to implement the health ordinance provisions, which included sanitation of markets, management of cemeteries, control of animals, and prevention of overcrowding. The functions of the board included night soil disposal, licensing of vehicles and wheel tax, refuse disposal, building regulations, town planning and slaughter-house maintenance.

The rapid urbanisation of Lagos colony and the attendant sanitation concerns led to the metamorphosis of the Board into the Lagos Municipal Board of Health. This was achieved pursuant to the Lagos Municipal Board of Health Incorporation Ordinance 1909. Pursuant to the Ordinance, the Board was empowered to enter into contracts and gave the right of perpetual succession and the power to sue and to make bye-laws. It also extended its jurisdiction to include sales by auction, spirit and dog licenses, maintenance of licenses under the Township Ordinances, and licensing of vehicles, with all the fines and fees from prosecutions under these and the public health and certain other ordinances, being assigned to the board as revenue. The Township Ordinance was enacted with the main purpose of establishing the broad principles of municipal responsibility, graduated according to the importance of the community. The Lagos Town Council was set up as a first class township council with a president and vice-president and directed, among other things, to put into effect the provisions of various ordinances affecting the township and the rates, fines and fees accruing from such enforcement went to the council revenue. It was also empowered to make bye-laws.

The Council's main source of revenue was tenement rates which were introduced in 1915 under the Assessment Ordinance 1915 and assessment of property was made by the town engineer who was empowered as the 'appraiser'. Furthermore, the Council was empowered to levy an annual rate and this meant that the annual general rate could not be varied during the year once it was fixed at the beginning of the year. However, this changed pursuant to the 1941 Ordinance which empowered the Council to levy the rate half-yearly, thus also enabling it to vary the rate mid-year.

An independent rate assessment committee was established for the first time in 1948 to deal with objections under the 1915 Assessment Ordinance. The new committee was placed under the chairmanship of the commissioner of lands and an officer of the lands department was appointed as secretary. All objections were now sent to the committee which notified the town clerk of its decision for departmental action.

In 1952 Lagos Township was merged with the western region of Nigeria, only to be detached from the region again in 1954 and conferred with the status of federal territory and series of legislation were enacted in order to effect the practical changes arising from the constitutional change. In 1959 the Lagos Local Government (Amendment) Ordinance was passed. The law empowered the federal government to make regulations for ensuring, among other things, that the council maintained grant-earning services to meet laid down standards. The bases of government grant to the council were clearly set out percentages.

The functions and powers of the Lagos town council were substantially the same as those of the native authorities in the north and the respective councils in the east and west with the important distinction that unlike native authorities in the north and some councils in the west, Lagos town council did not maintain local government police and prisons.

Method of Assessment

In the colonial era, there were a variety of methods of assessment for tax purposes and they varied across the country. The basis characteristics of the methods of assessment were that they were not scientific. The reason for this cannot be far from the fact that there was a dearth of information on which the assessment could be based. Also, the literacy level militated against proper assessment. With reference to income tax of individuals, it is on record that there were seven major methods of assessment in Northern Nigeria. These included: (a) Locally-distributed income tax: This was the most general method, being applied to about 90 per cent of the population. This involved the imposition of tax on a community as a whole and the apportionment of the tax to the inhabitants according to their ability to pay. (b) Poll tax: This was a flat tax imposed on the inhabitants of a community where the difference in their income was negligible. (c) Tax on ascertainable incomes: this was imposed on civil servants and employees of native authorities and commercial firms who had ascertainable incomes. (d) Wealthy traders' tax: this was imposed on traders. It involved the charging to tax of the estimate of the income of the traders by the local assessment committee. (e) In mining areas where there was a large and, to some extent, shifting labour force, a tax of was payable. (f) Strangers' tax: This tax applied to non-Nigerians and Nigerians who were not of northern Nigerian origin by birth. It was based on the apparent wealth of the person concerned, and could be paid in areas where the locally distributed income tax or poll tax applied.

Moreover, not only must those in power make decisions on all these matters with an eye to economic sustainability large uncontrolled deficits are definitely out of style but they must also, of course, be concerned with their own political survival.

A recent IMF (2005) assessment set out a revenue-to-GDP ratio of 15-20 percent as a reasonable minimum "threshold" for developing countries. This may not seem to present much of a challenge. However, many countries fall below this cut-off point. In West Africa in 2003, for example, Guinea, The Gambia, Liberia, and Togo and the Democratic Republic of Congo (DRC) all had tax ratios below this threshold (IMF 2005a). In a recent review drawing on IMF and other data.

Fox and Gurley (2005) found that 44 out of 168 countries examined had tax ratios less than 15 percent in the 1990s, with 18 of those that failed the threshold test being in sub-Saharan Africa. UN Millennium Project (2005) has also set the tax bar high, suggesting that most developing countries should mobilize up to an additional 4 percent of GDP through domestic revenue mobilization efforts in the near future, presumably in a sustainable fashion. Of course, there is nothing new about setting such targets: Half a century ago, for example, Martin and Lewis (1956) aimed at a ratio of 17 to 19 percent, while Kaldor (1963) was even more ambitious, arguing that if a country wished to become 'developed' it needed to collect in taxes an amount closer to 25-30 percent of GDP. Unfortunately, then as now many developing countries have failed to meet such targets, no matter how often they are assured that such "expansion is not only necessary it is achievable through using broad-based revenue sources, such as a value added tax, and strengthening tax collection, (UN Millennium Project 2005, 245)." Even among the fast-growing countries of east and Southeast Asia, for example, only Korea managed to increase its tax take by the prescribed 4 percent of GDP over the last 15 years or so, while in a number of countries in Latin America and elsewhere the tax ratio actually declined over this period. Experience everywhere suggests further that the hope so often expressed that developing countries can and should achieve this goal largely simply through more vigorous collection efforts is particularly optimistic. There is more to understanding how countries may improve their tax effort than simple exhortation to try harder.

Many who have posed tax ratio targets have, like UN Millennium Project (2005) gone on tell developing countries how they should meet such targets. Earlier analysts, drawing largely on experience in developed countries during World War II, took it almost for granted that a highly progressive personal income tax (sometimes with marginal rates ranging up to 60 or 70 percent) buttressed by a substantial corporate income tax (often at 50 percent or so) constituted something close to an ideal tax system. Consumption taxes were grudgingly accepted as necessary for revenue purposes, but the feeling one gets from reading most documents of the period is that the sooner such levies were replaced by decent income taxes the better. No one talked about local taxes, since all the action was at the central government level. Nor did anyone worry much about the international context since tax policy was considered a domestic affair. Both revenue and redistribution goals, it was often argued, could be achieved largely by imposing high effective tax rates on income, essentially because the depressing effects of taxes on investment and saving were considered to be small.

Most economists and many policy-makers now think that high tax rates not only discourage and distort economic activity but are also ineffective in redistributing income and wealth. High direct tax rates are out of fashion: “lower rates on broader bases” has for some years been the common mantra of experts (World Bank 1991). In the more competitive international environment of recent decades, income tax rates on both persons and corporations have been sharply reduced. In Latin America, for example, the average tax rate on corporations fell from 41 percent in 1985 to 29 percent in 2003 and the top rate on personal income from 51 to 28 percent (Lora and Cardenas 2006). Over this period, collections from direct taxes in Latin America increased by only 5 percent (from 4.0 to 4.2 percent). Since trade taxes also declined, the tax share of GDP in the region would actually have declined had it not been for a substantial (70 percent) increase in VAT revenues. Reflecting indeed, to some extent leading world-wide trends, VAT has become the mainstay of the revenue system in Latin America owing both to rate increases the regional average VAT rate rose from 11 to 15 percent in the 1985-2003 period and to broader bases and improved administration. The combination of declining taxes on international trade as a result of import liberalization (and WTO adherence) and increased competition for foreign investment has motivated similar changes in tax structures in most countries around the world in recent years.

A major connecting link between the level of taxation and the structure of taxation is the breadth of the tax base, as emphasized in IMF (2005). Indeed, perhaps the only recommendation more frequent in reports on taxation in developing countries than base broadening is that to improve tax administration. As already noted, most experts are almost equally keen to lower tax rates although some policy-makers been reluctant to accept this recommendation (like the related recommendation often made by travelling economists to place even more emphasis on domestic consumption taxes, especially VAT) largely because such suggestions are seen by important segments of the public to be little more than code for “increase taxes on the poor.” Nonetheless, almost regardless of political stance, the consensus of most fiscal experts these days is that the best ways for developing countries to respond to the tax challenges they face to expand their “fiscal space” on the revenue axis (IMF 2006). How should tax systems be structured to cope with these challenges? On the other hand, countries may, through clever design and better administration, be able to ‘grow’ their effective tax bases to at least some extent, say, by reducing the ‘cost’ of taxation or by influencing the way in which the economy evolves through, for example, encouraging and facilitating the expansion of the formal sector. First, as just mentioned, there may be economic gains from lowering the cost of taxation and an obvious way to do so is by reducing rates. Secondly, tax rates may have (or at least be thought to have) important effects on the distribution not only of income and wealth but also of economic and political power. Although in the end the state of debate on these issues in most countries turns more on subjective perceptions.

A common way to begin discussions of taxation in developing countries is by taking a look at what taxes exist around the world. One recent survey, for example, looked at data for some recent years for 168 countries, representing every region of the world (Fox and Gurley 2005). On average, the tax ratio taxes as a share of GDP was 18.8 percent for the 168 countries in the sample. Tax ratios ranged from well under 10 percent in a few countries, most of which are small and all of which are low income for example, Myanmar, Chad, Guatemala, and Central African Republic to well over 40 percent in a few high-income countries in Western Europe such as France and Sweden. However, some lower-income countries had high ratios such as Belarus, Ukraine, Algeria, and Sudan. Similarly, some higher-income countries, such as the United States, had considerably lower tax ratios than others, with Hong Kong being at the extreme. This global overview suggests that both opportunity and choice appear to affect tax levels. Countries with access to rich natural resource revenues, such as Venezuela and Azerbaijan, tend to have higher tax ratios than otherwise comparable countries, though such revenues may also be highly volatile, reflecting commodity price changes. Tax ratios in higher income countries appear to reflect more choice than chance. Some, such as Sweden and the Netherlands, have large and centralized governments and others, such as the United States and Switzerland, have smaller and more decentralized governments. Broadly, however, tax ratios vary by income levels as earlier studies (Tanzi 1987) found, taxes tend to rise as per capita incomes rise. The tax ratio rises from about 17 percent in the low-income group, to 22 percent in the medium-income group, and 27 percent in the high-income group.

Bird and Zolt (2005) state that many factors explained this relationship. The demand for public services may rise faster than income (that is, the income elasticity for public services is greater than one), particularly in lower-income countries. For example, urbanization tends to rise with income, the demand for public services is generally higher in urban areas, and it is usually easier to collect taxes in urbanized areas. More generally, the capacity of countries to collect taxes appears to rise as income levels increase although more detailed analysis suggests that the relationship between rising income levels and higher taxes is significant only for the poorest countries.

As Tridimas and Winer (2003) note, studies attempting to explain the behaviour of this variable essentially group the possible explanatory factors into ‘demand’ factors, ‘supply’ factors and albeit often more implicitly than explicitly ‘political’ factors that affect the way in which changes in demand and supply variables enter into and shape policy decisions.

Tridimas and Winer (2003) set out an interesting integrative model incorporating all groups of factors, but it has not as yet been applied in a developing country context. However, in a less ambitious recent paper, Bird, MartinezVazquez and Torgler (2006), first review ten previous empirical studies of the traditional supply-side (‘tax handle’) variables, and then make new estimates with broadly similar results: per capita GDP and the non-agricultural share of GDP are major factors explaining the size of public revenues in different countries.

Like Baunsgaard and Keen (2005), BMT (2006) find that openness is no longer as significant an explanatory factor as in most earlier studies, presumably as a result of the substantial trade liberalization of recent years. If this were the whole story, then from one perspective the situation seems hopeless. It is no great surprise that, say, the availability of as an oil sector is important in explaining how much a country raises in revenue. However, telling a country that wants to raise its tax to GDP ratio to find oil is not very helpful. Supply-side studies make the problem facing most developing countries look more like a dilemma than a challenge: (1) Poor countries tax less because they have less to tax. (2) But to develop their economy (and tax base) poor countries need to spend more on public infrastructure, education, and so on. (3) Therefore they need to tax more. One way out of this dilemma is obvious: one can argue (as did Kaldor 1963) that the real reason countries do not tax more not so much because nature makes it impossible but because it is not in the interest of those who dominate their political institutions to increase taxes even up to the extent 'nature' (and the world economy) permits.

BMT (2006) offer a somewhat more hopeful version of this story by constructing several new 'demand-side' variables (such as quality of governance, inequality, size of informal sector, and tax morale). While crude, their estimates suggest that to a significant extent tax levels reflect people's perception of the quality and responsiveness of the state. Kaldor (1963) was thus right in the important sense that countries that wish to tax more need to ensure their governing institutions facilitate the achievement of this goal. Enhancing the rule of law, reducing corruption and the shadow economy and improving tax morale are not simple or easy tasks. But perhaps progress along these lines may be more feasible in at least some developing countries than 'engineering' fiscal gains by altering the relative share of the non-agriculture sector in the economy or the weight of imports and exports in GDP.

Millennium Challenge target and increase its tax ratio by 4 percentage points to a (still low) 14 percent, it has to sustain increased revenue performance at least at the world average rate of 4% growth a year for nine years. To expand its revenue 'fiscal space' to the targets suggested in IMF (2005) would obviously take even longer. Over the years, it is obvious that many developing countries have had great difficulty in achieving even the much less ambitious target of simply financing their existing level of spending sustainably from domestic resources. Indeed, many countries have had one tax 'reform' after another, virtually always with the main aim of closing short-term revenue gaps. Unfortunately, policies enacted in such economically and politically difficult circumstances have often failed to resolve the underlying basic problem of inadequate revenue elasticity. Of course, not everyone may agree with the argument that a tax system that is more than proportionally responsive to growth (and inflation, although this aspect is not discussed further here) is an essential ingredient of sound tax strategy in an emerging economy. Ideas and interests may differ widely with respect to the appropriate size of government, the appropriate structure of expenditures, and the effects of taxation on growth.

Lora and Cardenas (2006) outline that economists overemphasize the costs of taxation and the importance of efficient resource allocation. But taxes do impose real costs, and developing countries where resources are by definition scarce should strive to keep such costs as low as possible in order to free resources for socially desired objectives. Of course, taxes are not themselves a cost but rather just a means of transferring resources from private to public use. Economic costs arise only when the resources available for society's use, whether for public or private purposes, are reduced by taxes. There are several ways taxes can reduce the size of the economic pot from which all must draw. Administration Costs to begin with, it obviously costs something to collect taxes. Depending on the types of tax, the actual cost of collecting taxes in developed countries is roughly 1 percent of tax revenues. In developing countries, the costs of tax collection may be substantially higher:

Gallagher (2017) reports administrative costs ranging from 0.9 to 3.9 percent for six developing countries; Warlters and Auriol (2018) report results for an additional nine countries in the range of 1.1 to 3.6 percent. Compliance Costs Less obviously, but more importantly, taxpayers incur "compliance costs" over and above the actual payment of tax. Third parties also incur compliance costs. For example, employers may withhold income taxes from employees, and banks may provide taxing authorities information or may collect and remit taxes to government. Compliance costs include the financial and time costs of complying with the tax law, such as acquiring the knowledge and information needed to do so, setting up required accounting systems, obtaining and transmitting the required data, and payments to professional advisors. Although the measurement of such costs is still in its infancy, studies in developed countries (Evans 2003) suggest that compliance costs are, as a rule, about four to five times larger than the direct administrative costs incurred by governments. One of the few reported studies of compliance costs in developing countries (by Chattopadhyay and Das Gupta 2002, for the Indian personal income tax) actually found compliance costs to be more than ten times higher than in developed countries.

Similarly, Shekidele (1999) found compliance costs for excises in Tanzania to be more than 15 times higher than similar costs in more developed countries. As World Bank (2006) reports, compliance costs vary considerably from one country to another: for example, complying with the tax code in Brazil takes a representative firm 2600 hours a year compared to only 30 hours in Singapore and 50 hours in Namibia. With a very few exceptions, costs of paying taxes are generally considerably higher in poor than in rich countries for several reasons. One is the sheer complexity and cumbersome administrative methods employed in some countries. Another is because compliance costs are sensitive to the stability of the tax legislation as well as to such changes in the external environment as inflation, and such factors are more prominent in developing countries. Moreover, since compliance costs are generally quite regressively distributed, and are typically much higher with respect to taxes collected from smaller firms, in many developing countries they arguably constitute a significant barrier to the 'formalization' of small and medium enterprises. Indeed, such estimates actually understate the importance of the 'tax 29 barrier' in many countries since significant time and resources are also usually required before beginning operation, in order to register for tax purposes and to obtain necessary fiscal licenses.

As Adam and O'Connell (1999) note, there are of course exceptions. First, when taxes are 'lump sum' i.e. the tax burden is the same regardless of behavioral responses there are no distortionary effects. But such taxes are of no importance in the real world. Second, to the extent that taxes fall on economic rents – payments to factors above those needed to induce them into the activity concerned they may not affect economic activity. Well-designed taxes on natural resources and land, for example, may thus to some extent produce revenue without economic distortion. Finally, some taxes may not only create no distortions in economic behaviour but may even induce desirable behaviour. Certain environmental levies, for example even such crude proxies such as taxes on fuel may to some extent have such effects. "Good" taxes those with no bad economic effects should of course be exploited as fully as possible, but most revenue needed to finance government inevitably comes from less 'harm free' sources and hence gives rise to efficiency costs.

Note that consumption taxes also discourage work to some extent since they increase the amount of time one must work to pay for goods and services through the marketplace (Alm and López-Castaño 2006).

The importance of such tax effects is a matter of considerable debate, but the current consensus is that they are much more important than was thought thirty or forty years ago. Efficiency costs of taxation in developed countries are usually estimated to be some multiple of the administrative and compliance costs mentioned above. The lowest estimates of the efficiency costs of taxes for developed countries are at least 20-30 percent of revenues collected, and much higher estimates (ranging well over 100 percent) are common in the literature (Auerbach and Hines 2002). Such estimates are both hard to make and controversial, so it is not surprising that relatively few such empirical studies exist for developing countries. Broadly, unless public expenditures produce social benefits at least equal to the 'marginal cost of public funds' (MCF), they are not worthwhile.

A recent study found the average MCF in 38 African countries to be close to those found in a number of developed countries. (Warlters and Auriol 2005). The study suggests that this similarity perhaps results from two offsetting factors: first, developed countries tend to have higher taxes and heavier reliance on income taxes, both of which are associated with higher MCFs; second, developing countries tend to have higher administrative costs and larger informal sectors, both of which are again associated with higher MCFs. Whatever their size, efficiency losses from taxation are real. However, they are not directly visible: they arise essentially because something does not happen some activity did not occur or occurred in some other form than it would have in the absence of the distortionary tax. Output that is not produced is nonetheless output (and potential welfare) lost, so poor countries need to design taxes to minimize such possible adverse consequence. Unfortunately, the absence of visible concrete evidence means that there is seldom much political weight behind this concern. As noted earlier, not all such effects need be bad:

In the old western provinces, the tax system made use of a combination of flat rate with an income tax. The tax system subsequently metamorphosed and the following types of tax were levied: flat rate, income tax rate, trade taxes and a tax on unearned incomes with the last two been levied in the Oyo and Ijebu provinces only. It should however be noted that company income taxation was not as problematic as personal income taxation as the Income Tax Ordinance of 1943 fixed company tax at 5 shillings in the pound on taxable profit.

Change management should have an explicit position within the project. A strategy on how the change is managed is key to the long-term success of the project. Using a recognized project management methodology helps to bring structure in processes and procedures and to plan the right sequence of activities. As most of the ICT implementations will be part of a wider tax administration and policy reform, a holistic approach needs to be adopted. At the start of the process measurable and achievable indicators have to be agreed, so it will become possible to monitor performance of the project and benefits to be realized.

METHODOLOGY

The methodology of the study is based on a two phased approach: First Phase: Desk Research, questionnaires and interviews (from a distance). The first phase was based on a desk review. During this phase, existing programmes in thirteen developing countries were in scope. The overview drafted is based on background information, mostly already available in the public domain. As a follow up, primary source information was obtained from people close to the automation experience of each country. In addition to the information coming from the users of the information technology in the different countries, it is important to get a better understanding of what kind of ICT-solutions are available in the market. The providers were contacted via a questionnaire. Additionally, various emails and phone calls were necessary to follow-up the initial request. Worldwide, tax administrations can be responsible for both domestic taxes and for customs related taxes/duties. The scope of this study is limited to the area of domestic taxes. Therefore, one of the criteria for selecting a provider, was that its product should support the area of domestic taxes. Where the term ‾tax administration‗ is used in this study, it also refers to a tax authority, a tax agency or a tax department.

Second Phase: Field Assessment After evaluation of the outcomes of the first phase, four countries were selected to gather additional documentation and to have interviews with the main stakeholders: taxpayers/representatives, suppliers, and staff at different levels of the executing entity, other involved government institutions and donors. These activities were not exhaustive, but were designed to provide an overview of the overall experiences with the most relevant systems across the world and to provide recommendations for future support. Selection of the four countries was based on geographical location and country type distinction (Middle Income Country (MIC), Lower Income Country (LIC), fragile/post conflict).

RESULTS

Recommendations to manage the impact of an ICT-solution on a tax administration

Senior management needs to be fully aware of what change management is and why it is important. Every level in the tax administration should be involved in the tax administration. Ownership needs to be created at all levels within the beneficiary administration. A communication strategy needs to be developed for tax administration employees and for all other stakeholders.

The consequence is that the tax administration has to invest in upgrading the platform itself. Another aspect to be taken into account when selecting, is the business model of the provider. There is great diversity among the providers surveyed. Some are explicit IT firms with no specific expertise in tax administration, whereas other explicit IT firms have advanced expertise in tax administration (e.g. Data Torque, Fast, and RSI). The remaining group is a mix of consulting firms and software developers (e.g. Crown Agents, CRC Sogema). While consulting firms bring expertise in tax administration. Another complicating factor is that some providers do not conduct the implementation themselves, but use third party integrators. This implies that the capacity of a third-party integrator can have an impact on the actual implementation.

However, by using third-party integrators, the success of the implementation of has nothing to do with skills and expertise of Oracle, but is dependent on the capability of that third-party integrator. This is significantly different from Data, which both develops and implements its solution. In other words, while in theory may answer the need of the tax administration, the usage of third-party integrators for implementation purposes is an uncertainty factor that might lead to difficulties, or even failure. Some providers mentioned that they have programmes to qualify and train third-party integrators before authorizing them to conduct an implementation. While this is an interesting approach, it remains to be seen if and to what extent such a program indeed leads to a qualified third party integrator that can maintain the expertise of its implementation teams.

CONCLUSION

In some countries, the tax administration has lost the trust and respect of its citizens and business alike due to a range of factors including: failure to tackle corruption inside the organization, failure to address dishonest competition – e.g., computer parts imported as fruit to evade duties, bribery of judges, cash wages in brown envelopes to avoid withholding, and governments all too ready to criticize tax administrations in order to court public opinion.

The development of an effective, honest, knowledgeable, and trusted tax administration is crucial and a top priority for developing countries worldwide. Tax administration must be free of corruption and able to address all the challenges that come its way. These challenges may involve tax collection, management of taxes and duties at borders, introduction of an effective Value Added Tax or sales tax, and administration of developing law.

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Livelihood Diversification and Constraints Among Farmers in Borno State, Nigeria

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Abstract: *This study analyzed the effects of livelihood diversification on farmer's well-being in Borno State Nigeria. Specifically, it examined the socio-economic characteristics of farming households and their livelihood diversifying activities. The study also determined the effects of livelihood diversification on farmers well-being in the study area. Primary data was collected through questionnaire administration using a multi-stage sampling process. A sample of three local government areas namely Gubio, Biu and Jere LGA were purposively selected out of the twenty-seven (27) Local Government Areas of the state in the first stage. In the second stage, three (3) wards were randomly selected from each of the three local government areas, making a total of nine (9) wards. In the third stage, twenty (20) households were randomly selected from each of the nine wards making a total of 180 farming households. Data collected was analyzed using simple descriptive statistics such as frequencies, means, percentages and ranking. The results of the analysis indicated that majority (64.0%) of the household heads were male and within the age group of 31 – 40 years and 53.9% of the households indicated that ₦19,800, 000 of their mean annual income was earned from non-farm activities. The result presented revealed that shop-keeping was undertaken by about 42.7% of the respondents in the study area and was ranked first. Result of the analysis shows that automobile repairs were undertaken by only 3.4% of the respondents and was ranked seventh. It could be concluded that engagement in non-farm income generation activities decreases with farming experience and farm size, while it increases with male-headed household, education, gender, extension visits, access road and distance to market. It is recommended that the financial intermediaries in collaboration with the government should promote non-farm employment by ensuring farmers access to credit.*

Keywords: *livelihood, Diversification, Farmers, Borno State*

INTRODUCTION

Agriculture has been an important sector of the Nigerian economy in the past decades and is still a major source of livelihood despite the oil boom. Basically, it provides employment opportunities for the teeming population, eradicates poverty and contributes to the growth of the economy. Agriculture provides primary means of employment for Nigeria and accounts for more than one third of total Gross Domestic Product (GDP) and labour force (Ismaila *et al.,* 2010). Despite these important contributions, the sector is characterized by low yields, low level of inputs and limited areas under cultivation (Izuchukwu, 2011). It is largely practiced by small scale farmers scattered over wide expanse of land area, with small land holding ranging from 0.5

to 3.0 hectare per farm land characterized by rudimentary farm systems, low capitalization and low yields (Kolawale and Ojo, 2007). Indeed, several studies have indicated that agricultural production has not met the food needs of the country's rapid growing population (Kolawale and Ojo, 2007Ayinde, 2008).

Various studies have also shown that while most rural households are involved in agricultural activities as their main source of livelihood, they also engage in other income generating activities to augment their main source of income. Majority of rural farmers have over the years diversified their productive activities to encompass a range of other productive activities. In other words, very few farmers generate their income from only one source, hold all their wealth in the form of any single asset, or use their resources in just one activity (Barrett *et al.,* 2001).

However, the agricultural sector is plagued with different problems which include climate variability and unpredictable rainfall patterns, lack of soil fertility and infrastructural inadequacy, among others. These have forced rural households to develop strategies to cope with increasing vulnerability associated with low agricultural production through diversification, intensification and migration or to completely abandon farming as a source of livelihood (Ellis, 2000). The situation in rural areas has negative implications on wellbeing and predisposes rural populations to various risks which threaten their livelihoods and overall existence. Consequently, non-farm activities have become an important component of livelihood strategies among rural households in Nigeria.

In Borno State farming households diversify or engage in non-farm income generating activities as a way of minimizing risk from agricultural failures. The secondary activities of farming households include activities such as trading, fire-wood sales, carpentry, bricklaying, bicycle repairs, blacksmithing and civil service jobs. Against this backdrop, this study investigated how the diversification of income sources has contributed to the well-being of farmers as well as the constraints faced by farmers as a result of diversifying livelihood sources.

Statement of the Problem

Nigeria has a huge agricultural endowment but hunger and food insecurity characterize a majority of the population. About 64.4% of people live below the poverty line of US$1.25 per person per day (Aye, 2013). Indeed, Nigeria faces a lot of challenges in attaining food security and these challenges affect individual farmers by putting household welfare at risk. Consequently, farmers tend to diversify into non-farm or off-farm activities which are expected to supplement household income. The farm households diversify into non-farm activities to explore opportunities through which they increase and stabilize their incomes or to supplement farming in order to improve the welfare or living standard of their households in Borno State.

The need to study the livelihood of rural farmers in Borno State is important in view of the fact that previous studies concentrated only on specific LGAs, (Ahmed, 2012; Samson, 2011) while in this research, the various ADP zones are represented with the selection of one L.G.A from each of the ADP zones. It is envisaged that the findings will be used to generalize for the entire State.

Objectives:

The specific objectives of the research are:

i. examine the socio-economic characteristics of farming households in the study area;
ii. identify the livelihood diversifying activities engaged in by the farming households in the study area;
iii. identify and describe the constraints confronting the farming households in diversifying their income sources.

MATERIALS AND METHOD

Borno State is located in north-eastern Nigeria covering an area of 69,435 Km^2 and situated between latitudes 11^o40'N and $11^0 44$'N and longitude $13^0 04$'E and $13^0 14$'E. It is bordered by Niger Republic in the north, Chad Republic in the north-east, Cameroon Republic in the east, and within the country, it shares boundary with Adamawa State to the south, Yobe State to the west and Gombe State to the South-west (GIS Lab**,** Geography Department University of Maiduguri, 2019) (Figure1).The State is made up of 27 Local Government Areas (LGAs) with a projected population of 5,986,020 million persons in 2019 from the estimated population of 4,151,193 million people (NPC, 2006) at 3.4 percent annual growth rate.

It has three agro-ecological zones Guinea Savanna in the south, Sudan Savanna in the Central and Sahel Savannah in the North. The annual precipitation ranges from less than 600mm in the north to 1500mm in the south (NAST, 1992). The rainy season starts in April and last till October. A maximum temperature of 44^0C is recorded during the month of April with a mean of 34.5^0C and a minimum of 25^0C during the months of December to February every year (Bwala, 2005). The land is characterized by a sandy flat plain with scanty vegetation from the central to the northern part, while to the south the soil is sandy loam to heavy clay, with uneven topography characterized by rocky hills and valleys.

The dominant ethnic groups are Kanuri, Babur, Bura, Marghi, Shuwa, Waha, Wula and Mandara. The major occupation of the people is farming. However, they also engage in trading as well as civil service. Farmers in the State are engaged in rearing and/or fattening of animals, poultry keeping, ornamerntal plants production as well as fish farming. The major crops grown in Borno State include maize, sorghum, millet, cowpea, groundnut, vegetable and soybean, livestock' hides and skins etc. Farm households in the State also engage in other livelihood diversifying activities such as blacksmithing, pot making, fire-wood sales, wood carving, carpentry, bicycle repairs and bricklaying.

The respondents for the study were selected using multi-stage sampling procedure. In the first stage, one Local Government Area was purposively selected from each of the three Agricultural Development Programme (ADP) zones making a total of 3 Local Government Areas for the study; these are Gubio, Biu and Jere. These Local Government Areas were purposively selected based on their accessibility and involvement in various livelihood diversifying activities. In the second stage, nine (9) wards were randomly selected from the three (3) Local Government Areas. In the third stage, twenty (20) households were randomly selected from each of the nine wards through balloting method from the sampling frame obtained from farm cooperative societies making a total of 180 respondents for the study. Simple descriptive statistics such as frequency distribution, means, percentages and ranking were used in the analysis of the data.

RESULTS AND DISCUSSIONS

Respondent's Socio-economic Characteristics

The results in Table 1 indicated that majority (64%) of the household heads were male and they play a significant role in the family structure. They engaged in non-farm activities to supplement household income, thereby providing the households food requirements and other basic needs. Many of the males diversify their income source because they have responsibilities and many mouths to feed. This agrees with the findings of *Tijjani et al. (2009*) in their study on the Socio-economic Factors Influencing Farming and Off-farm Labor Participation Among Households in Damaturu Local Government Area of Yobe State which showed that majority (86%) of the farming household members were male, who engaged in off-farm activities to supplement their household income to provide food and other basic household needs.

The results revealed that majority (58.4%) of the household members were married, this implies that they are likely to have large household in terms of numbers and as such participate more in non-farm activities to earn more income to provide food and other household needs for their family members. If the family has adequate food available, there is the tendency for having healthy individuals in the family and the society in general. By diversifying in non-farm activities, they can also be able to buy or own assets like mobile phones, bicycles, etc. Household heads may have more room for mobility due to flexibility in decision making, thus increasing the chances of diversifying their livelihood strategies Daniel *(2014).*

Table1: Socio-Economic Characteristics of the Farming Households (n=178)

Socio-economic variables	Frequency	Percentage	Mean
Gender			
Male	114	64.0	
Female	64	36.0	
Marital status			
Single	46	25.8	
Married	104	58.4	
Widow	18	10.2	
Widower	6	3.4	
Divorced	4	2.2	
Age			
20-30	57	32.0	
31-40	66	37.1	41
41-50	39	21.9	
50-60	12	6.7	
Above 60	4	2.3	
Educational level of the respondents			
No formal education	87	48.9	
Primary	44	24.7	
Secondary	37	20.8	

Tertiary	10	5.6	
Farm Size			
<2	116	65.2	
2-3	56	31.5	2.3
3.1 and above	6	3.4	
Household Size			
<3	4	2.2	
3-6	58	32.6	
7-10	78	43.8	8
11-15	26	14.6	
Above 15	12	6.8	
Years of farming experience			
<10	13	7.3	
10-20	145	81.5	18
21-30	16	9.0	
Above 30	4	2.2	
Annual farm Income of the respondent			
0-10,000	4	2.2	
11,000-20000	24	13.5	
21,000-30000	100	56.2	₦ 24,500
31,000 and above	50	28.1	
Annual non-Farm Income of the respondent			
0-10000	18	10.1	
11000-20000	96	53.9	₦ 19,800
21000-30000	44	24.7	
30000 and above	20	11.2	

Source: Field Survey, 2021

The result in table 1 showed that about 37.1% of respondents involved in livelihood diversification are within the age range of 31-40 years. The average age of the household head was found to be 41 years. This result implies that the farming households in the study area were young farmers who are still in their active productive age group. Age is very important in agricultural production activities because age has a significant influence on the decision making process of farmers with respect to adoption of non-farm technologies and other production related decision. Asongwa *et al; (2011)* argued that age of farmers has a positive effect on technical efficiency. This is because old people are considered to be less energetic and less receptive to agricultural innovations and hence develop inefficient production routines and practices. The result presented in Table 1 also shows the distribution of farming experience of the household that are involved in livelihood diversification. Result revealed that 81.5% of the respondents had 10-20 years of experience and 7.3% had less than 10 years' experience and an average of 18 years of experience in farming. This result implied that farmers in the study area have sufficient experience in production. Farming experience of a farmer determines his ability to make effective farm management decisions, not only adhering to agronomic practices but also with respect to input combination or resource allocation. To livelihood diversification, farming experience hold back farmers from diversifying their livelihood source due to the vast experience they had, rather, they intensify their on-farm production. Farming experience is expected to influence farm production efficiencies because of accumulation of skills. Adebayo (2006) noted that the longer a person stays on a particular job, the better his job performance.

It was also found that majority (65.2%) of the respondents have farm size of 0-2 acres and 3.4% had 3.1 acres and above with an average of 2.3 acres. The implication of this finding is that the respondents are predominantly small-scale farmers who may require additional sources of income thus; they diversify into off/non-farm activities to supplement the one from farming. These results also agreed with Ojuekaiye's (2001) classification of farms between 0.1 hectares and 5.9 hectares as small-scale.

About 44% of the respondents who involved in livelihood diversification had household size that ranged from 7-10 persons in their family with an average family size of 8 persons. Size of the household may enhance labor availability that can be used for different agricultural activities (Oyewole, 2012). The larger the household size, the greater the chances of diversifying livelihood strategies to carter for the needs of the household members (Gebru and Beyene, 2012).The significance of household size in agriculture hinges on the fact that the availability of labor for farm production, the total area cultivated to different crop enterprises, the amount of farm produce retained for domestic consumption, and the marketable surplus are all determined by the size of the farm household (Amaza, 2009). However, Ahmed (2011) argued that large household size is associated with increased household consumption expenditure. Thus, there is the need to diversify and earn more income from other sources.

The result revealed that about 48.9% of the respondents had no formal education while about 51.1% had one form of education or the other. Over 85% of the respondents had a low educational experience not exceeding primary education, which may delay or hinder on the acceptance of livelihood diversification. Literacy is believed to have a positive implication on efficient use of productive resources, adoption of farm innovation and income diversification. The level of education determines the level of opportunities available to improve livelihood strategies, enhance food security, and reduce the level of poverty. The greater percentage of the households that acquired formal education may result in an increase in the number of chances of diversifying rural household livelihood strategies in the study area. Education increases chances of access to a number of different economic activities, either as a formal requirement for wage earning jobs or because it helps setting up and managing own small businesses (Minot *et al.,* 2006). It affects the level of exposure to new ideas and managerial capacity in production and the perception of the household members on how to adopt and integrate innovations into the household's survival strategies.

The result of the findings revealed that majority of the respondents (56.2%) earn between ₦21,000–₦30,000 as their annual income and 28.1% earn ₦30,000 and above as annual income with an average of ₦24,500 per annum from farming activities. The low return from on-farm income could be as a result of smaller farm size or the inability to apply input such as fertilizer. This simply means that crop production, which is mainly subsistent in nature, is by far the most single source of income.

The result of the findings revealed that majority of the respondents (53.9%) earn between ₦11,000-₦20,000 as annual income and 10.1% earn less than ₦10,000 with an average of

₦19,800per annum from off/non-farm activities. It was also found that farmers with high annual income from off/non-farm activities have access to better health care facilities for their families. This could be as a result of additional income generated from off/non-farm activities. This conformed to the findings of Abubakar (2004) that annual income of a farmer determines purchase improved farm inputs such as fertilizer, improved seeds and chemicals which may bring about increase in productivity.

Livelihood Diversifying Activities engaged in by Farming Households

Table 2 presents the distribution of livelihood diversifying activities engaged by farming households in the study area. The result presented revealed that shop-keeping was undertaken by about 42.7% of the respondents in the study area and was ranked first. The implication is that, most of the respondents engaged in shop-keeping because it those not require any skill and huge capital to start. This finding is consistent with the study of Olawole *et al;* (2010) on Poverty and Rural Livelihood Diversification Amongst Farming Households in Southwest Nigeria. The study is also in conformity with the findings of Ahmed (2012) in her study where about 42% of the respondents are into trading.

Table 2: Distribution of Livelihood Diversifying Activities engaged by Farming Households

Activities	Frequency	Percentage*	Rank
Shop-keeping	76	42.7	1st
Building	51	28.7	2nd
Tailoring	41	23.0	3rd
Carpentry	32	18.0	4th
Crafting	21	11.8	5th
Blacksmithing	12	6.8	6th
Automobile Repair	6	3.4	7th
Total	**239**	**134**	**28**

Source: Field Survey, 2021
*percentages are based on multiple responses, hence total greater than 100

The result presented in Table 2 revealed that building/bricklaying was undertaken by 28.7% of the respondents in the study area, and was ranked second. This is because after the raining season, most people embark on repairing their buildings which may have been damaged during the raining season or build new houses since they have earned some income from sales of their produce after harvest. They also need new clothes, furniture and other household items. The result of the analysis also further revealed that tailoring was undertaking by 23.0% of the respondents in the study area and is ranked third. Tailoring was undertaken by both men and women in the study. Carpentry was undertaken by 18.0% of the respondents and was ranked fourth. The result shows that, crafting was undertaken by 11.8% of the respondents in the study area and was ranked fifth. Table 2 also revealed that blacksmithing was undertaken by 6.8% of the respondents and was ranked sixth. Blacksmithing was undertaken by only men due to its tediousness. Result of the analysis shows that automobile repair work is undertaken by only 3.4% of the respondents and was ranked seventh. The possible reason of this could be attributed to the fact that automobile repair requires specialized skills to undertake and the dirty nature of the job discourages many people from joining it.

Constraints confronting farm households in diversifying their source of livelihood

The major constraints to livelihood diversification in the study were presented in Table 3 and it revealed that about 87.6% of the respondents reported that lack of credit facilities was the major constraint mitigating farming household from diversifying their source of livelihood. Lack of access to institutional credit is a deterrent factor in livelihood diversification in the study area. In the absence of credit support from the institutional agencies, the resource-poor households are not able to start their own non-farm business or enterprises. Katona-Apte (1988) had reported the vital role played by the Bangladesh Grameen Bank in providing credit to women which enabled them to carry out diversification activities. Some households in the study area reported that after completion of training, provided by the private or government agencies on some self-employment activities, they could not start their own business due to lack of finance/credit.

Poor assets (75.3%) base is another constraint to livelihood diversification in the study area. Possession of even a small asset enables the households to take opportunities in the non-farm sector, particularly in the self-employment sector. Ownership of a sewing machine may induce a person to start his own tailoring business. Similarly, possession of a bicycle may help the worker in going to the nearby town for non-agricultural employment. Most of the landless and small farmers in this area do not have any asset which acts as a big barrier to livelihood diversification.

Lack of awareness and training constitute about 69.1% constraint mitigating livelihood diversification in the study area. According to rural households in the study area, they are unaware about any schemes provided by the government for the development of rural sector. There is no government mechanism, nor any non-governmental organization to inform the rural households regarding livelihood diversification. About 57.3% of the respondents indicate fear of taking risk. Because, small farmers in the study area do not have any asset and also lack of institutional support which acts as a big barrier to livelihood diversification, the risk-bearing ability of the rural households is very low.

The result also revealed that about 56.2% of the respondents indicate lack of opportunities in non-farm sector was one of the constraints mitigating livelihood diversification in the study area. Opportunities for non-farm jobs, within or around the sample area, are very low. Therefore, the households do not have much scope to diversify their livelihood.

Constraints confronting farm households towards diversifying their source of income (n=178).

Constraints	Frequency	Percentage	Rank
Lack of credit facilities	156	87.6	1st
Poor asset base	134	75.3	2nd
Lack of awareness & training facilities	123	69.1	3rd
Fear of taking risk	102	57.3	4th
Lack of opportunity in Non-farm sector	100	56.2	5th

Source: Field Survey, 2021

Conclusion and Recommendations

Based on the findings of this study, the study concluded that engagement in non-farm income generation activities decreases with farming experience and farm size while it increases with education, married respondents, age of the household head, extension visits, distance from market, access road and gender of the household head. Showing that farmers who have alternative sources of income are better able to cater to the food and non-food requirements of their households. The findings further suggest that education and age of household head are crucial for household livelihood diversification in the study area.

Based on the findings of the study; the following recommendations were made: -

Since lack of credit facilities and poor access to institutional credit are overwhelmingly acknowledged as the important constraints inhibiting livelihood diversification, the rural financial systems need to be revamped. Non-governmental organization and other donor agency in collaboration with the government can link farmers to access credit through reduced interest rates and possibly a waiver of collateral requirement for a small amount of loans.

Education is an effective means of increasing the livelihood diversification strategies as it is significant. There is little doubt that rural education in the study area is under stress and facing a tough challenge from the urban education system. Targeting of education and skill development trainings towards poor households in the study area is likely to have a relatively large impact on their ability to diversify livelihood options.

Efforts should be made to make remunerative non-farm opportunities accessible to the farmers. This includes the development of rural infrastructure in terms of road, market, electrification, telecommunication, storage facilities. Because provision of good roads could enhance farmers" access to market and hence promote diversification into non-farm activities.

Extension service should be strengthened so as to expose the farming households to new and high earning non-farm livelihood diversifying activities. In this case, both access to extension service and the frequency of contact between extension staff and farmers should be strengthened.

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Assessment of Financial Management and Debt Control of Small and Medium Enterprises (SMES) in Borno State, Nigeria

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Abstract: *Small and Medium Enterprises (SMEs) play an important part in each developing country paying to the growth of the economy in numerous ways. The goal of this study is to ascertain the effect of financial management practices and debt control of SMEs in Nigerisa: Special Reference to three senatorial districts of Borno State. 70 SMEs are in the manufacturing category, and 50 SMEs are in the wholesale and retail category which makes a total of 120 SMEs across the three senatorial districts Borno Central, North and South. Data was collected through a structured questionnaire distributed among SMEs. Descriptive statistics and inferential statistics like Pearson correlation analysis and multiple regression analysis were used to analyze data using the SPSS package. Results of the study revealed that there is a positive effect of financial management and debt control of SMEs.*

Keywords: *Debit, Enterprise, Financial, and Management*

Introduction

As financial markets become more international, the financial manager must also manage the global financial affairs of the firm. It must be appreciated that any business whether large or small, profit seeking or not –for- profit is a financial concern and as such its success or failure depends in a large part on the quality of its financial decisions. Thus, financial management is an exciting area of business administration.

Financial management and debt control has always been important in any firm irrespective of any difference in structure ownership and size. The financial organization of any enterprise ought to be capable of ensuring that the various financial function (financial management planning and control) are at high degree of efficiency.

Small and Medium Enterprises (SMEs) make up the vast majority of business population in most countries in world; therefore, they constitute a vital force in modern information based economics (Mitchell & Reid, 2000). Most of the large firms today started as a small-medium-large one, who now has a robust plan for its activities and able to withstand any pressure and providing employment opportunities, thereby making a positive contribution to the economy at large. SMEs are defined as non-subsidiary, independent firms which employ fewer than a given number of employees, this number varies across national systems, other parameters other than the number of employee are used in categorizing businesses as SMEs, for instance in the

European Union, SMEs must have an annual turnover of 40 million Euros or less and or a balance sheet valuation not exceeding 27 million Euros (Schreyer, 2000).
Small and Medium enterprises (SMEs) operate in the same environment as their larger counterparts, but without the associated benefits such as adequate capital and extended human resources of the larger organizations. SMEs encounter increasing competitive pressure fueled by globalization, legislation and the relaxing of trade barriers, as well as an increase in market expansion due to emerging technologies and innovation. Small and medium enterprises often flourish on their adaptability and agility such as their close proximity to their customers, their openness towards new ways of working, and their risk taking approach, but many micro, small and medium enterprise are susceptible to major external shocks (Berry, 2002; Laforet & Tann, 2006). Although SMEs experience difficulties in absorbing and coping with these obstacles, they need to develop an ability to deal with the ever increasing challenges, that is, risks faced by the organization (Leopoulos, 2006).

In the current globalized business economy, many small and medium-sized enterprises (SMEs) struggle for survival. There are many reasons for the discontinuity of business among SMEs besides rapidly changing market conditions. These include lack of adequate working capital, poor management skill and inadequate use of essential business and financial management. The use of management accounting practices which can provide crucial information to the management is vital to ensure the effectiveness and efficiency of the business. One of the established practices in organizations; financial management which comprises financial and non-financial information is one of the important financial management system that should be utilized by the SMEs.

Problem Statement

Richard (2000) stated that there are many reasons for the failure rate of startup businesses, including lack of adequate working capital, poor market selection, and rapidly changing external market conditions. However, the most significant reason for this high failure rate is the inability of SMEs to make adequate use of essential business and management practices. Similarly, Wichmann (1983) argued that one of the reasons for business failure is poor management ability which includes accounting problem solving. Adelegan (2001) carried out a study on companies in developing country like Nigeria. The study found that management accounting in the country was still concerned with the process of cost determination and management planning and control through the use of decision analysis and responsibility accounting. Nandan (2010) who also argued that like larger firms SMEs also require adequate and sophisticated financial management techniques and systems to better manage scare resources and enhance the firm’s values. Although SMEs may have some constraints in utilizing fully financial management due to their relatively small size and limited resources, like larger firms SMEs face similar forms of complexities, uncertainties and are more prone to failures.
There are only few pieces of information regarding the use of financial management in SMEs in Borno state that have been found in literature. Whilst acknowledging that this is an under-researched area, previous contributors to the management accounting literature (e.g Mitchell & Reid, 2000; Nandan, 2010) have suggested that SMEs are often failing to leverage adequately the potential of management accounting for helping them achieve their financial objectives, including profitability and liquidity. Therefore, the dearth of research into the use of financial management among SMEs motivates this research. Firstly, the research detected what financial management tools is mostly being used by the SMEs in Borno State. More so, the study

contributed an additional study as regarding factors that affect the extent of financial management use. Furthermore, the research tested for a relationship between the use of financial management and debt control in SMEs. The focus on Borno State was especially important because research on financial management and SMEs is scarce in the state. Finally, the study expanded the existing financial management literature by providing new empirical evidence on the use of FM.

Objectives of the Study

i. examine the effect of financial management and debt control of SMEs in Borno State
ii. examine the nature of financial management and debt control by selected SMEs in Borno State.
iii. assess the factors that affects the extent of the use of financial management and debt control among selected SMEs in Borno State

Literature Review

The strategic importance of management accounting practice to a firm cannot be over emphasized particularly in small and medium scale enterprise s which are variously described and seen as the engine room for growth and development in every economy. Literature was reviewed along the line of conceptual and empirical review

Conceptual Issues

At present, there is no consensus international definition of what constitutes an SME. Variations exist between countries and industries. SMEs are defined by a number of criteria such as location, size, age, structure, organization, number of employees, sales volume, net worth, ownership structure, innovation and technology (Deros, Yusof, & Salled, 2006). SME Sector was also defined in terms of number of employees as cited by Yahaya, Osemene and Salman, (2011) as:

Types of Enterprise	Size of Employees
Micro	1 – 9
Small	10 – 49
Medium	50 –249.

By definition in Nigeria, Small and Medium Industries Equity Investment Scheme (SMIEIS), defined SMEs as those enterprises with a total capital employed not less than ₦1.5million, but not exceeding ₦200million, including working capital, but exceeding cost of land and/or with a staff strength of not less than 10 and not more than 300. This definition has included many small firms under the bin shade of SMEs. The nature of business transactions in most of these firms does not provide opportunities for outsiders to have clear knowledge of the goings on in these small firms. This is what is prominently referred to as information asymmetries. It is because of this that assessment of the viability of projects in small firm’s demand processes more reliable than mere feasibility reports. The methods in use so far rely heavily on accounting information thus revealing to the accountants the task ahead to serve the accounting need of the SMEs today.

Financial Management

Financial Management is that management activity which is concerned with the planning and controlling of the firm’s financial resources, though it was a branch of economics still 1890 as separate activity or discipline, it is of recent origin still has no unique body of knowledge of its own and draws humbly on economic for its theoretical concept even today (Pandey, 1999).

Management Accounting

Scapens (1991) stated that there is no generally agreed definition of management accounting. Various definition is available; but some are too general to provide a suitable structure, while others simply emphasis a particular research approach.

The Institute of Management Accountants (IMA) has defined management accounting as *"a profession that involves partnering in management decision making, devising planning and performance management systems, and providing expertise in financial reporting and control to assist management in the formulation and implementation of an organization's strategy"* (IMA, 2008). On the other hand, the Chartered Institute of Management Accounting [CIMA] (1987), defined management accounting as the provision of information required by management for such purposes as: the formulation of policies; planning and controlling activities of the enterprise; decision taking on alternative courses of action; disclosure to those external to the entity (shareholders and others); disclosure to employees; and safeguarding assets.

Financial Management and Management Accounting Committee (FMAC) of the International Federation of Accountants (IFAC) viewed management accounting as an activity that is interwoven in the management processes of all organizations. Management accounting refers to that part of the management process which is focused on adding value to organizations by attaining the effective use of resources by people, in dynamic and competitive contexts (IFAC, 1998).
Lower, M. (1998) the public enterprises manager finance through the following ways:
Through Budgeting: Most public enterprise has a yearly budget which is approved by the executive arms of Government, the parastatals prepare these budget and present it to them for approval. When this is done there is stipulated amount to be expended by each level of the organization.
Proper financial authorization: Before any personnel or department make any expenses on behalf of the organization such personnel or department must seek approval from proper financial authority. This authority can be executive secretary of the units.
Internal credit or imp rest expenditure given to each level: Here the level/department or personnel involvement is not meant to spend beyond this approval amounts.

Debt Management Objectives and Coordination

Objectives: The main objective of public debt Management is to ensure that government's financial needs and its payment obligation are met at the lowest possible cost over the medium long term run consistent with a prudent degree of risk.
Scope: Debt management should compass the main financial obligation over which the central government exercises control.
Co-Ordination with Monetary and Fiscal Policies: Byekwaso, (2000): Debt managers should convey to fiscal authorities their views on the costs and risk associated with government financing requirements and debt levels. There should be a separation of debt management and monetary policy objectives and accountabilities. Debt management, fiscal and monetary authorities should share information on the government's current and future liquidity needs.
The examples of contemporary accounting innovations include:

i. Value-based Management (VBM)
ii. Non-financial performance measurement systems
iii. Total Quality Management (TQM)

iv. Balanced Scorecard (BSC)
v. Activity-based Costing (ABC)
vi. Activity-based Management (ABM)
vii. Strategic Management Accounting (SMA)

Long Term Debts and Financial Performance

Long-term debt limits managerial discretion by making access to new funds and overinvestment less likely Hart and Moore (1995): a feature that would enhance profitability. Schiantarelli and Jaramillo (1996) argue that shorter-term loans are not conducive to greater productivity while long-term loans may lead to improvements in productivity (Schiantarelli and Srivastava (1996) It is higher in stronger and more flexible firms, when there are big differences between short term and long term interest rates and when firms have more growth opportunities (Moro, 2009). An econometric study by Hernandez-Canovas and Koeter-Kant (2008), suggests that the important variables in determining SMEs long-term debt include the length of the banking relationship and the number of banks involved (cited in Moro, 2009)

Short-Term Debt and Financial Performance

Short-term debt in an environment of incomplete contracts grants the lender a control right as the firm's ability to roll over the debt may be conditioned on financial ratios and adequate performance. As this mechanism limits managerial discretion it may contribute to the relaxation of financial constraints (Rajan and Winton (1995). This increased availability of external finance should stimulate better performance. Maturity matching between debt and the life of assets plays an important role in deciding the length of the debt maturity (Ooghe, 2007). According to Garcia-Terul and MartinezSolano, (2007) Short-term debt is positively correlated with firm's growth opportunities. short-term debt is the best financing tool because it is perceived to be cheaper. Thus, both entrepreneur and bank prefer short-term debt (Landier and Thesmar, 2009).

Debt Management Tools

Kanu (2005) these are those financial ratios, which are used to evaluate the financial condition and performance of a firm the financial analyze needs certain yardstick. The yardstick frequency used in a ratio or indexes relating two pieces of financial data to each other. The ratio includes the following.

i. **Liquidity ratios:** These are ratio which shows the ability of the company to meet its current obligations out of short term assets.
ii. **Solvency ratio:** This indicates the extent of the Company's dependent an outside liabilities and the feasibility of its meeting obligation as and when the need arises.
iii. **Profitability ratio:** it shows the capacity of the company to generate profit and its rate of return on investments.
iv. **Activity ration:** it shows the efficiency of the company in utilizing availability resources.

Nature of SMEs and their Financial Management Needs

SMEs represent a major business sector in the industrial world and are of great significance in less developed countries. In many countries they represent over 95% of all businesses, employ around 65% of the workforce and contribute about 25% to GDP (Ballantine, Levy, &

Powell, 1998). In Australia, in 2004, small businesses represented around 97% of all private sector enterprises, employed about 50% of all private sector employees and contributed at least 40% towards the GDP (Australian Bureau of Statistics, 2001). It is important that we understand the characteristics of SMEs that make them different from large organizations. It is beyond doubt that a high failure rate is a characteristic of the SME sector. In any given year the failure rate of small businesses is around 11%, being about six times higher than large enterprises (Ballantine, et al. 1998). SMEs tend to depend on a small number of customers, produce standard products or services, and have little influence on market pricing. SMEs also tend to have independent ownership where owners/managers retain close control as the principal decision makers and provide the majority of capital required for operations. It is generally felt that the larger the organization, the greater the need for management accounting information (Storey, 1995). This may imply that SMEs do not need comprehensive Management Accounting and Control System (MACS) in place. On the contrary, our contention is that SMEs face similar forms of complexities, and are more prone to failures and, therefore, management accounting information is especially important to them for better resource management and allocation decisions. Given the importance of SMEs within any economy, and the considering they represent a seedbed from which new, large companies may grow, it is felt that SMEs need for timely, accurate and reliable management accounting information is well understood. It is in this regard that management accounting assumes a potentially significant role for SMEs. The management accounting needs of SMEs also seem to be dependent upon the 'contingent complexities' they encounter, at different times and under different circumstances (Birkett, Barbera, Chua, Fatseas, Luckett, & Macmullen, 1992). These complexities are strategic, organizational and financial in nature depending on the different stages of growth of the organization, from inception to maturity. It is argued that financial and cost management needs and the level of sophistication are influenced by contingent complexities at each stage of growth within SMEs.

SMEs tend to vary in size and amount of resources at their disposal, and many who are at the 'micro end of the scale' lack in-house management accounting capabilities (Mitchell & Reid, 2000). To fulfill their management accounting needs, owner managers therefore, look for external advice in this regard, and Small Accounting Practitioners (SAPs) are well suited and positioned to serve as advisors (Arnold, Cherry, Diamond, & Walker, 1984). But as said earlier, while they are perceived as the best providers of management accounting services, they are not often used (Arnold, et al. 1984; Kirby & King, 1997; Marriott & Marriott, 2000) for reasons of increased cost, the narrow 'bookkeeper' image of accountants, and the lack of expertise and training of (SAPs) in areas beyond routine compliance work (mainly the preparation of financial statements and taxation returns, and audit).

Theoretical Framework

Dependency Theory

In examining Dependency theory, proponents of the dependency theory (Baran, 1954; Frank, 1971; Rodney, 1974 and Sweezy, 1978) contend that the debt could be perceived from the extreme dependence on international competitive economic conditions over which they had little control. The theory was developed from a Marxian perspective by Paul Baran in 1957 with the publication of his Book titled" The Political Economy of Growth" but the theory was popular in the 1960s and 1970s as a criticism of modernization theory, which was falling increasingly of favour because of continued widespread poverty in much of the world. Dependence is a situation in which the economy of certain countries is conditioned by the development and expansion of another economy to which the former is subjected. The relation of interdependence between two or more economies, and between these and world trade, assumes the form of dependence when some countries (the dominant ones) can expand and can be self-sustaining, while other countries (dependent ones) can do this only as a reflection of that expansion, which can have either a positive or a negative effect on their immediate development (Dos Santos, 1970). Samir Amin (1978) corroborated the above postulates when he averred that: *Resources flow from "periphery" of poor and underdeveloped states to a "core" of wealthy States, enriching the latter at the expense of the former. It is a central contention of dependency theory that poor States are impoverished and rich ones enriched by the way poor State are integrated into the "world system". (Ikejiaku, 2010: 66).*

From the foregoing, it is clear that dependency theory is predicated on the notion that there is a centre of wealth states and a 'periphery' of poor, under developed state. Resources are extracted from the periphery (developing nations) and flow towards the states at the centre (developed nations) in order to sustain their economic growth and wealth.

Neoliberal Economic Theory

The history of development over the last century has been one of competing theories and developmental models. Since the 1970s neoliberal approach was widely applied in different countries around the world, including developing and developed countries with the assistance of the International Financial Institution (IFI) that evidently advocate for neo-liberalism in developing countries (Greig etal, 2007). Neo-liberalism, as a global approach to development, dominated global development literature and practice from the 1970s. It emerge mainly to enhance growth, create free markets, replace the Keynesianism that proved to be weak, and eliminate the intervention of the state in the economy that resulted in the poor economic performance in many countries (Harrison, 2005).

Contingency Theory

Contingency theory appeared in the management accounting literature around the mid-1970s. The premise of the contingency approach to management accounting was proposed as 'there is no universally appropriate accounting system which applies equally to all organizations in all circumstances. Rather, it is suggested that particular features of an appropriate accounting system will depend upon the specific circumstances in which an organization finds itself" (Otley, 1980). Joseph, Evason, and Pius, (2013) argued that each organization will have its own management accounting practices that best suits its conditions, this theory goes further to look at certain influential factors that will assist management to decide on an appropriate management accounting practice, these factors can either be technological changes and the infrastructure of an organization. Although the findings from contingency theory studies have not always been consistent and the approach is limited in terms of its ability to capture patterns and dynamics, nevertheless over the last 30 years the contingency theory has provided a convenient, theoretical framework for numerous studies of organizational structure and behavior (Chenhall, 2003; 2007). The extensive research has led to a series of review articles providing an overall picture of

the contingency theory's contribution to accounting in general and management accounting in particular (Chapman, 1997).
Haldma and Kertu (2002) in their study found that the effectiveness of a firm's accounting system design depends primarily on its ability to adapt to changes both in the internal and external environmental factors but not just on its ability to lower real production cost and modernization of cost accounting systems. In addition, they found that some changes in cost and management accounting practices are associated with shifts in the business and accounting environment as well as external contingencies; including technology and organizational aspects which are internal contingencies.

The study of Szychta (2002) of Polish large manufacturing and service enterprises was quite revealing. The author used survey design and obtained data with the aid o f questionnaire instrument. Applying the percentage analytical tool, the study found that most of the large manufacturing and service enterprises prepare annual operating financial budgets for the entire enterprise. In addition, the study found a complete or near complete use of master budget among a smaller proportion of the firms in the sample. The remaining proportion of firms in the sample use sales budgets, production budgets and cost budgets.

Howard, Alan and Glynn (2016) examined the use of management accounting techniques by small and medium-sized enterprises in Australia and Canada. They applied questionnaire and interview techniques in gathering data and used Likert-scale of No, Low, Moderate and High measurements to gauge the extent of management accounting techniques adoption. With the adoption of descriptive statistics, they found that of the 19 common management accounting techniques covered in the interview, a very small number are moderately or highly used by the respondent companies. More revealing, they found that the manufacturing companies in the study are more disposed to use a broader set of techniques such as costing systems, operating budgets and variance analysis while early-stage SMEs are the lightest users of management accounting tools overall. They interestingly found three main factors affecting the adoption of MAPs which are decision - usefulness of the technique, complexity of SMEs operating environment and the age of the SMEs.

In a comparative study of Wu, Boateng and Drury (2007) about the use of management accounting techniques between state-owned enterprises and joint ventures in china, found that the joint ventures enterprises are more disposed to adopting certain MAP such as responsibility accounting than the state-owned enterprises. Hudson, Smart and Bourne (2001) in a similar fashion examined the performance measurement systems of SMEs. They find that measurement systems of SMEs, are not closely linked to the firm's strategy and financial metrics but their measurement systems were developed on an ad-hoc basis by individual managers of the respective SMEs.

Timans, Antony, Ahaus and VanSolingen (2012) examined the use of lean six-sigma approach on Small and Medium-sized manufacturing enterprises that implemented continuous improvement processes in Netherlands. They adopted the survey research design and gathered data through the use of questionnaire and interview instruments. With the application of percentage statistics on the data gathered they found that 40% of the SMEs in the sample use

some form of lean six-sigma MAPs while lack of resources was responsible as an impediment to the adoption of the technique.
Iiias, AbdRazek and Yasoa, (2010) assessed the adoption of MAPs among Malaysian small and medium enterprises in multiple industries. They adopted survey research design and gathered data with the administration of questionnaire instrument. Using the percentage analysis tool, they found that the larger companies in the sample accounting for 67% of the 58 companies in the sample use budgets for planning and control ling purpose every few of the companies use more specialized MAPs techniques such as target costing and economic value added metrics accounting for 32% and 12% respectively. They equally find that 50% of the companies that responded use some form of activity-based costing technique they used the survey design and collected data with the aid of questionnaire instrument. The data was analysed with the application of descriptive statistics. They found that most of the companies in the sample use cash and operating budgets and that the smaller companies in the sample adopt limited use of these MAPs tools than the companies that received venture capital. Chenhall and langfield (1998) found widespread use of capital budgeting tools for investment analysis and Kamilah (2013) found low adoption of long term financial appraisal among SMEs. Demong and Croll (1981) found that with knowledge of budgets, standard cost, cost of production, firms can make decisions relating to pricing and costing of their products.

Moores and Yuen (2001) investigated the use of MAPs among SMEs at different stages of their life cycle. They adopted a combination of questionnaire and interview instruments to gather data. Applying the percentage statistics method of data analysis, they found that most of the firms rely more on MAPs as they move gradually from the birth to growth stages while there is a reduced adoption in the declining stage of their life-cycle

The study of Clinton and White (2012) which focussed on the use of MAPs across different industries in a specific geographical location found that most of the firms in the location that constituted the sample mostly use budgets for planning and control purposes, and customer profitability analysis while there is a limited use of other MAPs such as discounted cash flow technique, activity-based costing, quality control costing and target costing.

Research Design

A survey research design was used for this research because it was considered most appropriate in social science to investigate behavioral phenomenon among people and it was also considered necessary since the topic requires looking at various Financial Management used by SMEs.

Population for the study

The target population used for this research was the list of SMEs compiled by the National Bureau of Statistics of which 70 SMEs are in the manufacturing category, and 50 SMEs are in the wholesale and retail category within Borno State. This makes a total of 120 SMEs.

Methods of sampling

For the purpose of this study, purposive sampling was used over selected senatorial district for practical purpose. In Borno Central the sample were concentrated in MMC which is the state capital and a Jere. In Borno South Biu was selected as the target, it is the central head office of the district and finally Borno north Monguno was selected to serve as the target to the district; it is also the central head office of the district due to insurgency. The sample size of 92 was derived using Yamane (1963) formula [N/1+N(e)^2] on each of the stratum, where N Research Design

A survey research design was used for this research because it was considered most appropriate in social science to investigate behavioral phenomenon among people and it was also considered necessary since the topic requires looking at various Financial Management used by SMEs.

Methods of Data Collection

Data was collected in Borno State of Nigeria from the three senatorial districts, namely Borno Central, North and South. The primary data were collected from the response of SME's managers across the districts. The data was collected with the aid of self-administered questionnaire. The target sampled of 120 SMEs across the three senatorial districts in other to assess the Financial Management and debt control of Small and Medium Enterprises (SMEs) in Borno State, Nigeria. The secondary data were collected through journals, magazines, text books, newsletters, pamphlets etc. which was utilized to supplement the data collected through the primary source.

The researcher used questionnaires as the principal instrument of gathering data for this study. Multiple choice and open ended questions were use in the questionnaires. The questionnaires assist the respondents in expressing their views which in turn helped this study to obtain the needed information. Therefore, ninety-two (92) Questionnaires administered to the respondents in three senatorial districts, namely Borno Central, North and South. in Borno State.

Method of Data Analysis

Descriptive and inferential statistics were used to analyze data gathered from the questionnaires using the Statistical Package for the Social Sciences (SPSS) software.

Table 1: Measurement of Variables

Variables	**Measures**	**Symbols**
Financial Management		
Working capital management practices	• Cash management practices • Receivable management practices • Inventory management practices	WCM
Investment appraisal practices	• Adequately invests in fixed assets. • Uses capital budgeting techniques for assess investments	IAP

	• Adequately reviews the investment projects periodically • Follows guidelines for analyzing investment opportunities • Consider about past experiences when making investment decisions • Consider about time value of money when making investment decisions	
Capital structure management practices	• Uses internally generated cash sources for financing purpose • Uses borrowed funds for financing purpose • Business has easy access to bank loans • Business utilizes the debt facilities from outside persons • Business considers about capital structure when acquiring outside funds • Business has internal policies for deciding capital structure	CSP
Financial reporting and analysis practices	• Business keeps records on cash flows • Business prepares financial statements • Business prepares financial statements complying with accounting standards • Business make sale forecast and analyses • Business analyses the trend of business cost • Business analyses the trend of business profit • Business uses financial ratios in financial analysis.	FRA

Accounting information system	• Business uses ICT facilities for storing financial information • Business updates accounting information system with new business transactions • Business prepare and maintain books like cash book, debtor‟s book, creditor‟s book…etc. • Business accounting information system provides useful information for decision making	

Table 2: Measurement of Variables

Variables	**Measurement**
Long term debts ratio	Long term loan/total loan
short term debt ratio	Short term loan/total loan
Profit Margin Ratio	Gross profit/sales
Return on Assets	Net Income/total assets (Michaelas, Chittenden, and Panikkos, 1999)
Current ratio	Current assets/current liabilities

Pearson correlation coefficient was used to determine the degree of relationship between long-term loan, trade credits, short term loan and financial performance. Multiple regression analysis was used to predict the financial performance of SMEs.
These regression equations are outlined below.
$yi = \beta 1 + \beta 1x1 + \beta 2x2 + \varepsilon$
Yi (i= 1……3) = Profit Margin ratio, Liquidity and Return on Asset
X1 = Short Term debt
X2 = Long term debt
ε = error term

Descriptive Analysis
The descriptive statistics calculated on the variables are presented in the table 1.
Table 3: Result of Descriptive Analysis

	Minimum	Maximum	Mean	Std. Deviation	Kurtos	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
P	2.76	5	4.474	0.566	-0.544	0.310
WIC	2.88	5	4.408	0.55	-0.236	0.310
IAP	2.72	5	3.86	0.674	-0.768	0.310
CSP	2	5	3.778	0.725	-0.778	0.310
FRA	2.16	5	3.875	0.62	-0.655	0.310
AIS	1	5	3.74	1.058	-0.116	0.310

Source: SPSS output (2022)

According to the output given by SPSS relating to the descriptive statistics, profitability of SMEs is high because Mean value of the performance is 4.474, which is exceeds the median value. The Standard Deviation (SD) was 0.5 which showed an average dispersion. Profitability of SMEs represents a normal distribution because the Z value of kurtosis is (-0.544/0.310) -1.75, it is in between the acceptable range of positive 1.96 and negative 1.96. So, it is significant at 0.05 level of significance.

Table 4: Result of Correlation Analysis

Correlations							
		P	WIC	IAP	CSP	FRA	AIS
P	Pearson Correlation	1					
	sig. (2-tailed)						
WIC	Pearson Correlation	.507**	1				
	Sig. (2-tailed)	0					
IAP	Pearson Correlation	.455**	.5641**	1			
	Sig. (2-tailed)	0	0				
CSP	Pearson Correlation	.458**	.473**	.574**	1		
	Sig. (2-tailed)	0	0	0			
FRA	Pearson Correlation	.382**	.472**	.598**	.549**	1	
	Sig. (2-tailed)	0	0	0	0		
AIS	Pearson Correlation	.386**	.397**	.543**	.523**	.673**	1
	Sig. (2-tailed)	0	0	0	0	0	
**. Correlation is significant at the 0.01 level (2-tailed).							

Source: SPSS output (2022)

According to the table 4 variables like working capital management practices, investment appraisal practices, capital structure management practices, financial reporting and analysis practices and accounting information are positively and significantly correlated with debt control at 0.01 levels of significant.

Multiple Regression Analysis
Table 5: Regression Results

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.921	0.243	7.922	0	
	WIC	0.313	0.066	0.311	4.581	0
	IAP	0.063	0.065	0.087	1.149	0.252
	CSP	0.145	0.049	0.179	2.557	0.011
	FRA	0.005	0.059	0.007	0.089	0.936
	AIS	0.059	0.034	0.129	1.724	0.078
	R	0.574				
	R Square	0.434				
	F	28.46				
	Sig	.000[b]				

Source: SPSS output (2022)

According to the R squared value is 0.434 and it implies that the 4.34 percent of variation in SMEs
debt control is explained by the selected financial management practices in this study. The **F** value in the **ANOVA** table tests whether the overall regression model is a good fit for the data. F value is 28.46 and significant value is 0.000 which is lower than 0.05 levels of significance. So, it implies that regression model fits to the data.

According to table 5, regression results shows that there is a 0.313 regression coefficient value with 0.000 level of significance between working capital management practices and debt control. It is lower than 0.01 levels of significance. So, there is a positive significant impact of working capital management practices on SMEs debt control. The result is similar to (Semasinghe , et al., 2017), (Kosgey & Njiru, 2016), (Forghani, et al., 2013), and (Azam & Haider, 2011) findings.

Regression results show that investment appraisal practices have a positive impact on debt control, but it is not significant. The findings compatible with (Rossi,2015),(Puwanenthiren, 2016) and (Velnampy, 2014). Regression coefficient results imply that there is a 0.145 positive impact of capital structure management practices on SMEs debt control. Significant value shows 0.01 at 0.05 levels of significance. So, it can be concluded that there is a significant positive impact of capital structure management practices on SMEs debt control. This finding is similar with findings of (Palacios, et al., 2016), (Adesina, et al., 2015), (Foyeke, et al., 2016) and (Kajananthan & Nimalthasan, 2013),

According to regression results it revealed that there is a positive impact of financial reporting and analysis practices on debt control (B=0.005). But significant value 0.936 is higher than acceptable level of significance 0.05. So, it can be concluded that there is no significant effect of financial reporting & analysis practices on SMEs debt control. Findings compatible with previous research findings like (Amoako, 2013), (Madurapperuma, et al., 2016), (Kofi, et al., 2014), (Maseko & Manyani, 2011) and (Cheluget & Morogo, 2017).

Regression results show that there is a positive impact of accounting information system practices and debt control (B=0.059). But significant value 0.078 shows that significant level is higher than 0.05 acceptable significant level. So, it revealed that there is no significant impact of accounting information system on debt control. This finding is supported by the past studies like (Smirat, 2013), (Grande, et al., 2011), (Esmeray, 2016), (Muhindo, et al., 2014) and (Harash, 2017).

Recommendations

Nigerian SMEs should keep more attention on working capital management practices when they are engaging in day to day operating activities. SMEs should properly practice cash management practices, inventory management practices and receivable management practices, because they have significant as well as positive effect on SMEs performance. So, SMEs owners, managers, cash officers, accountants should pay their attention on proper practicing of working capital management practices. Capital structure management practices have a significant positive effect on profitability of SMEs. It implies that if there are sound capital structure management practices, SMEs will be able to increase their profitability. So, SMEs owners, managers and other parties engaging in financial management activities should pay their attention on establishing and practicing proper capital structure management practices in the business.

findings suggest both long term and short term loans reduce the financial performance. This calls for capacity building of SMEs in areas of business management (including financial record keeping) if they are to be rated as need to improve on their financial performance, thus they should reflect in reduction of loan processing time and the cost of borrowing (i.e. interest rates).Given the above, it could be suggested that Government will gain a lot from promoting SMEs through training and skill acquisition that will enable them better utilize their loans thereby reducing the probability of their being credit rationed.

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Effect of Environmental Disclosure on Financial Performance of Listed Manufacturing Firms in Nigeria

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Abstract: *This study investigates the association of environmental information disclosure and corporate financial performance for the steel industry. This study manufacturing industry listed companies in Nigeria Stock Exchange from. The environmental information disclosure includes environmental financial and non-financial information. The result disclosed that Disclosure on Material used (DMT) has insignificant negative effect on financial performance (ROA) of listed pharmaceutical manufacturing companies in Nigeria and The study also found that disclosure on environmental compliance has significant positive effect on financial performance of listed pharmaceutical manufacturing companies in Nigeria.*

Keywords: *Environmental information disclosure; Firm performance; Return on Asset; Return on Equity*

Introduction

With the ecological environment problem getting more attention in the world, governments also have issued several regulations related to environmental protection regulations. However, the disclosure of environment information is not compulsory. The main disclosure of environmental information for the enterprise depends on voluntary. There have been a growing number of companies from different industries disclosing their environmental information in their annual reports.)Environmental accounting disclosure has become a major pillar of today's business activities. Environmental information is one of the elements disclosed in the sustainability reporting segment of the financial reports of corporate entities. The awareness of the importance of disclosing environmental information had rising among the business community as a result of rising level of education, global warming, climate change, the rapidly evolving technology and thirst for information (Sidorova & Gurvitsh, 2012). This therefore makes stakeholders to demand more information from companies, hence, forcing companies to actively participate in environmental reporting.

Studies conducted on effect of environmental disclosure on financial performance yielded either a negative, neutral or positive association thus indicating inconsistent results. In addition, many studies have focused on developed markets as opposed to emerging markets. Although some firms have committed to investments in environmental disclosure through the allocation of more resources, other companies have resisted. This could, at least in part, be because of the debate on whether a corporation should go beyond maximizing the profit of its owners as the only social responsibility of business, to being accountable for any of its actions to the environment and society. The question of what really motivates environmental disclosure becomes principal. The integration of environmental disclosure programs in the operational strategies of companies is a new reporting practice in Nigeria but there has been increased adoption among the listed firms. The major objective of this study is to examine the effect of environmental disclosure on financial performance of listed manufacturing firms in Nigeria.

Literature Review

Concept of Environmental Accounting Disclosure

Wilmshurst and Frost (2000) defined environmental disclosures as those disclosures that relate to the impact company activities have on the physical or natural environment in which they operate. By disclosing environmental information, a company can enhance its reputation and gain competitive advantages to enhance its ability to compete with other companies. Disclosing environmental information also increases a company's reputation and provides vital information to investors. Environmental disclosure is a systematic procedure that measures a company's environmental level. This disclosure can be effectively regulated and improve a company's pollution management, ecological, and environmental protection systems. Environmental accounting disclosure is the ability to provide accurate information in the financial statements regarding the estimated social cost occasioned by the production externalities on the environment and how much deliberate intervention cost had been incurred to bridge the gap between the marginal social cost and the marginal private cost by a firm.

Environmental accounting disclosure is to fulfill its accountability regarding environmental efforts in their activities, and to provide useful information to decision making of interested parties (Frost & English, 2002). Moreover, Welford (2005) has expressed the account as company's way for the provision of information about environmental performance, and meeting the needs of the financial markets and at the same time providing itself with a positive environmental image. Additionally, Sarivudeen and Sheham (2013) have considered environmental disclosure as a valuable evaluation tool for corporations and individual investor, as well as financial institution, when making investment and financing decisions.

Dror and Fabrizio (2007) find that the third version of GRI guidelines in 2006 has facilitated more companies to publish environmental disclosure. Top 250 companies in the Fortune 500 adopt GRI guidelines for sustainability reporting. Further, their study expects GRI guidelines to reap the following benefits such as: improved relationships with stakeholders; breaking down internal organizational insularity through information sharing; reduction of volatility and uncertainty in share prices; building brand image; and creation of competitive advantage.

Concept of Financial Performance

In the world of finance, financial performance is measured to give the account of stewardship by the management team to the shareholders. The key aspect of this involves measuring the profitability, market value and growth prospect of a company. Accounting-based measures examines the nature of the relationship between some indicator of the social performance (reputation, revelation of social information, environmental behavior etc.), with the company's financial performance obtained from the accounting information such as the historical audited financial statements of the respective companies.

Financial performance is a measure of how an organization is able to satisfy the owners typically by way of profit maximization or shareholders wealth; it could also be seen as a measure of both financial and non-financial performance by way of satisfying all the stakeholders of the firm (Jaroslava, 2014). This study measured financial performance with ROA, ROE and NPM, these measurements are profitability indicators.

Empirical Review

Environmental Accounting Disclosure and Return on Assets

Nguyena and Manh (2019) assessed the relationship between disclosure levels of environmental accounting information and financial performance. Data were collected from the firms listed in Vietnam from 2013 to 2017, including the firms disclosed and the ones did not disclose the environmental accounting information. The study uses two regression models to investigate the relationship between environmental accounting information and return on assets. The results indicate that there was a close relationship between disclosure level of environmental accounting information and ROA. In addition, there was a difference in terms of financial performance between the firms had not disclosed environmental accounting information and the ones disclosed the environmental accounting information.

Environmental Accounting Disclosure and Return on Equity

Tze, Huey, Han, Siew and Boon (2016) examined the relationship between environmental disclosure and financial performance of 100 public listed companies on the main board of Bursa Saham in Malaysia for the year 2009 to 2013. Content analysis approach was adopted. The study indicates that environmental disclosure has insignificant relationship with ROE. In the same manner, Norhasimah, Norhabibi, Nor, Sheh and Inaliah (2016) investigated the effect of environmental accounting disclosure on financial performance among top 100 company of market capitalization in Malaysia for the year 2011. The needed information was examined by content analysis of the companies' annual report. The analysis shows mixed results between the existence of the environmental disclosure practices in Malaysia and financial performance. The study found that ROE showed no significant relationship with total environmental disclosures. The limitation of the study is that only one year data were considered for this study is considered.

Charles, John-Akamelu and Umeoduagu (2017) examined the relationship between environmental accounting disclosures and return on equity of food and beverage companies in Nigeria. It also examined the relationship between environmental accounting disclosures and return on capital employed of food and beverage companies in Nigeria, among others. Data for the study were collected through secondary sources and analyzed using Pearson's correlation statistical technique and multiple regression. The study revealed that there is a significant relationship between environmental accounting disclosures and ROE of selected companies.

Environmental Accounting Disclosure and Net Profit Margin

Norhasimah, Norhabibi, Nor, Sheh and Inaliah (2016) investigated the effect of environmental accounting disclosure on financial performance among top 100 company of market capitalization in Malaysia for the year 2011. The needed information was examined by content analysis of the companies' annual report. The analysis shows mixed results between the existence of the environmental disclosure practices in Malaysia and financial performance. The study found that there is a significant relationship between total environmental disclosure and profit margin. The limitation of the study is that only one year data were considered for this study is considered.

Charles, John-Akamelu and Umeoduagu (2017) examined the relationship between environmental accounting disclosures and financial performance of food and beverage companies in Nigeria. It also examined the relationship between environmental accounting disclosures and return on capital employed of food and beverage companies in Nigeria, among others. Data for the study were collected through secondary sources and analyzed using Pearson's correlation statistical technique and multiple regression. It revealed a negative relationship between environmental accounting disclosures and NPM of selected companies.

Theoretical Framework

Stakeholders Theory

Stakeholder theory was propounded by Freeman in 1984. According to Freeman (1984), stakeholders are possible collection of people or persons who can influence or are influenced by the actions or activities of an organization. His definition for what or who stakeholders are was responsible for the foundation for which stakeholders' theory has been lay by successive scholars. According to Clan (1996), the principal idea of the concept of stakeholder theory is that organization's achievement is determined by the successful accomplishment of all the affiliation that an entity has with all its interested parties and all persons who it has direct interest/connections with. To him the higher the authority of such group or individual, the more the organization must comply. Corporate environmental disclosure is therefore regarded as means by which organization used to interact with its stakeholders.

The stakeholders' theory suggested improvement in the degree of environmental responsiveness which requires organizations to add non-conventional stakeholders like employees' and community oppositional group into their decision making process in order to complying to changing public pressure. Organizational environmental disclosure is a means of tactically accomplishing good connection between organization and its stakeholders (Ullmann, 1985)

Institutional Theory

Institutional theory was developed by Scot in 1987. Scott (1987) opined that organisations are societal compositions which have reached high level of flexibility and in addition regulates – prearranged blue print of behaviour that are widely accepted by everyone in a social setting. They further argued that social organisations that comprise of internal settings and regulations such as institution's social strategy and management, and official social regulation such as environmental laws and rules. Thus, organisational theory proffers a conceivable shutter for examining corporate environmental reporting performance. Institutional theory involves an examination of how some the organisations' social composition that comprises of plan, guidelines, custom, and standards etc turn out to be established standard rules for organisation behaviour. Organisation structure is a reflection of the phenomenal in the environment that tends to make it become isomorphic, possibly because of technical and exchange interdependencies and also by socially constructed realities (Meyer & Rowan, 1977). Institutional theory explains how organisation chooses behaviour such as corporate environmental reporting through isomorphism (Dimaggio & Powell, 1983) and structural conformity pressures (Scott, 1987). However, according to Oliver, (1991) this theory does not explain how some organisations may choose not to take such behaviour and have ignored the role of active agency and resistance in organisation-environmental relations.

Methodology

Research Design

The study made use of ex-post facto and content research design. The study used ex-post facto research design because the study relied heavily on secondary data that are quantitative in nature and these data had already been collected by the study population. The use of content research design is to analyze the contents of the Annual Reports of selected listed Manufacturing Companies in Nigeria to analyze the companies' Environmental Accounting disclosure in their annual report. The content analysis method was adopted because it is one of the most systematic, objective and quantitative method of data analysis technique employed in other prior research.

Population, Sample and Sampling Technique

The population of this study is the 41 listed manufacturing companies on the Nigerian Stock Exchange as at 2019, since they are not too many census sampling technique is used to sample all the 41 listed manufacturing companies as the sample size because the population of the study is not too large.

Method of Data Collection

The study used secondary data collected from the Annual reports of the listed manufacturing companies in Nigeria and data from the Nigerian Stock Exchange fact book for the period of six (6). The use of secondary data in this study was informed by the fact that the study is based on the quantitative research methodology that requires quantitative data to test the research hypotheses. The various data were sourced based on the parameters of the variables, and the respective ratios or percentages taken. Financial performance which serves as the dependent variables are measured with ROA, ROE and NPM while the independent variable is measured with environmental disclosure index.

Variables Measurements

A dichotomous procedure known as the kinder Lydenberg Domini (KLD) environmental disclosure rating system was used to measure the reporting score (RS). A score of one (1) was awarded if an item was reported; otherwise a score of zero (0) awarded. Thereafter, all points obtained are added together and divided by the total items in the GRI disclosure items to determine a company's environmental disclosure index.

The formula for calculating the reporting score by using these 16 attributes is expressed below as:

RS =iΣri⁄i = 1

Where:

RS = Reporting Score = A score of (1) if the item is reported and (0) if the item is not reported.

In addition, multiple regression analysis model was used to determine the relationship between environmental reporting of the selected pharmaceutical companies and their performance, as it was used in previous studies on same topics (Susi, 2005; Daniel & Ambrose, 2013; Adediran & Alade, 2013; Tze, Wei, Boon & Sin, 2014; Onipe, 2018) as specified below;

Model Specification

The model for the multiple regressions is;

ROA = F (EAD)

ROE = F (EAD)

NPM = F (EAD)

Specified in econometric form, we have;

$ROA_{it} = \beta_0 + \beta_1 EAD_{it} + \varepsilon_{it}$---(i)

$ROE_{it} = \beta_0 + \beta_1 EAD_{it} + \varepsilon_{it}$---(ii)

$NPM_{it} = \beta_0 + \beta_1 EAD_{it} + \varepsilon_{it}$---(iii)

Where;

β_0 = Constant or Intercept

β_1 = Coefficient of the regressors

ε = Error term

I = cross section dimension of the variables

t = Time dimension of the variables

ROA = Return on Assets

ROE = Return on Equity

NPM = Net Profit Margin

EAD = Environmental Accounting Disclosure

Table 1: Random Effect Regression Results

Variable	Coefficient	Standard Error	t-statistics	Prob
C	0.006987	0.013992	0.499348	0.6180
EAD	0.222528	0.038714	5.747937	0.0000
R^2	0.30			
Adj. R^2	0.16			
F-Statistics	2.18			
Prob(F-Statistics)	0.00			
Hausman Prob. Value	0.027			
Heteroskedasticity Observed	0.6407			

R-square				
Serial Correlation LM Test Observed R Square	0.1819			

Dependent variable: ROA
Table 2 Random Effect Regression Results

Variable	Coefficient	Standard Error	t-statistics	Prob
C	0.004835	0.023770	0.203386	0.8390
EAD	0.078879	0.008079	9.763937	0.0000
R^2	0.91			
Adj. R^2	0.90			
F-Statistics	55.00			
Prob (F-Statistics)	0.000			
Hausman Prob. Value	0.0045			
Heteroskedasticity Observed R-square	0.3721			
Serial Correlation LM Test Observed R Square	0.1021			

Dependent variable: ROE
Discussion of results

In the regression result, Disclosure on Material used (DMT) has insignificant negative effect on financial performance (ROA) of listed pharmaceutical manufacturing companies in Nigeria. This indicates that DMT does not influence financial performance of listed pharmaceutical manufacturing companies in Nigeria. It means that no matter the level of disclosure on material used in the pharmaceutical manufacturing companies in Nigeria, financial performance does not change. The coefficient of DMT is negative which indicates that disclosure on material used has indirect relationship with financial performance of listed pharmaceutical manufacturing companies in Nigeria. The finding is in tandem with the findings in the previous works of Susi (2005).
In the case of disclosure of energy consumed and financial performance, an insignificant positive effect was found. This means that disclosure of energy consumed does not affect financial performance of listed pharmaceutical manufacturing companies in Nigeria, the results also reveals that disclosure on energy consumed has a positive coefficient. This indicates that financial performance will increase when there is an increase disclosure of energy consumed. This finding is consistent with the findings in previous studies such as Elena, Georgiana and Laura (2015).

Based on the regression result, disclosure on water and effluents (DWF) has significant positive effect on financial performance. The result implies that the more the listed pharmaceutical manufacturing companies disclose information on waste and effluents, the better their financial performance. This is in line with the findings of Utile, Tarbo and Ikya (2017); Peter and Mbu-Ogar (2018); but contradicted the study conducted by Elena, Georgiana and Laura (2015) who found insignificant relationship between disclosure on water and effluents and financial performance for listed pharmaceutical manufacturing companies in Nigeria.

The regression result of disclosure on environmental compliance and financial performance shows that disclosure on environmental compliance has significant positive effect on financial performance of listed pharmaceutical manufacturing companies in Nigeria. Disclosure of corporate information on the level of environmental compliance by listed pharmaceutical manufacturing companies in Nigeria improves all-round financial performance, credibility, greater transparency; ability to communicate efforts and standards among others. The finding is in line with the studies of Elena, Georgiana and Laura (2015).

Conclusions

The matter of environmental accounting disclosure and financial performance has become an essential matter in the literature of accounting. Attempt has been made in this study to examine the effects of four environmental disclosure indicators based on Global Reporting Initiative (2008) such as disclosure on material used, disclosure on energy consumed, disclosure on water and effluents and disclosure on environmental compliance on financial performance of listed pharmaceutical manufacturing companies in Nigeria. Based on the results of the analysis, this study concludes that disclosure on material consumed is not a significant factor that influences the financial performance of listed pharmaceutical manufacturing companies in Nigeria.

In line with insignificant positive effect of disclosure on energy consumed on financial performance of listed pharmaceutical manufacturing companies in Nigeria, the study concludes that disclosure on energy consumed is not a significant factor that improves the financial performance of listed pharmaceutical manufacturing companies in Nigeria.

In the case of significant but positive effect of disclosure on water and effluents on financial performance of listed pharmaceutical manufacturing companies in Nigeria, the study concludes that disclosure on water and effluents improves the financial performance of listed pharmaceutical manufacturing companies in Nigeria.

According to the result that disclosure on environmental compliance has significant positive effect on financial performance of listed pharmaceutical manufacturing companies in Nigeria. This means that the more listed pharmaceutical manufacturing companies in Nigeria discloses their level of compliance with environmental issues and laws, the more patronage they get form customers and stakeholders which will in turn boost their financial performance.

Recommendations

Based on the findings of the study, the following recommendations are proposed;

i. Based on the research results, the listed pharmaceutical manufacturing companies in Nigeria should have consideration for disclosure of material used and consumed during the course of production, it was discovered by this study that they have not been disclosing issues relating to material used in their factory. Because disclosure of material used is an important factor of environmental accounting disclosure requirement by GRI.
ii. Pharmaceutical manufacturing companies in Nigeria should consider disclosing the level of their energy consumption since stakeholders and standard setting organization like GRI are interested in the level of energy consumed and utilized by corporate organizations.
iii. Pharmaceutical manufacturing companies should give disclosure of environmental accounting information relating to water and effluents priority when considering their environmental accounting disclosure mix as it has positive influence on their financial performance.

iv. Pharmaceutical manufacturing companies in Nigeria should seek for total environmental compliance and disclose in totality compliance with environmental issue. Because this will earn them legitimacy, and this information are required by environmental institutions, stakeholders. shareholders and management.

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Effect of Inventory Management on Financial Performance of Listed Consumer Goods Companies in Nigeria

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Abstract: *Inventories are important assets of a company's production process. In order to avoid losses resulting from stock shortfalls and excesses, control of such inventories is useful. The aim of this study to examine the effect of inventory management on financial performance of listed consumer goods companies in Nigeria. The study employed ex-post facto and causal research design. This study concludes that on a general note inventory management contributes to the improvement in financial performance of listed consumer goods companies in Nigeria. It is recommended that consumer goods companies in Nigeria should consider investing in modern technology will improve production efficiency and reduce inventory costs.*

Keywords: *Inventory management, financial performance, work-in-progress, Inventory turnover, Return on Assets*

INTRODUCTION

In the past, inventory control was not seen to be an essential activity In most organizations as excess inventories were considered as a sign of wealth. Management by then considered over stocking beneficial. But today firms have started to embrace effective inventory control (Susan & Michael, 2000). Managers, now more than ever before, need reliable and effective control in order to reduce costs and remain competitive. Lyson (1996) posits that inventory control enhances profitability by reducing costs associated with storage and handling of materials. There are several reasons for keeping inventory. Too much stock could result in funds being tied down, increase in holding cost, deterioration of materials, obsolescence and theft. On the other hand, shortage of materials can lead to interruption of products for sales, poor customer relations and underutilize machines and equipment**.** The goal of inventory management is to ensure stability between the low inventory and high return on investment.

Inventory management is significant to an organization's success in today's aggressive and dynamic market. This entails a reduction in the cost of holding stocks by means of retaining just sufficient inventories, in the right place and the right time and cost to make the right quantity of needed products (Koin, Cheruiyot & Mwangangi, 2014).
The consumer goods industry is noted as one of the vital engine of progress, an antidote for unemployment, a creator of wealth and the threshold for sustainable development; however it appears to be going through extra challenges than some other sector in the economic system. The excessive rate of mortality in the sector obviously highlights the incapability of the sector to solve the main issue of unprofitability. Over 4 organizations in the sector have closed down within the recent past. As at 2006, a survey by Manufacturers Association of Nigeria (MAN) suggests that 30 percentages of the industries had been closed down, 60 percent have been

categorized as sick and 10 percent had been labeled as working at sustainable level (MAN, 2016).

The excessive rate of shut down in the consumer goods industry can be certainly attributed to high manufacturing cost created by using exorbitant prices of materials coupled with lack of enough management dedication to timely funding of material procurement (Ilori, Oke & Sanni, 2000; Oba, 2008; Adeloye, 2010). There is the need for developing better ways of managing and measuring how material resources must be utilized, and thus be equipped to scale down material cost as well as eliminate any wastage in the production method. Bankanjo (2000) maintains that consumer goods industry will stay shaky if materials are under stocked, overstocked or in any way poorly managed.

It is centered on this backdrop that this study intends to examine the effect of inventory management on financial performance of listed consumer goods companies in Nigeria for a period of 2016 to 2020

Objectives of the Study

The objective of this study is to examine the effect of inventory management on financial performance of listed consumer goods companies in Nigeria. The other specific objectives are to;

i. Determine the effect of raw material on return on asset of listed consumer goods companies in Nigeria.
ii. Assess the effect of work-in-progress on return on asset of listed consumer goods companies in Nigeria.
iii. Investigate the effect of finished goods on return on asset of listed consumer goods companies in Nigeria.
iv. Examine the effect of inventory turnover on return on asset of listed consumer goods companies in Nigeria.

Statement of the Hypotheses

The following hypotheses are formulated to achieve the objectives of the study:

Ho_1: raw material has no significant effect on return on asset of listed consumer goods companies in Nigeria.

Ho_2: work-in-progress has no significant effect on return on asset of listed consumer goods companies in Nigeria.

Ho_3: finished goods have no significant effect on return on asset of listed consumer goods companies in Nigeria.

Ho_4: inventory turnover has no significant effect on return on asset of listed consumer goods companies in Nigeria.

LITERATURE REVIEW

Concept of Inventory Management

Sharma (2003) defines inventory as the quantity of goods, raw materials, or other resources that are idle at any given point of time. From the definition above, inventories consist of raw materials, component parts, supplies or finished assemblies etc which are purchased from an outside source, and goods manufactured in the enterprise itself. In simple words, inventory refers to stocks held by a firm.

Inventory management is about ensuring that all input materials of production available to the firm are maintained at a level where production is not interrupted as well as ensuring that operational cost is kept at a minimal level without affecting operation efficiency (Eneje et al., 2012). Inventory management entails planning, organizing, controlling and directing. All these coordinated efforts are meant to ensure achievement of efficiency in all operations of the firm. Such operations may include procurement, stocking and transportation (Akindipe, 2014). Mismanagement of Inventories may lead to significant financial problems for a firm (Muhayimana, 2015).

This study used the value of raw material, work-in-progress, finished goods and inventory turnover to proxy inventory management.

Raw Materials

Raw materials are component parts of the stock of inventories carried by a manufacturing firm at a given time. Every organization has inventories of some type and the economics and techniques of inventory management are critical for efficient operation, profitability and survival; especially in a highly competitive environment (Kros, Falasca & Nadler, 2006). Raw material, also known as a feedstock or most correctly unprocessed material, is a basic material that is used to produce goods, finished products, energy, or intermediate materials which are feedstock for future finished products. As feedstock, the term connotes these materials are bottleneck assets and are highly important with regard to producing other products. An example of this is crude oil, which is a raw material and a feedstock used in the production of industrial chemicals, fuels, plastics, and pharmaceutical goods; lumber is a raw material used to produce a variety of products including furniture.

Work in Progress

Work in progress is materials that have been partly fabricated but are not yet completed. Work in progress (WIP), also called work in process, is inventory that has begun the manufacturing process and is no longer included in raw materials inventory, but is not yet a completed product. On a balance sheet, work in progress is considered to be an asset because money has been spent towards a completed product. Because the product has not been completed, however, WIP is valued lower.

WIP sometimes referred to as work in process, is the sum of all costs put into the production process to manufacture products that are partially completed.

Finished Goods

Finished goods are goods that have been completed by the manufacturing process, or purchased in a completed form, but which have not yet been sold to customers. Goods that have been purchased in completed form are known as merchandise. The cost of finished goods inventory is considered a short-term asset, since the expectation is that these items will be sold in less than one year. The total amount of finished goods inventory on hand as of the end of a reporting period is typically aggregated with the costs of raw materials and work-in-process, and is reported within a single "Inventory" line item on the balance sheet.

This is the last stage for the processing of goods. The goods are ready to be consumed or distributed. There is no processing required in term of the goods after this stage by the seller. Though there maybe instance that seller finished goods become buyer's raw materials finished goods is a relative term. In a Supply chain management flow, the finished goods of a supplier can constitute the raw material of a buyer.

Inventory Turnover

According to Winston (2015), a company's inventory turnover ratio refers to how quickly goods enter and leave storage at the business. It is most often used in relation to companies that deal in perishable goods, such as foodstuffs or high demand retail items. It is easy to calculate in theory but it is not always easy to interpret. According to Balle (2015), when discussing turnover in relation to inventory, posted that it is a reference to how quickly the company is pulling in product sales. To determine inventory turnover, organizations need to keep close track of the movement of stock into and out of the business. After analyzing inventory figures, organizations will discover that the inventory rate is a key factor used to determine how well the business is performing

Concept of Financial Performance

The concept of firm performance implies measuring the results of a firm's policies and operations in monetary terms. These results are reflected in the firm's return on investment, return on assets, and net profit after tax etc. Performance differences in firms are often the subject of academic research and government analysis (Verreynne & Meyer, 2008). Kothari (2001) defined the value of a firm as the present value of the expected future cash flows after adjusting for risk at an appropriate rate of return. According to Eyenubo (2013), it is the success in meeting pre-defined objectives, targets and goal within a specified time target.

One of the widely used accounting based measures of corporate performance in literature is ROA (Finkelstein & D'Aveni, 1994; Weir & Laing, 1999). It assesses the effectiveness of capital employed and provides a basis in which investors can measure the earnings generated by the firm from its investment in capital assets (Epps & Cereola, 2008). The ROA is a measure which shows the amount of earnings that have been generated from invested capital. It is an indication of the number of kobo earned on each naira worth of assets. It allows users, stakeholders and monitoring agencies to assess how well a firm's corporate governance mechanism is in securing and motivating efficient management of the firm (Chagbadari, 2011). This study examines one key accounting measures of firms' financial performance which is ROA. The ROA is the ratio of annual net income to total assets of a business during a financial year. It is measured thus:

ROA = Annual Net Income/ Total Assets.

Return on Assets

Return on Assets (ROA) is an indicator of how profitable a company is relative to its total assets. ROA gives an idea as to efficient management is at using its assets to generate earnings. ROA is calculated by dividing a company's annual earnings by its total assets, ROA is displayed as a percentage. The ROA formula is a straight forward calculation, and its component parts are easily located on a company's financial statements. The ROA ratio often called the return on total assets is a profitability ratio that measures the Net Income produced by total assets during a period by comparing Net Income to the average total assets. ROA is an indicator of how a business manages existing assets when generating earnings. If ROA is low, the management may be inefficient while a high ROA figure shows the business is running smoothly and efficiently (Madura, 2015).

Empirical Review

Sahari et al., (2012) empirically analyzed the relationship between inventory management and financial performance along with capital intensity. The study took a sample of 82 construction firms in Malaysia for the period 2006–2010. Using the regression and correlation analysis methods, the study found that raw material is positively correlated with firm performance. In addition, the results indicate that there is a positive link between inventory management and capital intensity. This research work was carried out in Malaysia while the current research is in Nigeria.

Eneje et al (2012) investigated the effects of raw materials inventory management on the profitability of brewery firms in Nigeria using a cross sectional data from 1989 to 2008 which was gathered for the analysis from the annual reports of the sampled brewery firms. Measures of profitability were examined and related to proxies for raw materials inventory management by brewers. The OLS stated in the form of a multiple regression model was applied in the analysis. The study revealed that raw materials inventory management designed to capture the effect of efficient management of raw material inventory by a company on its profitability is significantly strong and positive and influences the profitability of the brewery firms in Nigeria. The study concluded that efficient management of raw material inventory is a major factor to be contained with by Nigerian brewers in enhancing or boosting their profitability. This current study deviate from the study by looking at consumer goods companies which is more encompassing than brewery firms. The study did not take inventory turnover as one of its independent variable which this current study looked at.

Work- in-Progress and Financial Performance

Lyndon and Paymaster (2016) examined the effect of inventory cost management on the profitability of listed brewery companies in Nigeria. Inventory cost management proxy by raw materials cost, work in progress cost and finished goods cost was regressed against profitability proxy by gross profit margin. Secondary time series data was collected from the annual reports and accounts of selected brewery companies from the NSE from 2005 to 2014. A multiple regression technique was used to analyse the data obtained from NSE. The study revealed that work-in-progress has positive influence on the profitability of brewery companies in Nigeria. This current study deviate from the study by looking at consumer goods companies which is more encompassing than brewery firms. The study is characterized with limited empirical review, it did not take inventory turnover as one of its independent variable which this current study looked at.

Alrjoub and Ahmad (2017) examined the moderating effect of cost of capital on the relationship between inventory types and firm performance in Jordan. The data of 48 firms for the period 2010–2016 which formed 279 firm-year observations were used in this study. With the use of Pearson correlation and panel Generalized Method of Moments (GMM) estimation, the findings show that work-in-progress has positive significant effect on firm performance in the long term. In addition, it is also found that cost of capital moderates the relationship between inventory management and firm performance. However, the interaction between cost of capital and inventory types has different implications.

Finished Goods and Financial Performance

Capkun et al., (2009) studied the relationship between inventory and financial performance in manufacturing companies. The researchers studied 52,254 businesses for a period of 25 years between 1980 and 2005; the study used multiple regressions to determine the correlation between financial performance and various inventory levels. The study measured financial performance using gross profits and operating profit results and Inventory levels in regard to raw materials, partially manufactured products, and finished products. The results revealed a positive correlation between a company's finished goods and its financial performance. The study also noted that degrees of correlation vary depending on the type of inventory and the financial performance reference. The study was done in another country while the current study is carried out in Nigeria, also the study used gross profit to measure financial performance while this current study used ROA to measure financial performance.
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Inventory Turnover and Financial Performance

Raheman and Nasr (2007) studied the effects of inventory turnover in days and current ratio of the net operating profit of Pakistani firms. They selected a sample of 94 Pakistani firms listed on the Karachi Stock Exchange for a period of six years from 1999-2004 and found a strong negative relationship between inventory conversion period and profitability of the firms. The study was carried out in Pakistan while the current study is in Nigeria, also the scope of the work was 1999-2004 while the current study scope covered 2006-2017. This current study is updated to 2017. In a similar manner, Falope and Ajilore (2009) used a sample of 50 Nigerian quoted non-financial firms for the period of 1996-2005. The study utilized panel data econometrics in a pooled regression where time series and cross sectional observation were combined and estimated. The study found a significant negative relationship between operating profit and the inventory turnover in days for a sample of 50 Nigerian firms listed in the NSE. The study is an old study, there is need to determine the current impact of inventory management on financial performance, also the study did not measure raw material, WIP and finished goods as one of its independent variable.

RESEARCH METHODOLOGY

3.1 Research Design

This study employed ex-post facto and causal research design. Causal research determines the cause-effect relationship among variables while ex-post Facto seeks to find out the factors that are associated with certain occurrence, conditions, events or behaviour by analyzing past events or already existing data for possible casual factors (Kothari & Garg, 2014).

3.2 Population, Sample and Sampling Techniques

The population of this study comprised twenty-one (21) listed consumer goods companies on the Nigerian Stock Exchange from 2016-2020. The study covered five (5) year period spanning from 2016-2020. In this study statistical sampling is not used due to the small size of the population; however all the twenty-one listed consumer goods companies is census as the sample size.

3.3 Methods of Data Collection

This study made use of secondary data. The data are sourced from publication of the Nigerian Stock Exchange (NSE) and the annual report and accounts of the listed consumer goods companies for the periods of 2016 to 2020.

3.4 Technique for Data Analysis and Model Specification

This study utilized the panel ordinary least squares model to examine the effect of the independent variables on the dependent variable of profitability of listed consumer goods companies in Nigeria, Panel regression techniques is used to analyze this study because the study involves the combination of time series and cross sectional data. Hausman specification test is utilized to test whether the fixed or random effect model is appropriate.

Thus, the technique is consistent with the research design employed in the study and the objective of this study. Return on Assets serves as proxy for profitability. The model is stated econometrically below, the model was adapted from the empirical studies of Capkun et al., (2009) and Lyndon and Paymaster (2016);

Model Specifications

$$ROA = f(RMT + WIP + FGD + ITO + FSZ)$$

$$ROA_{it} = \beta_0 + \beta_1 RMT_{it} + \beta_2 WIP_{it} + \beta_3 FGD_{it} + \beta_4 ITO_{it} + \beta_5 FSZ_{it} + e_{it}$$

Where;

ROA = Return on Assets

RMT = Raw Material

WIP = Work-in-Progress

FGD = Finished Goods

ITO = Inventory Turnover

e = error term

β_0 = Intercept of the regression line

$\beta_{ít}$ = Coefficients to be estimated for firm í in period t

β_1-β_5 = Coefficient of the independent variables

Variables Measurement

Independent Variables
Raw material- the value of raw material,
Work-in-progress- the value of work-in-progress.
Finished Goods- the value of finished goods.
Inventory Turnover (INVT) - This is the number of times inventory is turned over in a year. The formula is: INVT = Cost of goods sold divided by Average Inventory Multiply by 365
Dependent Variable
Return on Asset (ROA)
ROA is an indicator of how profitable a company is in relation to its total assets. It gives an idea as to how efficient the management uses assets to generate earnings. In fact, using this ratio, we can evaluate firm performance and it reflects the degree of efficiency in employing assets to obtain profit

$$ROA = \frac{\text{Net Income}}{\text{Total Assets}}$$

Data Analysis and Results
Descriptive Statistics of Variables
Table 4.1: Descriptive Statistics

Statistics	ROA	RMT	WIP	FGD	ITO	FSZ
Mean	0.263618	14.66576	12.69590	13.61194	4.048016	6.781395
Max	4.130000	18.15486	15.98989	16.41159	4.584967	10.82340
Min	-0.960000	10.61861	8.510290	7.981182	3.378054	5.065300
Sd	0.601658	1.930092	1.647014	1.855880	0.348037	1.700284
Skewness	2.789943	-0.386555	-0.051596	-0.951557	-0.609611	0.318921
Kurtosis	16.51204	2.354514	2.251728	3.540755	2.650033	2.120994
JB	1199.896	4.574834	2.516008	16.46580	7.039275	5.160282
Prob	0.000000	0.101528	0.284221	0.000266	0.029610	0.075763
Observation	105	105	105	105	105	105

Source: Eview Output, 2021

Correlation Matrix

	ROA	RMT	WIP	FGD	ITO	FSZ
ROA	1					
RMT	-0.025592	1				
WIP	-0.081596	0.7603122	1			
FGD	-0.135708	0.6994384	0.6358975	1		
ITO	0.0493426	0.0132109	0.1314898	0.0171809	1	
FSZ	0.0028194	-0.238210	-0.182725	-0.424385	0.1748103	1

Source: Eview Output, 2021

The table above shows the correlation values between the independent variables. The correlation matrix is used to determine the correlation between independent variables of the study. It is observed that the variables correlate fairly well (between -0.18 and 0.76). There is no correlation coefficient greater than 0.8, hence there is no problem of multicollinearity of data (Neter, Kutner, Nachtsheim & Wasserman, 1996; Wallace & Naser, 2005).

Random Effect Model Regression Results

Variable	Coefficient	Standard Error	t-statistics	Prob
C	0.490021	1.232594	0.397552	0.6918
RMT	0.040676	0.074277	0.547620	0.5852
WIP	-0.528774	0.080891	-6.536870	0.0000
FGD	-0.051662	0.067974	-0.760028	0.4490
ITO	0.665593	0.192393	3.459548	0.0033
FSZ	-0.001463	0.058096	-0.025188	0.9800
R^2	0.311313			
Adj. R^2	0.238621			
F-Statistics	3.226562			
Prob(F-Statistics)	0.005197			
Hausman Chi-Sq. Stat.	2.324210			
Hausman Prob. Value	0.8027			
Heter. F-Statistics	0.900658			
Heter. Observed R^2	0.4708			

Br-Godfrey LM F-Stat	1.25252			
Br-Godfrey LM Ob. R^2	0.1187			

Source: Eview Output, 2021
Dependent variable: Return on Asset (ROA)

Discussion of Results

The Random effect regression result indicates that Raw material (RMT) has no significant effects on financial performance of listed consumer goods companies in Nigeria. This indicates that RMT does not influence financial performance.

The study found that work-in-Progress (WIP) has significant negative effect on financial performance of listed consumer goods companies in Nigeria. This means that WIP influences financial performance of listed consumer goods companies in Nigeria negatively.

In the case of finished goods and financial performance, an insignificant negative effect was found. This indicates that finished goods do not influence financial performance of listed consumer goods companies in Nigeria.

Based on the regression result, inventory turnover (ITO) and financial performance, ITO has significant positive effect on financial performance.

Findings Conclusion and Recommendations

The Random effect regression result revealed that Raw Material has no significant effects on financial performance of listed consumer goods companies in Nigeria; it was revealed that WIP has a negative significant effect on financial performance of listed consumer goods companies in Nigeria, while FGD has no significant effects on financial performance of listed consumer goods companies in Nigeria. ITO has positive significant effects on financial performance of listed consumer goods companies in Nigeria.

This study concludes on a general note that inventory management contributes to the improvement in financial performance of listed consumer goods companies in Nigeria.

Specifically, the study found that raw material has no influence on financial performance of listed consumer goods companies in Nigeria, based on this; the study concludes that raw material is not a contributor to financial performance of listed consumer goods in Nigeria.

In line with significant negative effect of work-in-progress on financial performance of listed consumer goods companies in Nigeria, the study concludes that work-in-progress reduces financial performance of listed consumer goods companies in Nigeria.

The negative coefficient of finished goods implies that finished goods reduces the level of financial performance of listed consumer goods companies in Nigeria, the study concludes that finished goods reduces financial performance of listed consumer goods companies in Nigeria. Also, this study concludes that inventory turnover improves financial performance of listed consumer goods companies in Nigeria.

However, it is recommended that consumer goods companies in Nigeria should consider investing in modern technology will improve production efficiency and reduce inventory costs.

The study also recommends that finished goods should not be stored for long in the ware house before they are distributed to the various outlets for onward distribution to customers.

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Effect of Tomato Post-Harvest Losses on Households' Food Security

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Abstract: *One of the main factors contributing to food shortage in Nigeria and majority of developing nations is postharvest losses. Therefore, the study examined the effect of tomato post-harvest losses on the food security status of households. The study covered losses that occurred in the course of marketing tomatoes from the farm to the final consumers of tomatoes. Samples for the study were drawn using a multi-stage sampling technique. Five local government areas that were prominent in tomato production and accessible with regard to security were purposely selected for the study. Both primary data and secondary information were used for the study. Descriptive statistics, food security index, postharvest loss estimation model, binary logistic regression, and t-test were used to analyse the data generated by the study. The findings of the study revealed that the majority of the tomato marketers in the study area were young people with strength and stability. Majority of tomato marketers were also male with small-size enterprise holdings. Small-size enterprises result in small income and small income reduces the marketers' purchasing power to reduce tomato postharvest losses. The consequence of this is food insecurity resulting from an inability to access sufficient food among marketing households. The findings of the study further revealed that the majority of the sampled marketers' households were food insecure. This was found to be attributed to the large volume of tomato postharvest loss encountered by the tomato marketers in the study area which tends to reduce household income and therefore, household food budget.*

Keywords: *Households, Income, Losses, Marketing, and Size*

1.0 Introduction

Food security is a situation that exists when all people, at all times have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Four dimensions of food security have been identified. These are food availability, accessibility, utilization, and stability. All four of these dimensions must be achieved to have full food security (Babatunde *et al.,* 2007). More recent development in food security studies emphasize the importance of food sustainability which may be considered as the long-term (fifth) dimension of food security.

Peng and Benny (2019) are of the opinion that food security is best considered as a causal, the linked pathway from production to consumption, through distribution to processing recognised in a number of domains, rather than as four "pillars" or dimensions. Food security and food insecurity are dynamic, reciprocal, and time-dependent and the resultant status depends on the interaction between the stresses of food insecurity and the coping strategies to deal with them. Measuring food security at the household level involves five categories of indicators including dietary diversity and food frequency, spending on food, consumption behaviours, experiential indicators, and self-assessment measurements (Peng and Berry, 2019). This study adopts the food accessibility pillar as its concept of food security. It looks at the ability of households to purchase available food in sufficient quantities to meet households' food needs. This is related to the food spending of food, category by Peng and Berry (2019).

Furthermore, postharvest loss on the other hand is degradation in both quantity and quality of food produced from immediately after harvest to consumption. Quality losses include those that affect the nutrient/caloric composition, the acceptability, and the edibility of a given product. These losses are generally considered in developed countries (Kader, 2002). Quantity losses refer to those that result in the loss of a portion of the amount of a given food product. Loss of quantity is more common in developing countries (Kitinoja, 2010).

Postharvest food loss (PHL) is the measurable qualitative and quantitative food loss along the supply chain, starting at the time of harvest till its consumption or other uses (Hodges, 2014). Postharvest loss can occur either due to food waste or due to inadvertent losses along the way. Thus, food waste is the loss of edible food due to human action or inaction such as throwing away wilted produce, not consuming available food before its expiry date, or taking serving sizes beyond one's ability to consume. Food loss on the other hand is the inadvertent loss in food quantity because of infrastructure and management limitations of a given food value chain. Food losses can either be the result of a direct quantitative loss or arise indirectly due to qualitative loss. Food loss and food waste contributed to postharvest food losses. Food loss can be quantitative as measured by decreased weight or volume or can be qualitative, such as reduction in nutrient value and unwanted changes in taste, colour, cosmetic features and texture of food (Buzby and Hyman, 2012). Quantitative food loss refers to the reduction in weight of food available for human consumption. The qualitative food loss can occur due to incidence of insect pest, mites, rodents and birds or from handling, physical changes or chemical changes in fat, carbohydrate and protein and by contamination of mycotoxins, pesticide residues, insects, fragments of excreta of rodents and birds and their dead bodies. When this qualitative deterioration makes food unfit for human consumption and is rejected, it contributes to food loss (Bada, 2016).

Ahmed (2014) analysed food security level among rural farming households in Osun state, and revealed that food insecurity line was at N69.14 per adult equivalent per day. Over 60% of the households were food insecure. The shortfall index revealed that these households fell short of recommended calorie intake by 36%. Total elasticity change revealed that 10% increase in household size led to about 24% increase in the level of food insecurity while a 10% increase in total expenditure and food allocation led to about 32% and 49% increase in the level of food insecurity respectively. Food insecurity was influenced by income earning opportunities, agricultural production inputs, access to remittance, improved asset base and production capacities of the households. Furthermore, Mohiuddin *et al*. (2016) in their study on poverty, food security status of farm households in some selected areas of Bangladesh reported that out of 150 households, about 24% of the households were below the lower poverty line and about 37% were below the upper poverty line. About 19% lay below the hardcore poverty line and about 35% lay below the absolute poverty line. The study observed that on the average, the rural households were more or less secure in relation to availability of food round the year.

FAO (2008) disclosed that there are no clear statistics to ascertain that the food insecurity condition is the same at household level especially in rural areas of South Africa. The result of the study also revealed that about 14 million people or 35% of the population of the country were estimated to be vulnerable to food insecurity. One and half million or one quarter of children under the age of six had stunted growth due to malnutrition. Food insecurity is more prominent in rural areas (Toit et al. 2011).

2.0 Methodology

2.1 The Study Area

The study was conducted in Borno state. Borno State lies between latitudes 10^0 30^0N and 13^0 50^0N and longitudes 11^0 0ºE and 13^0 45^0E. It is located in the North Eastern corner of Nigeria and comprises 27 Local Government Areas with a land mass of 69,450 square kilometers (Borno State Ministry of Land and Survey, 2008). It shares international borders with the Republic of Niger to the north, Chad to the north-east and Cameroun to the east. Within Nigeria, its Neighboring states are Adamawa to the south, Gombe to the south-west and Yobe to the west. It has a projected 2019 population of 5,175,244 people from 2006 census at an annual growth rate of 3.2 percent (NPC, 2006). It has hot climate with temperatures ranging between 35^{0C} and 40^{0C} for a greater part of the year. It has a short period of rainfall from July to September with an average of about 647mm per annum (Lake Chad Research Institute, 2007). This climate presents short raining season suitable for tomato production and high temperature that contributes to hasten tomato deterioration after harvest. Agriculture is the main stay of the Borno state economy. Major crops grown include: Maize, Cowpea, Millet, Sorghum, Rice, Groundnut, Soybean and Wheat. Vegetables cultivated in the state include Onion, Tomatoes, Pepper, Garden eggs and other leafy vegetables. Major livestock kept include: Cattle, Sheep, Goat and Poultry. Major occupations of the people include Civil service, trading as well as farming. The major ethnic group is Kanuri. Others include Babur/Bura, Shuwa Arabs, Margi, Fulani, Hausa and many immigrants from within and outside Nigeria (Borno State Agricultural Development Programme, (BOSADP, 2007)

2.2 Sampling Procedure

Samples for the study were drawn using a two-stage sampling procedure. In the first stage, based on the concentration of production and marketing of fresh tomatoes in the study area, five local government areas were purposively selected. These are Jere and Konduga Local Government areas from the Sudan Savannah, Monguno from the Sahel, and Biu and Hawul local government areas from the Guinea savannah. In the second stage, eighty (80) wholesalers and two hundred and twenty (220) retailers were selected randomly from the highly concentrated tomato markets in the five local government areas and this served as the sample size (see Table

1). Samples of wholesalers and retailers were taken along the marketing chain of the produce to the final consumer. The list of marketers in the tomato marketers' association in the study area was used as the sampling frame. Postharvest losses were estimated for every respondent at various stages from the farm gate marketers to the wholesalers and retailers along the tomato supply chain to the final consumer.

Table 1: Sampling Technique used to select tomato marketers at various marketing stages

Agro-ecological zone	Local Government Area	Community	Wholesalers sample frame/sizes	Retailers sample frame/sized	Total sample size
Sudan Savanna	Jere	Zabamari	10/20	40/80	50
		Gonglon	0/20	40/80	50
	Konduga	Alau	10/20	40/80	50
		Konduga	5/10	20/40	25
Sahel Savana	Monguno	Mune	5/10	15/30	20
		Irrigation	10/20	15/30	25
Guinea Savannah	Biu	Tum	5/10	10/20	15
		Bera	10/20	15/30	25
	Hawul	Sabon Kasuwa	5/10	10/20	15
		Kukurpu	10/20	15/30	25
					300

Source: Field Survey, 2020

2.3 Data Analysis

Household Food Security Index (Income and Expenditure Method) was used to examine the effect of tomato post-harvest losses on the food security status of households. The index was developed by Ononoma *et al*. (2007). The food security index is given by:

$$F_i = \frac{\textit{per capita food expenditure of the } i^{th} \textit{ household}}{\frac{2}{3} \textit{ mean per capita food expenditure of all households}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

Where:

F_i = food security index

when $F_i \geq 1$, i^{th} household is food secure

when $F_i < 1$, i^{th} household is food insecure

$$PCFE = \frac{HFE}{HHS} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where:

PCFE = Per capita food expenditure

HFE = Household food expenditure

HHS = Household size

Also

$$MPCFE = \frac{\Sigma PCFE}{TNR} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Where:

MPCFE = mean per capita food expenditure ………………………………… ... *(4)*

$\sum$ = Summation

PCFE = per capita food expenditure

TNR = total number of respondents

Furthermore, determinants of food insecurity of households were modeled as shown in the below equations. The model is Logit regression:

$Y_i = g(I_i)$ ……………………………………………………………………………*(5)*

$I_i = b_0 + \sum_{j=1}^{n} b_j X_{ji}$ …………………………………………………………………... *(6)*

Where,

Yi is the observed response for the ith observation (i.e. the binary variable, $Y_i = 1$ for food secure household and $Y_i = 0$ for a food insecure household). It is an underlying and unobserved stimulus index for the ith observation (conceptually, there is a critical threshold (I_i*) for each household; if $I_i \geq I_i$* the household is observed to be food secured). If $I_i < I_i$* the household is observed to be food insecure, g is the functional relationship between the field observation (Y_i) and the stimulus index (I_i) which determines the probability of being food secure.

The logit model assumes that the underlying stimulus index (I_i*) is a random variable, which predicts the probability of being food secure. Therefore, for the ith observation (a household):

$Yi = \text{In} \frac{P}{1-P_i} = bo + \sum_{j=1}^{n} b_j X_{ji}$ …………………………………………………………………*(7)*

Where Yi = food security status of ith household (where 1 = food, 0 = food insecure)

The relative effect of each explanatory variable (X_{ji}) on the probability of being food secure is measured by differentiating with respect to X_{ji} using the quotient rule:

$$\frac{dP_i}{dX_{ji}} = \left[\frac{e^{1i}}{(1+e^{1i})^2}\right]\left[\frac{I_i}{X_{ji}}\right] \quad \text{……………………………………………………………………………}(8)$$

Where:

P_i = the probability of an ith household being food secure

X_i = vector of explanatory variables which are defined below

X_1 = total postharvest loss (₦)

X_2 = income from sales of tomato (₦)

X_3 = marketing experience (years)

X_4 = enterprise size (basket)

X_5 = age of household head (years)

X_6 = educational qualification of household head (years)

X_7 = household size (number)

X_8 = sex (where 1 = male, 0 = otherwise)

X_9 = marital status (where 1 = married, 0 = otherwise)

X_{11} = household consumption (₦)

X_{12} = secondary occupation

In addition, t-test was used to show the difference in household food security with food loss and without food loss.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{SE}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)} \quad \ldots\ldots (9)$$

where:

t = student t-test
x_1 = mean of food security index of tomato marketing households assuming there were no tomato losses in marketing
x_2 = mean of food security of tomato marketing households who suffered tomato losses in marketing

S^2 = standard error

n_1 & n_2 = number of observations in each group (with losses and without losses respectively)

3.0 Results and Discussion

3.1 Socio-economic Characteristics of Tomato Marketers

The descriptive statistics of the sampled tomato marketers as presented in Table 2 shows the descriptive features of the tomato marketers in the study area. These features include age, sex, marital status, years of formal education, household size, average weekly income, marketing experience, access to credit, enterprise size, sources of credit, and secondary income.

Table 2: Socioeconomic Characteristics of Respondents

Age (Years)	Frequency	Percentage	Mean	S.D
<20	3	1.0		
20-30	74	24.7		
31-40	98	32.7		12.32
41-50	77	25.7	40	
51-60	40	13.3		
>60	8	2.7		
Sex				
Female	53	17.7		
Male	247	82.3		
Marital Status				
Married	279	93.0		
Single	15	5.0		
Divorced	4	1.3		
Widowed	2	0.7		
Year of formal schooling (years)				
No schooling	8	2.7		
1-6	127	42.3		
7-12	118	39.3	8	1.23
13-18	39	13.0		
>18	8	2.7		
Household size				
<3	36	12.0	8	

3-6	91	30.3		
7-10	160	53.3		1.03
11-13	7	2.3		
>13	6	2.0		
Weekly total household income(₦)				
<10000	24	8.0		
10001-20000	146	48.7		
20001-30000	79	26.3	18,000	
30001-40,000	24	8.0		2003.1
40,001-50000	15	5.0		
>50000	12	4.0		

Source: Field Survey, 2020

3.2 Food Security Status of Respondent Household

Table 3 shows the food security status of tomato marketing households in the study area.

Table 3: Food Security Status of Respondent Households

Status	Frequency	Percentage	Food Security Index
Food insecure	245	81.7%	
Food secure	55	18.3%	
Total	300	100.0%	₦4,454.45 (8.91 *USD*)

Source: Field Survey, 2020

Table 3 revealed that about 82% of the respondent households were food insecure while 18% of the tomato marketers' households were food secure. The result of the study revealed that the mean per capita food expenditure per month was estimated to be ₦4,454.45 (8.91 *USD*) (and this value was used as the food security index. This means that any respondent whose per capita weekly food expenditure is less than ₦4,454.45 (8.91 *USD*) (food security index) was considered to be food insecure. The large proportion of households with per capita income of less than ₦4,454.45 (8.91 *USD*) indicated large proportion of tomato marketers had low income. The result of this study indicated that majority (82%) of the sampled marketers' households were food insecure. This could be as a result of inadequate income to access sufficient food per capita. This corroborates Babatunde *et al.* (2007), Amaza *et al.* (2008) and Ahmed (2014) who observed that majority of sampled households were food insecure. This could in part be attributed to the large volume of tomato postharvest loss encountered by the tomato marketers in the study area which could reduce household income.

3.3 Effects of Postharvest Loss on Food Security Status of Respondents

Table 4: Effects of Postharvest Loss on Food Security Status of Households

Variables	Coefficient	Std. Err.	z
Total postharvest tomato loss	-0.1531	0.0389	-3.94***
_cons	3.2280	1.1195	2.88***
Log likelihood	-153.21292		

Source: Field Survey, 2020

Note: **,*** are significant at 5% and 1% respectively.

The result from Table 5 shows that the coefficient of total tomato loss (x_1) is negative and significant at 1% level. This implies that as the marketer's tomato loss increases the likelihood of being food insecure increases. This implies that there is an inverse relationship between tomato loss and the food security of tomato marketing households.

3.4 Effects of Socioeconomic Characteristics on Food Security Status of Respondents' Households

Table 5: Effects of Socioeconomic Characteristics on Food Security Status of Respondents

Variables	Coefficient	Std. Err.	z
Income	0.3570	0.0143	25.0***
Market experience	0.1873	0.0775	2.4**
Enterprise size	0.1208	0.0358	3.4***
Age	-0.2392	0.0903	-2.7***
Years formal education	0.2296	0.0175	13.1***
Household size	0.1215	0.0139	8.7***
Sex	-0.0063	0.0256	-0.2NS
Marital status	0.3714	1.4715	0.3NS
Expenditure	0.3612	0.0571	6.3***
Hh consumption	-0.5134	0.1654	-3.1***
Secondary occupation	-0.5263	0.1497	-3.5***
_cons	-1.5752	0.3730	-4.2***

Source: Field Survey, 2020

Note: **,***< NS are significant at 5% ,1% not significant respectively

Average income (x_2) had positive coefficient and was statistically significant at 1%. Marketers income has positive effect on food security status, implying that the less the marketers earn the less the chances of their households being food secure. Decrease in income is expected to decrease the purchasing power of the respondents and their access to more quantitative and qualitative food. This agrees with Oluyole (2011), Ahmed (2014) and Mohiuddin *et al.* (2016) who reported that an increase in income increases the likelihood of the marketer being food secure. The coefficient of marketing experience (x_3) is positive and statistically significant at 5% level. An experienced marketer is expected to have more insight on how to reduce losses to enhance food security. This agrees with Adeoye *et al.* (2009) who observed that experience is the most important tool for acquiring new ideas and skills that bear positively on scope of enterprising, income and profit.

Results from Table 5 also show that enterprise size is an important factor that has an effect on the food security status of the marketers. The coefficient of enterprise size (x_4) is positive and statistically significant at 1% level. This implies that the larger the enterprise size the higher the expected level of income which will enhance access to food in sufficient quantities and qualities resulting in more food secure households This agrees with Abimbola (2014).

The coefficient of age (x_5) is shown in Table 3.4 to be negative and statistically significant at 5% level. This implies that as marketer's age increases, the likelihood of being food secure decreases. Young and energetic marketers are expected to handle the marketing of tomatoes better than the older and weaker marketers. Also older marketers may not have the ability to obtain off-farm farm jobs and income which younger marketers can do, thus, increasing the food security of households headed by younger men. This agrees with the finding of Bakari and Usman (2013), Iyade (2013), and Dorothy and Ikechi (2013) who reported that vegetable marketing is mostly dominated by young people who can withstand the rigours of vegetable marketing.

The result from Table 5 further indicated that the coefficient of years for formal education (x_6) is positive and statistically significant at 1% level. This implies that increase in years of formal education level increased the likelihood of tomato marketing household to be food secure. Education affords marketers' increased capacity for more efficient marketing of tomatoes to reduce losses, hence increasing their income. Food security incidence increases with increase in level of education (Omonona *et al.,* 2007). Low education hampers more profitable entrepreneurship. This also agrees with Ikechi and Shelaby (2018) who reported that educational level affects market information and interpretation and hence has great impact on vegetable marketing.

It was also revealed from the result of the study in Table 5 that the household size (x_7) had a positive coefficient and was statistically significant at 1% level. This implies that there is direct relationship between household size and food security status of the household members. This agrees with Ikechi and Shelaby (2018) who reported that a lot of vegetable marketers had more people in their household indicating that larger households will contribute more to family labour and equally entails great mouth to feed.

The findings presented on Table 5 further revealed that the coefficient sex (x_8) is negative and not significant. This implies that the more household heads are female, the more the food insecure the household will be. This is in line with the findings of Olayemi *et al.* (2011). The coefficient of marital status (X_9) is positive but statistically not significant. Table 5 also indicated that household expenditure (x_{10}) had a positive coefficient and was statistically significant at 1% level. This implies that there is a direct relationship between household expenditure and food security status. In other words, household food security status is expected to increase as household monthly expenditure increases. The more the household expands, the more likely more expenditure will be made on food to household's food being the most basic of household consumption expenditure. This finding is in line with Babatunde *et al.* (2007) that household food security decreases as food consumption increases.

Household consumption (x_{11}) has negative coefficient and was statistically significant at 5% level. This implies that there is an inverse relationship between consumption and food security status. In other words, food security status is expected to decrease as a result of unit increase in food consumption. This study is in line with Oluyole (2011) who opined that food security status of household decreases with an increase in food consumption. The larger the household size, often the larger the consumption, thus, the less the food security.

Conclusion

The study examined the effect of tomato post-harvest losses on households' food security and drawn the following conclusions; Majority of the sampled marketers' households were food insecure. This was found to be attributed to the large volume of tomato postharvest loss encountered by the tomato marketers in the study area which tends to reduce household income and therefore, household food budget. However, household that had no postharvest tomato losses were significantly more food secure than households that had postharvest tomato losses. Furthermore, Marketers had been able to market their tomatoes without losses, food security situations of their households would have been significantly higher and many more households would have been above the food security line.

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