

**ANALYSIS OF BUSINESS COMPETITIVENESS IN MANUFACTURING,
FOOD AND BEVERAGES, AND ADVERTISING BUSINESSES IN
KADUNA METROPOLIS AND ZARIA AREA**

BY

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M.Sc/Soc.Sci/03105/2010-2011

**BEING A THESIS SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES,
AHMADU BELLO UNIVERSITY, ZARIA IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF A MASTER DEGREE IN ECONOMICS**

JANUARY, 2015

DECLARATION

I, Eunice Kehinde BOLAJI (MSC/SOC-SCI/03105/2010-2011) hereby declare that this research thesis titled “ANALYSIS OF BUSINESS COMPETITIVENESS IN MANUFACTURING, FOOD AND BEVERAGES, AND ADVERTISING IN KADUNA METROPOLIS AND ZARIA AREA” was conducted by me and to the best of my knowledge has not been presented anywhere for the award of Bachelor Degree or Master Degree in any institution of learning. All sources of information, materials and quotations used for this study have been duly acknowledged in the bibliography.

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CERTIFICATION

This is to certify that this research thesis “ANALYSIS OF BUSINESS COMPETITIVENESS IN MANUFACTURING, FOOD AND BEVERAGES, AND ADVERTISING IN KADUNA METROPOLIS AND ZARIA AREA” conducted by Eunice Kehinde BOLAJI meets the requirements for the award of a Master Degree in Economics by the School of Postgraduate Studies, Ahmadu Bello University, Zaria. The thesis work is this day approved for its contribution to knowledge and literally presentation.

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DEDICATION

This thesis is dedicated to my Friend, my Love, my Treasure, my Inspiration, my Priority, my Comforter, my greatest Teacher and my ALL IN ALL - **THE HOLY SPIRIT.**

ACKNOWLEDGEMENT

I return all the glory, honour and adoration to Jehovah Elyon- God most high for His faithfulness and mercy. I am so amazed at His investments in me and having brought me this far; your SPIRIT has been my guide. Lord Jesus! You are my everything, thank you for your strength and grace unlimited.

My sincere appreciation goes to my supervisors Prof. P.S. Aku for the motherly love and advice shown to me in the course of this work. Thank you so much Ma, I am sincerely grateful and I pray to God to bless you and lift you higher. Dr. M.S. Jibril, you are not just my supervisor, you are my father, my mentor, my teacher and my guide. I lack words to express my gratitude, I will eternally remain grateful to God for making our paths to meet and will eternally remain grateful to you. My God will bless and reward you abundantly.

Special thanks to Prof A.G. Garba, Dr. D. Lawong, Mr. A. Popoola and all my wonderful Lecturers, thank you all for investing your wealth of knowledge in me.

I remain indebted to my ever caring and loving parents, sweet Mum and Dad you are my rare gem. I love you so much. To all my priceless sisters and friends; Yemi, Bola, my ID, my Mercy and my Seyi. I love you all, I am grateful to God for giving you to me. I can't forget you ever my Twin; you were a part of me and forever will be. Not forgetting my brother in-law, Niyi Oronsaye and my beloved nephews- King David and Prince George (Daniel) you've all lightened up my world.

Without mincing words, I want to appreciate Pharm. Boma Mohammed and her great family, you are wonderful, words of mouth are not enough to appreciate you for whom you are to me, my prayer is that my God will surprise you beyond human imagination and understanding.

I am sincerely grateful to all my classmates and friends, my colleagues in the Department of Economics F.C.E. Zaria and members of the Postgraduate Fellowship ABU Zaria, thank you all for being there for me.

Special thanks to my divine friends Samuel, Comfort and Debby Okey, Faith, Victoria, Toyin, Sis. Godswill, Chioma, Solo Tete, Bro Sylvester, Sam and Hannah Alehile, Sis Ebere, James and Debby Abioye, Justine, Richard, Yabo, Isaac, Sunday and Solomon.

Abstract

This study evaluated business competitiveness in selected businesses in Kaduna metropolis and Zaria area using the Probit and Tobit regression models, and Pearson Minimum Chi-square. Purposive sampling technique was used to select 40 businesses each from Manufacturing industry, Food and Beverage industry, and Advertising industry located in Kaduna metropolis and Zaria area. The results of the Probit regression model showed that the selected businesses are not competitive in terms of profit maximization, sustained growth rate in profit, quality of products/services, cost of production, growing market share, innovation and technology, pricing policy, and new product development (R&D). The Tobit regression results revealed that unavailability of electricity, weak operating environment, and inefficiency in production, low rate of technological change and application, poor quality of labor employed and poor pricing policy decreased competitiveness in the selected businesses. The Chi-square tests of the Probit and Tobit regression results showed that only profit growth rate, new product development (R&D) and out sourcing of raw materials are marginally indicative of competitiveness in Manufacturing in Kaduna metropolis. Also, only the out sourcing of raw materials variable was indicative of competitiveness in Food and Beverages in Zaria area. This study concluded that the selected businesses have been unable to meet the goals of efficiency in production, growing market share, high quality of products/services, falling cost of production, growing market share, and new product development and therefore, not competitive. The study recommends a synergy of efforts by the government at all levels and the private sector to fast-track completion of on-going Integrated Power Projects (IPP), fix and upgrade existing electricity power facilities in Nigeria in order to increase the amount of electricity generated to significantly drive down business costs. Also, it is recommended that Nigerian businesses should adopt the rapid response approach in the application of modern technology and innovation in order to improve on the quality of their products and services, and compete favorably with imported products and services.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The need to focus on the performance metrics and competitiveness of businesses in terms of quality of products or services, sustained profits, expanding growth frontiers and investment; timeliness of investment, and accountability is a primary characteristic of the process of growth. Apart from being a critical aspect of the fundamentals of the growth process such focus in turn, help businesses to improve their organizational systems and adopt more globally competitive and strategic management approaches that could ensure business growth and sustainability. Again, concern about business competitiveness in Nigeria is shared both by government and the private sector. The concern of the government borders mainly on the ability of domestic businesses to compete both at the local and global market space. Because, growing business competitiveness is a potential growth driver in terms of income and employment creation, especially for a developing economy as Nigeria. Also, competitiveness of domestic businesses serves as a strong signal for foreign direct investment and creates location attractiveness for investment in general (Doyle and Philip, 2006).

Business competitiveness pertains to the ability of a business to provide products or services that meet the quality standards of local and global markets at prices that compare favorably with other businesses, and provide adequate returns on the resources employed or consumed in producing them (Porter, 1988). Competitiveness has to do with a business being able to maintain its market share by offering the best value to its customers. Again, a business is said to be competitive compared to its competitors when the following features are present; provision of high quality products and/or services to its customers valued at a minimum price, maintain its profit margin, meet the needs of its customers at appropriate time and have a growing market share.

The features of business competitiveness are basically influenced by certain factors such as type of market, market environment and availability of basic infrastructure. Therefore, any assessment of business competitiveness must take into account the type of market structure in which the business operates. This is because competition strategy differs across markets; and thus, determines the attitude of businesses and its customers in terms of response to market signals and corporate choices. A business environment that readily stimulates an effective and profitable enterprise development provides the requisite foundation for business competitiveness. In essence, a good business environment is a major determinant for competitiveness (Lynch, 2006). The provision of adequate and relevant infrastructure ensures

that businesses can operate efficiently and competitively. When infrastructural facilities are poor or weak; businesses more often than not resort to self-help to provide them; which puts them at disadvantage, raises their cost of doing business and affects their pricing policy (Orisewezie, 2010).

The fact that business competitiveness is a key element in the growth process defined in terms of sustained profits, income and employment generation makes it an important issue in the evaluation of growth drivers, entrepreneurship potentials and opportunities in a developing economy like Nigeria. Business growth and development strongly depend on competitiveness that forces firms to develop new products, services, technology and innovation which would give consumers opportunities for greater selection. Many businesses in Nigeria are not developing within the metrics of these variables (Adenikinju, 2012). Therefore, this study finds it necessary to evaluate business competitiveness in Nigeria that enhances business growth in terms of growing rate of profit, long-run business survival, quality products and services, better pricing policy, net income for citizens and job creation.

1.2 Statement of Research Problem

Business failures are a common feature in a developing economy; especially the Sub-Saharan Africa. The common factors identified for such failure ranges from weak infrastructure like erratic electricity supply and poor transport system; and low technology and innovation, poor managerial approach, heavy government regulation, weak incentive structures and low investment in research and development (Dwivedi, 2006).

Weak and poor infrastructure is the bane of the business environment in Nigeria with severe consequences for competitiveness in terms of price stability, efficiency and operating cost; and growth in income and employment. For instance, epileptic and unpredictable electricity power supply in Nigeria has become a common experience since the early 1990s had lowered production efficiency and raised production cost of goods and services. Enweze (2001) showed that about 25% of total investments in machinery and equipment by small firms, and about 10% by large firms in Nigeria, were on privately installed infrastructure; that has raised cost of production and consequently the final consumer price that has left these firms uncompetitive with their foreign counterparts who sell in the same markets. This study finds its relevance to evaluate the implications of falling production efficiency and rising production cost for business competitiveness in Nigeria.

Plant closures and business shut downs, poor business growth and developments are issues that have characterized the business landscape in Nigeria (Orisewezie, 2010). Some business analysts (Orisewezie, 2010) have argued that these have resulted from businesses'

inability to meet the goals of profit maximization, non growing market share, poor business growth rate, inappropriate pricing policy, rising cost of production, weak out sourcing of raw materials and inadequate new product development (research and development; R&D). This raises the question of competitiveness both in the domestic and global business space for Nigeria businesses. Clearly, a lack of business competitiveness has implications for both public and private business growth and development; and consequently public and private income and employment growth. Therefore, this study raises the following question; why are businesses in Nigeria unable to meet their goals of growing profit maximization, quality standard, and growing market share, growth rate, appropriate pricing policy, low cost of production, new product development and out sourcing of raw materials?

It is important to note that for over a decade now all attempts to sell Nigeria Telecommunication (NITEL) have been futile. Irrespective of the fact that some of the bids had been successful at some point, there was public outcry that indicated undervaluation of NITEL. The argument that has been put forward in support of the undervaluation is the fact that it will take massive investment to make NITEL work again, especially in the face of hash business environment in Nigeria. Why is M-TEL a mobile firm subsidiary of NITEL unable to compete favorably with the likes of MTN, AIRTEL and GLO? The inability of NITEL and M-TEL to compete in the telecommunication space in Nigeria led to heavy job cuts, massive loss of public and private income, and social dislocation for families which impact have lasted to the present time.

Research Questions

Based on the research problem discussed above, this study finds it pertinent to raise and provide answers to the following questions:

- a) Are businesses in Nigeria competitive in terms of pricing policy, quality of product, cost of production, new product development (R&D) and availability of infrastructure?
- b) What factors influence business competitiveness in Nigeria?
- c) Why are some businesses in Nigeria unable to meet their goals of growing profit maximization, quality standard, and growing market share, growth rate, and appropriate pricing policy, low cost of production, new product development and out sourcing of raw materials?

1.3 Objectives of the Research

The focus of this study is to evaluate business competitiveness in Nigeria. The specific objectives are to:

- i. Evaluate competitiveness in selected businesses in Kaduna metropolis and Zaria area

- ii. Measure the extent to which selected index factors influence competitiveness in the selected businesses in Kaduna metropolis and Zaria area
- iii. Assess if the selected businesses in Kaduna metropolis and Zaria area are able to meet the goals of sustained efficiency in production, growing market share and profit growth rate in Kaduna metropolis and Zaria area

1.4 Justification of the Research

Generally, business competitiveness has implications for both public and private business growth and development. Sustained business growth and development in turn, have implications for growth in income, employment, and price stability, efficiency, cost of production and operating cost. Also, business competitiveness when sustained serves as strong attraction for foreign investment destination, which has favorable consequences for growth in Gross Domestic Product (GDP). This makes a study on business competitiveness critical for contributing to the on-going debate on business growth policy options in Nigeria.

Related studies (e.g. Adenikinju, 2012; Adebajo, 2012; Olawale, et al, 2008; etc) on business growth and development in Nigeria have indicated strong relationship between infrastructure (such as electricity) development and business growth. While most of these studies have focused on the impact of infrastructure on business growth in terms of impact on cost of production; none has focused on business competitiveness in terms of profit maximization, quality of products and services; and market share, profit growth rate, pricing policy, low cost of production, new product development (R&D) and out sourcing of raw materials. According to Lynch (2006); and Wheelen and Hunger (2006), these variables constitute a bench mark for measuring business competitiveness. Therefore, this study is relevant as it is an attempt to evaluate business competitiveness in Nigeria using this bench mark.

Again, Kayode's (2011) study used field survey to establish that Nigeria consumers have strong preference for foreign goods and showed that multinationals like Unilever plc and Cadbury plc import finished consumer goods from their plants across Europe and South Africa to sell in Nigeria. Print and Electronic media consumer advertisements are imported from countries such as South Africa by the same multinationals to Nigeria. Why are Nigerian businesses losing in the competition for quality and market share to foreign businesses? In this present dispensation of expanding global competition, made fierce with improvement in information technology; it is pertinent to investigate the factors that have and are still making Nigerian businesses to lose competitive edge. This is where this study finds its relevance.

1.5 Scope and Limitations of Study

The selected area for this study is Kaduna metropolis and Zaria area. For the purpose of this study, Kaduna metropolis comprises of Kaduna North and Kaduna South Local Government Areas; while Zaria area is defined to comprise of six local government areas in Kaduna state; namely, Sabon-Gari, Soba, Zaria, Giwa, Kudan, and Makarfi. Therefore, 40 businesses from manufacturing industry, food and beverage industry, and advertising industry were purposively selected from Kaduna metropolis and Zaria area for evaluation.

The major challenge that was encountered in the course of this study was the unwillingness of most businesses in the study area to volunteer required information without ambiguity. Poor financial record is a critical problem among Nigerian businesses (especially small businesses) and this affected continuity of data collected. It is for this reason that the purposive sampling technique was considered appropriate. The financial involvement in this study was quite enormous and imposed some level of constraint in terms of the sample size of the selected businesses in the study area. Thus, the conclusions drawn from this study should be interpreted with some caution.

1.6 Organization of the Study

The study is divided into five chapters as follows:

Chapter one presents the introduction, statement of research problem, and covers the objectives of the study, justification and scope and limitations of the study.

Chapter two provides a review of relevant literature and is subdivided into conceptual literature, theoretical literature, empirical literature and theoretical framework.

Chapter three contains the methodology of the study, hypothesis, study area, sample design and data collection, model specification and sources of data.

Chapter four is focused on the analysis of data obtained from the field survey, interpretation and discussion of results from the estimates of the models.

Chapter five gives the summary of findings, conclusion and recommendation. The bibliography is presented at the end of chapter five, followed by the Appendices.

CHAPTER TWO

LITERATURE REVIEW

2.0 Conceptual Framework for Business Competitiveness

Business competitiveness refers to the ability of a business to provide products or services that meet the quality standards of local and global markets at prices that compare favorably with other businesses, and provide adequate returns on the resources employed or consumed in producing them (Business Dictionary, 2011). Generally, competitiveness has to do with a business being able to maintain its market share by offering the best value to its customers. Again, a business can be said to be competitive compared to its competitors when the following features are present; provision of high quality products and/or services to its customers valued at a minimum price, maintain its profit margin, meet the needs of its customers at appropriate time at lowest cost; and have a growing market share.

Within capitalist economic system the drive of enterprises is fundamentally to maintain and improve their level and rate of competitiveness. Thus, competitiveness is an important determinant for the well-being of business firms (manufacturing industries, consumer service providers, distributive trade firms, etc) as well as the state in an international trade environment. In recent years, the concept of business competitiveness has emerged as a new paradigm in economic development (Stajano, 2009). From the new paradigm in economic development, business competitiveness captures the awareness of both the limitations and challenges posed by global competition, at a time when effective government actions (in terms of public enterprises) is constrained by budgetary constraints and poor institutional response, and the private sector is faced with significant barriers to competing in domestic and international markets. Again, the new paradigm in economic development enforces the view point that competitiveness encompasses the set of institutions, policies, and factors that determine the level of productivity of a firm or the state (Global Competitiveness Report, 2010).

Business competitiveness has implications for developing open economies like Nigeria, which rely on trade, and typically foreign direct investment to provide the scale necessary for productivity increases to drive increases in real growth and living standards. Some of the implications of business competitiveness for developing open economies like Nigeria derive from such issues as policy inputs in relation to the business environment, the physical infrastructure and the knowledge infrastructure and the essential conditions of competitiveness that good policy inputs create, including business performance metrics, productivity, labour supply and prices, and costs of doing business (Doyle and Stern, 2006).

Again, business competitiveness is critical for any economy that relies on international trade to balance import of consumer goods and raw materials. For instance, the European Union (EU) has enshrined industrial research and technological development (R&D) in her development priorities in form of Treaty in order to become more competitive (Muldur, 2006). Also, in 2009, €12 billion of the EU budget (out of a total of €133.8 billion) was allocated specifically to projects that are focused on boosting Europe's competitiveness (Stajano, 2009). For Stajano (2009), the EU's deliberately scripted agenda to face competitiveness is to invest in education, research, innovation and technological infrastructures. This agenda is geared towards creating an enabling business environment that would provide cutting edge business competitive advantage for the private sector and enhance necessary attractiveness for sustained foreign investments. Fundamental to business competitiveness is innovation and technological infrastructure; this is essentially so in view of Smith's (1988) opinion that the source of all business competitive advantage is the ability to access and utilize technology to satisfy one or more customer needs better than competitors, where technology is defined as any use of science to achieve a function.

The unfolding challenges of growing resource use, increasing consumer demand for basic sustenance, shrinking income earning opportunities (especially in developing economies), out-sourcing of jobs, raw materials and markets for finished consumer goods, and energy needs of the global economy requires increased attention to the issue of business competitiveness (Stutz and Warf, 2009). Also, the need to adhere to international trade rules, combined with more rigorous consumer and industry demands, requires businesses to work much more on acquiring both domestic and global competitive advantage (Wheelen and Hunger, 2006). Critical to this is the issue of the state's ability to leverage business competitiveness in terms of institutional development, business differentiation strategies in order to distinguish itself within the context of both domestic and global competition. A country's business competitiveness is largely contingent on how effectively government, trade support institutions and private businesses interact and exchange information to ensure sustainable business growth and consequently economic growth.

Critical to business competitiveness is the concept of competitive advantage. Essentially, the notion of competitive advantage was conceived by Porter (1985) to address some of the basic criticisms of comparative advantage. Competitive advantage suggests that states and businesses should pursue policies that create high-quality goods to sell at high prices in the market. However, Porter (1985) emphasized productivity growth as the focus of national competitiveness strategies. Competitive advantage rests on the notion that cheap labor is

ubiquitous and natural resources are not necessary for a good economy. The underlying argument for this thought was that comparative advantage, in the final analysis lead countries to specialize in exporting primary goods and raw materials that trap countries in low-wage economies due to terms of trade. Competitive advantage attempts to correct for this issue by stressing maximizing scale economies in goods and services that have the potentials to attract premium prices (Stutz and Warf 2009).

In Stutz and Warf's (2009) view, competitive advantage occurs when an organization acquires or develops an attribute or combination of attributes that allows it to outperform its competitors. These attributes mean access to natural resources, such as high grade ores or inexpensive power, or access to highly trained and skilled personnel human resources. Furthermore, Stutz and Warf (2009) emphasized the fact that new technologies such as robotics and high profile information technology could provide competitive advantage. Such advantage could be a part of the product itself, as an advantage to the making of the product, or as a competitive aid in the business process (for example, better identification and understanding of customers).

Chacarbaghi and Lynch (1999) observed that competitive advantage deals with the ability gained by businesses or firms through attributes and resources to perform at a higher level than others in the same industry or market (Christensen and Fahey 1984, Kay 1994, Porter 1980). For Clulow, et al (2003); the study of such advantages have attracted considerable level of interest both by industry players and academics (research) due to critical contemporary issues regarding superior performance levels of firms (in terms of sustained output growth, increasing functionality of products, appreciable profit growth rate, low cost of production inputs, access to cheap labour, out-sourcing of foreign markets, etc) in the present global competitive market conditions. In view of this; Clulow, et al (2003) posited that a firm or business possesses competitive advantage when it successfully implement a value creating strategy that is not simultaneously being implemented by any current or potential player (or at best would require a considerable time period and prohibitive cost to implement successfully). Passemard and Calantone (2000) had earlier showed that successfully implemented competitive strategies will lift a firm to superior performance by facilitating the firm with competitive advantage to outperform current or potential players. In order to gain competitive advantage a firm is expected to adopt a business strategy that has in-built mechanism for manipulating the various resources over which it has direct control and have clearly defined abilities to confer competitive advantage (Rijamampianina, 2003). Superior performance outcomes and superiority in production resources reflects competitive advantage (Ronald, 2002).

In view of the various concepts above, business competitiveness is conceived in this study to imply the ability of a firm to stay ahead of present or potential competition, through superior performance reached by the acquisition of competitive advantage that ensure market leadership, create value that attract higher prices, enhance production efficiency and offers sustainable customer satisfaction. This study subscribes to the fact that competitive advantage provides the understanding that resources held by a firm and the business strategy (the tool that manipulates resources efficiently and create competitiveness; Powell, 2001) will have a profound impact on generating business competitiveness. However, it is important to note that viable business strategy may not be adequate unless a firm possess control over unique resources that has the ability to create a unique advantage. Competitive advantage is a key determinant of superior performance and it ensures the survival and prominent placing of the firm in the market. As indicated in Powell (2001), superior performance is the ultimate desired goal of a firm, thus competitive advantage becomes the foundation highlighting the significant importance for developing business competitiveness.

2.1 Business Competitive Strategies

There are certain factors that both define business competitiveness and serves as the focus strategies for competitiveness by firms and countries (Lynch, 2006). It is important to note that underlying the notion of competitive strategies is the fact that firms as well as countries compete for the same resources and interact in the same market space. Consequently, businesses need a competitive strategy or model to keep costs low, maximize profits, attract investors, and achieve a rising demand for its products or services by consumers and to command a larger market share. The common competitive strategies are cost leadership strategy, differentiation strategy, innovation strategy and operational effectiveness strategy.

The cost leadership strategy focuses on offering products or services at the lowest cost in the industry. However, this strategy is often faced with the challenge of earning sufficient profit for the individual firm, while costs are kept reasonably lower than other market participants. This is preferred to operating at a loss and draining profitability from all market players, which could send signals of opportunities for out-sourcing of production factors. For instance, Walmart of England (Wheelen and Hunger, 2006) have succeeded with this strategy by featuring low prices on key items on which consumers are price-aware, while selling other merchandise at lesser discounts. Thus, general industry practice is to create products at the lowest cost.

In Lynch's (2006) view differentiation Strategy deals with the pursuit of the goal of providing a variety of products, services, or features to consumers that competitors are not yet offering or are unable to offer. This confers a direct advantage on any firm that successfully

provides a unique product or service that none of its competitors is able to offer. However, the pursuit of this competitive strategy by any firm requires that such a firm possess a measure of control and efficient manipulation of certain resources used in creating the product or service. For instance, Dell successfully launched mass-customizations on personal computers to fit consumers' need. This allowed Dell to make its first product to be the star of its sales (Lynch, 2006).

The Innovation Strategy focuses on the objective of staying ahead of other competitors by introducing completely new or notably better products or services, in terms of functionality, simpler operating system. The innovation strategy is mainly employed by technology-based start-up firms with the goal of “Creative Destruction” as an entry strategy to an existing market, thereby weakening current market entry barriers by offering a special product. This strategy holds little incentives for established firms or businesses on the basis of existing market acceptance of its products. The introduction of iPad tablets and iPod music players by Apple Computers exemplify the case of innovation strategy. However, in Wheelen and Hunger’s (2006) view the use of this competitive strategy comes with heavy investment in research and development (R&D).

According to Wheelen and Hunger (2006), Operational Effectiveness as a competitive strategy encourages the performance of internal business activities efficiently and in such a way that surpasses other competitors, thereby creating the incentive of easier and pleasurable transactions with the firm than other firms operating in the same market. This has the potentials to improve the customer/client relationship of the firm or business while lowering the time it takes to access the firm’s products or services in the market.

2.2 Business Environment

The concept of environment is used to describe everything and everyone outside the business organization such as customers, competitors, suppliers, distributors, government and social institutions (Lynch, 2006). The environment within which a business operates is critical because as each of the elements of the environment change, the business must necessarily adjust its competitive strategy. Thus, an adequate holistic understanding of the competitive environment is an essential element for building business competitiveness. In Lynch’s (2006) view a careful study of the business environment will first, provide information on the nature of competition as a step to achieving sustainable competitiveness by business firms. Second, such study will enable businesses to perceive available opportunities and threats. It is noteworthy that such opportunities and threats may not necessarily come from competitors but also from government decisions, changes in and availability of technology and; political and social

developments. Third, there are opportunities for network and other linkages that have potentials for sustainable co-operation among firms. Such linkages could provide synergy that enhances competitiveness in the given environment.

Wheelen and Hunger (2006) helped to strengthen the view that any business entity that seeks to achieve business competitiveness must first scan the external environment in order to identify possible opportunities and threats and its internal environment for strength and weaknesses. Therefore, Wheelen and Hunger (2006) postulated that environmental scanning is the monitoring, evaluation, and dissemination of information from the external and internal environments to key personnel within an organization. A business entity uses this tool to avoid strategic surprises and to ensure its long-term survival as research has found a positive relationship between environmental scanning and profits (Wheelen and Hunger, 2006).

In undertaking business environment scanning, it is important that business owners must first be well informed about the intervening variables within a firm's societal and task environments. According to Wheelen and Hunger (2006), the societal environment includes general forces that do not directly affect the short-run activities of a firm but have the capacity to influence its long-run decisions. These forces are economic forces (that regulate the exchange of materials, money, energy, and information), technological forces (that generate problem-solving inventions), political-legal forces (that allocate power and provide constraining and protecting laws and regulations) and socio-cultural forces (that regulate the values, morals and customs of society). The task environment includes those elements or groups that directly affect an organization and, in turn are affected by it. These elements include governments, local communities, suppliers, competitors, customers, creditors, employees/labor unions, special-interest groups, and trade associations. Essentially, a firm's task environment consists of the industry within which it operates. Both the societal and task environments must be well understood and monitored in order to detect the strategic factors that are likely to have a strong impact on the success or failure of a firm's competitiveness (Wheelen and Hunger, 2006).

Environmental scanning emphasis shifts on the basis of the understanding of the nature of present and future competition and, the level of dynamism the firm perceives in the external environment in which it operates. In dynamic environments, the pursuit of competitiveness by firms requires that more attention be paid to the task environment, while in stable environments, managers are focused on forces that influence the societal environment (Wheelen, 2005). It is important to note that the number of possible strategic factors inherent in the societal environment could be quite high. This is so, in view of the fact that each country can be represented by its own unique set of societal forces; that could be similar or different from

neighboring countries. Such similarities or differences have considerable impact on the success or failure of a firm's competitive strategy; as well as on the firm's corporate goals.

Societal environment could be summarized on the basis of the important variables that help a firm to scan and monitor trends that influences its operations and competitive strategies in the environment within which it operates. Table 2.1 below summarizes the important variables in societal environment.

Table 2.1: Variables in Societal Environment

Economic	Technological	Political-Legal	Socio-cultural
GDP trends	Total govt. spending for R&D.	Antitrust regulations Environmental protection laws.	Customs, norms, values Lifestyle changes Consumer activism
Interest rates	Total industry spending for R&D.	Tax laws Special incentives	Rate of family formation Growth rate of Population
Money supply	Focus of technological efforts	Foreign trade regulations	Age distribution of Pop.
Inflation rates	Patent protection	Attitude towards foreign firms	Social institutions
Unemployment levels.	New products	Laws on hiring & promotion	Religious beliefs
Wage/price controls.	New developments in	Stability of government	Status symbol
Devaluation/ revaluation.	technology transfer from lab to market place.	Outsourcing regulation Political ideology	Literacy level Human rights
Energy availability and cost.	Productivity improvements through automation.	Strength of opposition groups Protectionist sentiments	Environmentalism Pension plans
Disposable and Discretionary income.	Internet availability Telecommunication Infrastructure.	Foreign policy Legal system Regulations on foreign ownership of assets.	Health care Life expectancies Birth rates
Currency markets Nature of competition Outsourcing capability	Computer hacking technology		Regional shifts in pop.

Source: Adapted and organized from Wheelen and Hunger (2006)

Corporate firms generally categorize the societal environment into four areas (as indicated in table 2.1 above) and focus their scanning in each area on trends that have corporate wide relevance for their operations. Trends in the economic aspect of the societal environment could have impact on business activities with consequences for the level of competitiveness of firms operating in the given environment in terms of firms in a neighboring environment who compete in the same market for resources and market share. As shown in table 2.1 above, an increase in interest rates could immediately translate to a fall in investment spending with implications for output levels. Also, trends in Gross Domestic Product (GDP) serves as signals

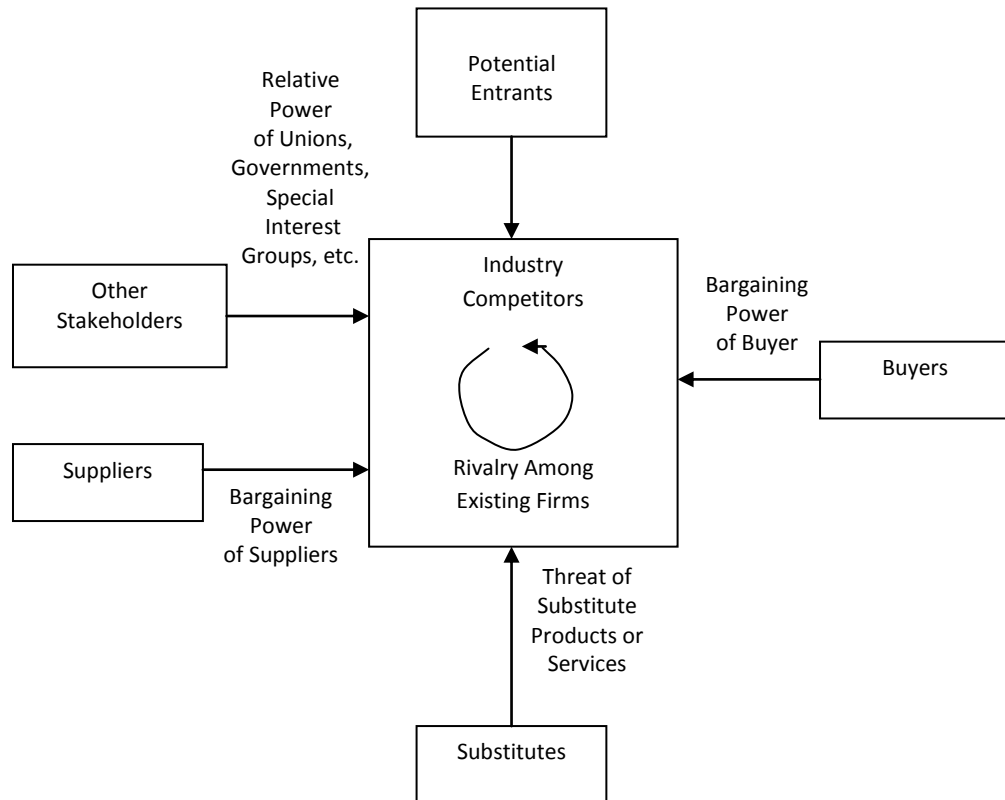
of economic wellbeing or otherwise of any country; with consequences for investment decisions. Again, Energy availability and cost have consequences for production cost and efficiency, consistency in meeting demand and supply requirements in the market place, productivity improvement through automation. This was the experience in Nigeria between 2007 and 2009 when electricity supply was not sufficient to meet industry need; major multinational corporations either opened new factories or relocated to Ghana (Ajose, 2010; Muritala, et al, 2012).

Changes in the technological part of the societal environment have implications for both manufacturing and service industries as well as the information and communication technology based firms (see table 2.1 above). The rapid economic development of China and India is a result of heavy spending on Research and Development (R&D) by government and industry players (Wheelen and Hunger, 2006). For instance, in these countries improvements in computer microprocessors have not only led to widespread use of personal computers but also to better automobile engine performance in terms of power and fuel economy through the use of microprocessors to monitor fuel injection. New developments that facilitate technology transfer from the laboratory into the market place could lead to multiple products from a single production process with low cost implications.

As indicated in table (2.1) above, trends in the political-legal aspect of the societal environment have significant impact not only on the level of competition within an industry but also on which competitive strategies could be based (Wheelen and Hunger, 2006). Any strict and consistency in the enforcement of antitrust laws will directly impact on corporate growth strategy. The obvious implication of the impact is that larger players in any industry would find it difficult to acquire other smaller firms in the same or related industry; which would force the larger firms to divest into other businesses. High rates of taxation and strict labor laws is expected to prohibit new investments by new entrants, that could make other locations with less strict labor laws and low tax rates more attractive.

Also, from table (2.1) above, it can be deduced that demographic trends such as growth rate of population, age of population distribution, regional shifts in population; social formation like rate of family formation; availability of social institutions, religious beliefs, customs, norms and values that form the socio-cultural aspect of the societal environment have consequences for the business focus of firms in terms of choice of items to produce or services to provide. These to a large extent determine a firm's level of competitiveness in the market place and inter industry competition (Doyle, 2006).

Figure 2.1: Variables in the Task Environment/Forces Driving Industry Competition



Source: Adapted with modifications from Porter, 1988; and Wheelen and Hunger, 2006

As indicated in figure 2.1 above, any firm focused to achieve successful and sustainable business competitiveness must carry out a scanning of the environment with a view to analyzing all the relevant elements or variables contained in the task environment. These elements consist of governments, communities, suppliers, competitors, customers, creditors, employees/labor unions, special interest groups and trade associations. The analysis of the task environment is expected to take the form of reports provided through investigations and response approach by the firm’s personnel in different parts of the firm’s operations. These reports are then summarized and transmitted up the corporate hierarchy for management strategic decision making (Wheelen and Hunger, 2006). It is important to note that new developments in respect of any product or service are reported across the various units of a firm as details of external strategic factors that are essential for modeling competitiveness.

According to Porter (1988) a corporation is most concerned with the intensity of competition within the industry it operates. The level of intensity of competition depends on certain basic competitive forces such as threat of new entrants, bargaining power of buyers, threat of substitute products or services, bargaining power of suppliers, rivalry among existing firms and the relative power of unions, governments, and special interest groups (this is depicted

in figure 2.1 above). The collective strength of these forces determine the ultimate profit potentials in the industry, where profit potentials is measured in terms of long-run return on invested capital. The stronger each of these forces, the more limited firms are in their ability to raise prices and earn greater profits. Wheelen and Hunger (2006), posited that a high force is synonymous with threat as it is likely to reduce profits; while a low force is considered as an opportunity since it is capable of leveraging greater profits. The argument is that in the short run these forces act as constraints on a firm's business activities. However, over the long run, it is possible for a firm through its choice strategy, to change the strength of one or more of the forces to the firm's advantage.

Wheelen and Hunger (2006) put forward that threat of new entrants to an industry is critical for competitiveness as new entrants come into the industry with substantial resources and new capacity that could enable them to gain significant market share. As potential industry competitors, new entrants are a threat to an established corporation. However, the threat of entry depends on the presence of entry barriers and the expected reaction from existing competitors (Hill, 2006). As indicated in Figure 2.1 above, because of the mutual interdependence among firms in most industries, a competitive move by a single firm could have obvious implications for its rivals. Therefore, counter moves from rival firms in retaliation are common place occurrences. Thus, existing competitors and potential entrants shape the nature and context of rivalry among competitors in an industry (Porter, 1988).

From figure 2.1 above, product or services buyers can significantly influence competition among firms in an industry. This is essentially because buyers possess the ability to force a downward movement in prices, bargain for higher quality or demand for more services for the same price, and could force competition between two or more firms against each other. For instance, a buyer has the potential for backward integration that allows the buyer to produce the product itself. Also, if alternative suppliers are many and the product is standardized and undifferentiated (as in the case of petrol selling stations); buyers can significantly influence competition among firms (Porter, 1988; Adrian and Hartley, 2007).

On the other hand, suppliers have sufficient bargaining power to influence an industry's competitiveness through their ability to raise prices and or reduce the quality of goods and services they provide (as indicated in figure 2.1). Porter (1988) noted that this is possible under certain circumstances such as if the suppliers ' industry is dominated by a few firms who sell to many buyers, the product or service is unique and/or it has built up switching costs, substitutes are not easily available, etc. Again, as indicated in figure 2.1 above, availability of substitute products or services have strong influence on the nature of competition among firms in an

industry. In Porter's (1988) view substitutes have the potentials to limit an industry's returns by imposing a restraint on the prices firms can profitably charge in the industry.

As shown in figure 2.1 above, the relative power and influence of other stakeholders such as trade associations and unions, governments, shareholders, complementary products and services providers; and special interest groups in competition varies for industry to industry. For instance, special interest groups such as environmental groups could in collaboration with government influence the passage of strict environmental and waste disposal laws with heavy cost implications for firms in certain industries. Also, trade associations and unions have enormous powers to force higher industry costs through higher wage bargains. Again, governments have powers to pass antitrust laws with stiff penalties that regulate industry competition (Porter, 1988; Wheelen and Hunger, 2006).

2.3 Overview of Nigeria Business Environment

Today's global economy requires that increased attention be paid to the issue of business environment (societal and task) because of its impact on the competitive ability of businesses that operate within that environment. Also, the growing nature of international trade combined with more rigorous consumer demands, changing production costs, resource and market outsourcing, shrinking profits, innovations from R&D, as well as high rate of business closures particularly in developing economies like Nigeria requires businesses to be more strategic to enhance their competitive advantage. According to Pieter (2013), despite the available business opportunities, there are major challenges in the Nigeria business environment (in terms of the societal and task aspect) that have implications for business attraction and competitiveness. Thus, in this study the Nigeria business environment is reviewed on the basis of the societal and task environment variables identified by Wheelen and Hunger (2006); and Porter (1988).

Based on Wheelen and Hunger (2006), the Nigeria business societal environment could be divided into four broad categories viz economic, technological, political-Legal and socio-cultural. The critical variables of interest in the Nigeria societal environment includes GDP trends, fiscal and monetary issues (tax, government spending, money supply, interest rate, availability of funds, etc), macroeconomic issues (inflation rates, wage/price control, quality of labor force, etc), risk and uncertainty (market risk, currency risk, policy risk and uncertainty, risk factors that affect business performance, etc) infrastructure (e.g. road/availability of transport facilities, energy availability/cost, etc), nature of competition (with specific reference to business models) and outsourcing capabilities. The Nigeria technological environment is conceived in this study to comprise of total government spending on research and development (R&D), industry spending on R&D, productivity and quality improvements through computer

based automation, own-technology based entrepreneurship, and new development in technology transfer from laboratory to the market place, internet availability, telecommunication infrastructure and computer hacking technology.

The political-legal environment in Nigeria comprises of anti-trust regulations and environmental protection laws, political ideology, attitude towards foreign firms, stability of government, regulations on foreign ownership of assets, laws on hiring and promotion, protectionist sentiments and foreign trade regulations (Jibril, 2009_b). The socio-cultural environment in Nigeria entails security, customs, norms and values; consumer activism, lifestyle changes, life expectancies, social institutions, growth rate and age distribution of population, religious beliefs, human rights and environmentalism.

According to Usman (2008), CBN (2010) and Jibril (2011) trends in Nigeria GDP have indicated a robust growth pattern averaging 5.5% since 2007. And Iweala (2013) showed that Nigeria GDP growth rate during the first quarter of 2013 was about 6.7%. However, Usman (2012) pointed out that the trend of GDP growth observed between the period 2007 and 2012 was non-inclusive in nature. In Usman's (2012) view, non-inclusive growth implied that as the GDP grew, jobs were not created; poverty levels did not fall commensurately in Nigeria during the same period. It is important to note that positive trends in GDP growth rate is indicative of increase in per capita income which is critical for changes in consumers' purchasing power. This has implications for business competitiveness in terms of changes in effective demand that serves as an incentive for business firms to raise output. Business competitiveness is triggered as new entrants are encouraged due to economic boom. In this regards, the Nigeria business environment encouraged competitiveness. However, Usman's (2012) observation that GDP growth in Nigeria for the period 2007-2012 was non-inclusive implies that a direct relationship between GDP growth rate and business competitiveness cannot be established in Nigeria during the same period.

The Nigeria tax regime is quite favorable to businesses, both local and international. This is essentially because both the company income and private income taxes are quite moderate if not low, when compared with other developing economies in the West African sub-region and economies in Asia and Latin America. However, tax laws enforcement in Nigeria is considerably weak and the rate of compliance is low especially in semi-urban centers and rural areas (World Bank, 2013). Also, World Bank (2013) economy profile for Nigeria indicated that tax payment rate in Nigeria fell by -16% point basis in 2011. Thus, it is believed that the tax laws and system in Nigeria provides sufficient incentives for business growth and competitiveness in terms of low remittances to government which help to lower costs and raise

profit levels. In Nigeria, governments at all levels are the dominant spending units. Direct government spending on goods and services both for infrastructural development and servicing, and recurrent uses was estimated to be 17.8% of total GDP between 2000 and 2010 (Jibril, 2011). This has significant impact on business growth, confidence and competitiveness as rising aggregate demand is highly influenced by sustained high level of government spending. Recall that in basic Keynesian economics, a rising aggregate demand serves as a signal for firms to raise output in order to meet demand and consequently raise total profit. This also, sends signals to new entrants to seek to compete for a share in the rising profits across industries. However, it is important to note that during this period (2000-2010) over 70% of government spending on infrastructure development and servicing, and recurrent office and household items goes to imports (Jibril, 2011). This has severe implications for the ability of local services providers and manufacturers to compete in the Nigeria business environment.

Monetary variables such as money supply, interest rates and exchange rate have been quite unstable in Nigeria between 2000 and 2011. However, interest rates were fairly stable during the period 2008 and 2010, due mainly to the global financial crisis that started in 2008. The Monetary Policy Rate (MPR) was raised six times in 2011 alone from 6.25% in January to 12.0% in October 2011 (CBN, 2011). The average growth rate of money supply in Nigeria between 2000 and 2010 was about 46.5% (CBN, 2011; Jibril, 2011). Average exchange rate of the Naira to the Dollar for the period 2007-2012 was about N158.23 (CBN, 2012). While average interest rate (Lending rate) for the period 2007-2012 was 12.37% (CBN, 2012). With low growth in real output, a money supply growth rate of 46.5% has implications of rising prices and consequently inflation (at an average of 11.72% during 2007-2012). A depreciating Naira value at an average exchange rate of N158.23 to the Dollar have consequences for cost of production especially where intermediate inputs are largely imported. Irrespective of the fact that average interest rate was fairly stable at 12.37%; paucity of funds was quite low in terms of access and ancillary terms. Access to credit by small and medium scale businesses was quite difficult, especially for the manufacturing firms. Credit risk aversion by commercial banks was quite high among the manufacturing firms' potential borrowers. This is due to the long gestation period of credit to such firms. Thus, the banks prefer to lend to commerce and trade whose loan gestation period is short. All these did not provide for a sustainable business competitive environment as Nigeria stood at 131st position out of 185 economies in Sub-Sahara Africa in terms of ease of doing business from January 2012 to March 2013 (World Bank Economy Profile, 2013).

In terms of business risk and uncertainty, the Nigeria business environment ranks quite high (World Bank, 2013). The global financial crisis that started in 2008 adversely affected the equity market in Nigeria and helped to reveal the level of vulnerability of investment in financial assets to the risk of poor returns to investment due to market failure. Macroeconomic policy inconsistency and instability between 2006 and 2012 helps to articulate the level of business uncertainty in Nigeria (Soludo, 2007; Jibril, 2011; Usman, 2012). For instance, various monetary policies (e.g. banking consolidation and reforms), investment policies, sectoral regulatory framework, import and export tariff, etc; were put in place and changed on a number of occasions before the real impact of such policies are felt. This makes it quite difficult for sustained business investment decisions that provide firms the needed competitive edge. Instability in the exchange rate (currency risk) further worsened investment decisions for those firms that rely heavily on foreign exchange for imported inputs. The further the depreciation of the Naira against world major currencies, the less competitive such firms become because of high cost of production which is ultimately reflected in the final consumer price. Again, investment confidence was quite low in Nigeria between 2008 and 2010 when some of the erstwhile reputable commercial banks experienced major distress and near collapse (CBN, 2012).

The most challenging issue in the Nigeria business environment is the problem of weak and inadequate infrastructure base (Adebanjo, 2012). The World Economic Index Report (2011) ranked Nigeria in the 135th position in terms of infrastructure. The report showed that Nigeria has been trying to ensure a sustainable provision of critical infrastructure such as electricity, transportation, and telecommunication that have suffered more than three decades of neglect with very little progress. According to Enweze (2001) about 25% of the total investments in machinery and equipment by small firms and about 17% by large firms are on privately installed electricity plants. This figure was much higher between 2007 and 2010 when total available electricity power in Nigeria stood at 4000mw against a minimum requirement of about 20,000mw. This was against the backdrop of government efforts to raise total installed capacity of all the electricity power plants in Nigeria to between 15,000mw and 25,000mw by the end of 2010 (Energy Commission of Nigeria, 2010). From 2004, government efforts had doubled through the Integrated Power Projects (IPP) alongside the blueprint to upgrade existing hydro (36%) and thermal (64%) plants to raise electricity supply in order to meet the estimated electricity requirement of between 28,000mw – 31,000mw for Nigeria by 2015. Despite these efforts a short fall of between 9,000mw – 17,000mw was expected to be recorded between 2010 and 2015 (Energy Commission of Nigeria, 2010). Many businesses have continued to rely on

private electricity sources for their operations. This has implications for pricing policy and competitiveness. Thus, in Nigeria the persistent problem of poor and inconsistent supply of electricity imposes heavy production costs on businesses; and this has considerable negative impact on growth and performance; and consequently low competitive capacity. In terms of investment destination, Ghana has become more attractive due to sustained availability of electricity than Nigeria, irrespective of better investment opportunities. Consequently, a considerable number of businesses have relocated from Nigeria to Ghana (Adenikinju, 2012).

There exist enormous challenges in transport and communication in the Nigeria business environment (Rosenberg, 2013). Irrespective of the massive efforts put in by the government to fix the roads, especially the federal inter-state roads; not much has been achieved. The roads that connect the major commercial centers are fairly good, but are not in such a state as to appreciably reduce travel time and movement of goods, cut down on vehicle maintenance cost, and reduce accidents and loss of lives (Olawale, et al, 2008). All these impose heavy costs on production that are easily transferred to final consumer prices, thereby affecting business competitiveness. In terms of communication and information, the emergence of GSM and internet services has created appreciable ease of doing business in Nigeria (Nigerian Investment Promotion Council, 2010). This has enhanced business competitiveness in terms of efficient flow and use of market information. However, some analysts and industry watchers have argued that GSM and Internet services in Nigeria are quite below international standard and thus, costs are still prohibitive and this reflects itself on the cost of production which ultimately affects the competitive edge of businesses in Nigeria when compared with businesses in neighboring economies such as Ghana, South Africa, Egypt, Uganda, Zimbabwe, Namibia, etc where cost of telecommunication and internet services are relatively cheaper.

The technological environment in Nigeria in terms of government total spending and industry spending on R&D, productivity and quality improvements through computer based automation, own-technology based entrepreneurship, and new development in technology transfer from laboratory to the market place are quite low (World Bank Business Report, 2012). Indigenous technology is mainly rudimentary and most high-tech industry technology is largely imported wholesale and dominated by Multinational Companies (MNCs). This takes the competitive edge away from indigenous businesses, especially in the manufacturing subsector. However, it is important to note that there is a growing availability of computer hacking technology in the Nigeria business environment. This has manifested in such crimes as stealing of production processes, drugs making formulae, accounts information, etc. All these leads to the production of fake or sub-standard goods or original “fake” which leads to ridiculous price

war and endangering of consumers' lives, with severe implications for consumer confidence and business competitiveness in Nigeria.

The Nigeria political-legal environment in terms of anti-trust regulations and environmental protection laws is not very pronounced. This is essentially because antitrust regulations and environmental laws are not pronounced in the Nigeria legal system and enforcement is quite weak (Garba, 2004). Nigeria has enjoyed stability in government during the past fourteen years with democracy as basic political ideology. Nigeria is rated fairly in terms of attitude towards foreign firms, regulations on foreign ownership of assets, laws on hiring and promotion, protectionist sentiments and foreign trade regulations. This has enhanced Nigeria's attraction to a growing number of foreign businesses which has raised the level of competition in a number of industries within the Nigerian economy.

During the last five years (2009-2013), the greatest threat to the Nigeria business environment has been security concerns especially in the North. The security threat in the Northern part of Nigeria is argued to have religious dimension to it. Many businesses have relocated to other relatively safe parts of the country (Rosenberg, 2013). In the Southern part, especially the Niger Delta, there were severe security challenges in form of youth restiveness and militancy that almost completely crippled crude oil exploration and refining activities from 1995-2009 (Jibril, 2009_a). During that period (1995-2009) business growth in the Niger Delta was very low and a number of foreign firms in the petroleum industry shut down operations. The growth rate and age distribution of Nigeria's population makes it the most viable and sustainable consumer goods market in Africa. Lifestyle changes have been quite rapid with the growing western lifestyle across the country; this has made Nigeria a choice destination for finished western value laden goods. Consumer rights and activism is a relatively new phenomenon in Nigeria and mainly government driven as such its impact on businesses and other economy players is quite low (Pieter, 2013).

The relevant elements or variables contained in the Nigerian business task environment consist of governments, communities, suppliers, competitors, customers, creditors, employees/labor unions, special interest groups; and trade unions and associations (Wheelen and Hunger, 2006). The combined interactions of these elements with each other have to a very large extent defined the intensity of competition across industries in Nigeria (Rosenberg, 2013). Until recently, government owned businesses in Nigeria are known to have charged below market price which encouraged huge patronage, irrespective of low quality products and services. This was known to have negative impact on private business growth and profits as well as efficient resource use. A typical case is the petroleum products sales in Nigeria. The government is the

sole owner of crude oil refining facilities in Nigeria and set prices across products (Jibril, 2009_b). Thus, intense competition is near zero in terms of crude oil refining and marketing. Because of total government involvement in crude oil refining, private investment is unattractive as returns to investment are perceived to be low. Communities and pressure groups in Nigeria are known to exert a great measure of pressure on firms operating in those areas where mineral resources are found to pay ground rent and to provide facilities for community development which constitutes add-on costs.

There are growing numbers of entrants into most industries in Nigeria during the last fifteen years due to perceived profit opportunities (Pieter, 2013). Trade and commerce industry in Nigeria is the most affected in this regards as new firms enter easily after meeting regulatory requirements. The motivating factors are the vast market which is available in Nigeria for almost every product and service, the fascination of imported finished goods to most Nigerians, low domestic production of quality consumer products and services and poor government control of quality standard and marketing ethics (Abduwasiu, 2013). Thus, the competition for market share and best pricing policy in order to sustain customer base is intense. It is estimated that about 45% and 55% of pharmaceutical manufacturers in India and China respectively, are represented in the Nigeria drugs and pharmaceuticals market during the last three decades (Leadership Newspapers Editors, 2012).

Rivalry among firms in terms of industry competition is quite high in household and personal products industry, foods and beverage industry, etc in Nigeria. A typical example is the varieties of Noodles and Pasta in the market from the foods and beverage industry. Thus, rivalry among firms constitutes a driving force among certain industries in Nigeria; which has leveraged huge profits. However, with a large number of new entrants profits have considerably reduced (Rosenberg, 2013), but it is perceived that the Nigerian market can sustain a high level of new entrants into most industries. Note that new entrants into any industry often come along with new capacity that can sufficiently threaten the market position of existing firms. The reactions of existing firms in the industry to new entrants often redefine the intensity of competition. Nigerian buyers are known to have significantly influenced prices in view of growing product alternatives, differentiated services and ease of product switch due to multifunction ability. This has significantly raised the intensity of competition across industries. It is important to note that fall in consumer prices have been short lived due to poor infrastructure such as electricity. This has forced firms to resort to private electricity supply that imposes huge production costs that are usually passed on in form of higher consumer prices.

The varieties of products and services that are available in Nigeria can significantly limit any industry's (especially industries such as Household and personal products; distributive trade, foods and beverage, etc) profits by imposing a restriction on the prices firms can profitably charge in the industry. This has helped to define the nature of competition among firms in the industries listed above in Nigeria. On the other hand, suppliers of imported intermediate inputs have significant bargaining power to influence an industry's competitiveness through unstable exchange rate of the Naira for major world currencies to raise production costs and consequently raise prices (CBN, 2011). This poses a significant challenge for local manufacturing industries that must compete in the same market with imported goods and services which are relatively cheaper. It is clear that suppliers have tremendous influence on the competitiveness of local manufacturers in Nigeria that use imported inputs and therefore have built-up switching costs (costs characterized by upward change; which in the case of Nigerian firms is occasion by depreciating value of the Naira vis a vis major world currencies). Alternatives for such firms are usually limited as the use of local resources may mean low quality products and services and consequently, loss of competitive edge.

Trade unions and association is a critical task environment variable in Nigeria that significantly influence the intensity of competition among firms across industries (Jibril, 2009_b). The seriousness of employment, work condition and wage bargaining powers of trade unions in Nigeria is reflected by frequent work stoppages resulting from numerous industrial actions. These actions make both government parastatals and private businesses to incur heavy losses in terms of Man hour, sales drop, reduction in market share and profit loss. From The Economist (2013) point of view, firms or businesses where employment regulations, conditions of service and wages are graduated and honored promptly industrial actions are less frequent.

According to World Bank Group (2013) ranking of 185 countries for the first half of 2013, in terms of Ease of Doing Business (EDB) in Sub-Saharan Africa; Nigeria ranks as follow for selected indicators; Starting a Business (119th), Getting Electricity (178th), Getting Credit (23rd), Paying Taxes (155th), Protecting Investors (70th), Enforcing Contracts (98th), Resolving Insolvency (105th), etc. Overall, Nigeria was ranked 131st and 119th for the first half of 2013 among 185 countries in Sub-Saharan Africa in terms of Ease of Doing Business (EDB) and Ease of Starting a Business (ESB) respectively. Compared with 2012 ranking for EDB, Nigeria fell by -1% in Getting Electricity, -4% in protecting Investors, -16% in Paying Taxes, -1% in Enforcing Contracts, -1% in Resolving Insolvency and rose by 15% in Getting Credit. From these figures it is clear that achieving sustainable competitiveness would be a challenge to businesses in the Nigeria business environment.

2.4 Relationship between Business Competitiveness and Balance of Trade in Nigeria

According to The Economist (2012), ranking of business environment's attractiveness and competitiveness is predicated upon certain performance criteria such as effectiveness of policies towards private investment, trade balance, exchange rate controls, labor market issues, pricing policy, infrastructure, etc. Among these variables, trade balance provides the requisite insight to the nature and characterization of real production and the leading output in terms of real goods and services (Blanchard, 2009). Thus, it helps to capture the essence of business competitiveness which is growing profit, alternatives and increased choice opportunities, competitive pricing policing. It is imperative that Nigeria's trade relations with some of the world's largest economies be evaluated in order to appreciate the competitiveness of Nigeria's business environment Vis a Vis her major trading partners' business environment.

The balance of trade is the difference between the monetary value of exports and imports in an economy over a certain period of time (Blanchard, 2009). A positive balance of trade is known as a trade surplus and occurs when value of exports is higher than that of imports; a negative balance of trade is known as a trade deficit or a trade gap (Jhingan, 2010; The Economist, 2012). According to Trading Economics (2012) and CBN (2013), Nigeria recorded a trade surplus of US \$3.94 Billion in December of 2012. Historically, from 2002 until 2012, Nigeria Balance of Trade averaged US \$2.25 Billion reaching an all time high of US \$6.17 Billion in May of 2008 and a record low of US \$-0.36 Billion in June of 2003. Exports of commodities (oil and natural gas) were the main factors behind Nigeria's trade growth and accounts for more than 95% of total exports. Nigeria's main exports partners are: USA (30% of total in 2009), Equatorial Guinea (8%), Brazil (6.6%), France (6%) and India (6%). Nigeria imports mainly: industrial supplies (32% of total), transport equipment and parts (23%), capital goods (24%), food and beverage (11%) and consumer goods. Main import partners are: China (17% of total), Albania (11.3%), United States (7.5%), France and Belgium (CBN Trade Analysis, 2012).

Nigeria's exports to China are spread over many and varied products which includes food, animals, crude materials, oils, chemical products, and manufactured products. In 2000, Nigeria exported four broad commodities totaling US\$307.3 million to China, with the main export commodity being Mineral fuel and lubricants which represented US\$273.7 million (Olawale, et al; 2008). The next important export as at 2000 was crude materials excluding food and fuel which totaled US\$33.3 million. The remaining two broad commodities exported to China were quite insignificant with values between US\$0.1 million and US\$0.2 million (Olawale, et al; 2008). Thus, in terms of Nigeria's exports to China, Mineral fuel and lubricants

ranked first, followed by crude materials excluding food and fuel. Beverages and live animals exports ranked third while manufactured goods ranked fourth. In terms of significance of Nigeria's exports to China relative to the world, Nigeria exported more crude materials excluding food and fuel to China as this constituted 61.1%. Mineral Fuel and lubricants which constituted the main exports of Nigeria to China in 2000 was a paltry 1.4% of Nigeria's total world exports (Olawale, et al; 2008). In effect, out of US\$20.3 billion total Nigeria's exports, only 1.5% was exported to China.

According to Leadership (2013) Nigeria's import trade with China has risen from US \$2.3billion in 2005 to an estimated value of US \$12.7billion as at 2012; while export trade rose from US \$526.9million in 2005 to US \$4.7billion in 2012. More than 85% of the import trade is in manufactured household and personal consumer goods. This makes Nigeria the third largest trade partner of China. However, there is a trade agreement to raise crude oil export to China valued at US \$10.0billion during the next decade.

Nigeria is India's biggest trading partner on the African continent with a total trade value of US \$17.3billion as at March, 2012 (Leadership Newspaper Editors, 2012). According to Sachdev (2012), this represents 36% rise in the 2010-2011 value of US \$12.7 billion. India's total investment in Nigeria is estimated at US \$16.6billion at the end of 2011 (Economic Times, 2013). Nigeria's trade with India since 1999 when democracy was restored has increased substantially, rising from US \$293.71million in 1999-2000 to US \$875million during 2005-2006 (This Day, 2007). As at 2007, the value of non-oil bilateral trade was estimated at US \$7.9billion (Rediff, 2007). Nigeria's exports to India accounted for US \$3.9billion between April and September, 2006. India's exports to Nigeria were valued at US \$875million during the 2005/2006 period (This Day, 2007). This Day (2007) pointed out that Indian companies have invested heavily in Nigeria in manufacturing, pharmaceuticals, plastics, engineering, information technology and communications. Indian companies have invested in the Ajaokuta Iron and Steel Industry as well as Aladja Steel Complex in Delta. According to The Hindu Business Times (2007) Nigeria actively encouraged Indian companies to invest and expand Nigeria's mining and development of coal, gold, iron ore, chrome ore, lead and other mineral resources during the period 1999-2006.

Exports between Nigeria and India rose to US \$2.7billion in 2011-2012 financial year from US \$2billion in 2010-2011, while imports stood at US \$14.6billion in 2011-2012 as against US \$10.7billion in 2010-2011 (Sachdev, 2012). Based on available data from The Economic Times (2013), the principal commodities of Nigeria's imports from India are Machinery and Instruments (55%), Drugs, Pharmaceuticals and Chemicals (52%), Manufactures of metals

(40.4%), Transport Equipment (36%), Paper/wood Products (21%), Cotton yarn, Fabrics, made-up, etc (20%) and Plastic and Linoleum Products (17%). On the other hand India's principal commodities of imports from Nigeria are Wood and Wood Products (17%), Mealifers Ores and Metal Scrap (17%) and Cashew Nuts (11%), etc (The Economic Times, 2013). India's share of Nigeria's total global commodities imports which stood at 4.3% at the end of 2003 rose sharply to 25.5% at the end of 2012, while Nigeria's share of India's total global commodities imports stood at a paltry 2.7% at the end of 2012 (The Economic Times, 2013).

In recent times, Nigeria's trade in information and communication based services (especially consumer products advertisements) with South Africa has risen astronomically from US \$0.53million in 2004 to US \$815million in 2012 (Leadership, 2012). The argument advanced for this rise in Nigeria's import trade in the aforementioned goods and services is that it is a lot cheaper to import these items than produce them locally. A persistently rising cost of production reflects the long term effects of an increasingly difficult business environment in which both the societal and task environment forces/variables exert long term negative influence on the competitive capacity of businesses. Also, it is clear that a country can experience surplus trade balance in monetary terms and still remains a net importer of a wide range of intermediate goods and consumer goods. This is the case in Nigeria whose surplus trade balance is largely from crude oil sales. Under such circumstances the competitive edge of local/domestic firms or businesses would be blunt against international firms whose products or services would be cheaper due to a fairly amenable societal and task environment forces (Porter, 1998; Lynch, 2006; and Wheelen and Hunger, 2006).

2.5 Theoretical Literature

Theoretically, the fundamentals of competition by firms derive from certain critical concepts such as market structure or model, production function and factor pricing. Therefore, the review of theoretical literature is focused on the relationship between business competitiveness and the concepts identified above.

2.5.1 Market Structure and Models

The structure of the market in which a firm operates determines the intensity and nature of competition in terms of input use, output and price decisions. The relevant market structure for review in this study is the oligopoly model. This market structure is relevant because it serves as near approximation of a real world representation of the market for most industries. Thus, this study believes that the oligopoly model provides the building blocks of the fundamentals for evaluating business competitiveness especially in terms of resource use, price and output decisions.

a) The Oligopoly Model

In Varian's (1996) view a real world market situation lies between the two extremes of perfect competition and pure monopoly. Also, Lipsey and Chrystal (2006) have demonstrated that the dominant market structure in modern economies is oligopolistic in nature both in the production of consumer and capital goods (e.g. Telecommunication industry, Banking industry, Global Aviation industry, Global computer hardware and software industry, Automobile industry, etc). From Lipsey and Chrystal (2006) oligopoly is a market situation in which there exist a small group of dominant or large producers that compete actively with each other. These firms may choose to compete in terms of price or quantity. Jhingan (2006) showed that generally, there are a number of competitors in the market, but not so many as to regard each of them as having a negligible effect on price. This situation is referred to as oligopoly. Therefore, Jhingan (2006) defined oligopoly as a market model where there are a few sellers with similar or identical products, and the main key to behavior is that firms must take into account what their rivals will do. Peter (2006) is of the opinion that oligopoly is normally defined as a case of a market with few sellers. However, Peter (2006) posited that this definition is fraught with ambiguity because in terms of numbers, the definition carries with it an underlying thought that oligopoly implies competition among a few. Peter (2006) showed that in general, oligopoly industry contains a number of sufficiently small firms called "competitive fringe" (Lipsey and Chrystal, 2006) in such a way that the action of one firm affects or has a perceptible influence upon its rivals, even though a few big firms dominate the industry's production (e.g. Nigerian banking industry before consolidation/reforms was dominated by First Bank, Union Bank, UBA; Nigeria Telecommunication industry dominated by MTN, Globacom and Airtel; Foods and Beverages industry dominated by Nestle, Cadbury, Unilever, Honeywell and Dangote Group).

A firm in oligopoly model faces competitors as such each firm in the industry is forced to come to terms with the reality of the watchful eyes of its rivals. Therefore, each firm takes into account the possible reaction of its rival to its current choices. Thus, firms in oligopolistic competition are decision interdependent. Their behavior is strategic in nature as each firm must provide for the possible impact of its decisions on competing firms and anticipate expected reactions from the same firms (Frank, 1997). According to Basic Economics (2007) firms in oligopoly model are torn between cooperating to increase profits by obtaining the monopoly outcome (collusive), or; competing to try to gain an advantage over competitors (non-collusive).

Duopoly is a special case that captures the essence of the oligopoly model. Duopoly is a situation in which there are only two firms or sellers in the market that are completely independent and no agreement exists between them (Jhingan, 2006). From Varian (1996), Peter

(2006) and Jhingan, (2006) even though the two firms that constitute the duopoly situation may be independent, a change in the price and output of one will affect the other, and may lead to chain reactions.

In Koutsoyiannis' (1979) opinion a firm may assume that its rival is unaffected by what it does, in which case it takes into account the effects of its own direct influence on the price. If on the other hand each firm takes into account the effect of its policy on its rivals and take into account the effect of the rival's reaction on its policy and the indirect influences upon the price; then strategic decision situation arises. Furthermore, Koutsoyiannis (1979) noted that a rival firm's policy may be unaltered either with respect to the amount offered or to the price at which it offers its product. Thus, the duopoly problem can be considered as either ignoring mutual dependence or recognizing it. In this wise, certain duopoly models (e.g. Cournot, 1838; Bertrand, 1883) ignore mutual dependence (non-collusive); while others (e.g. Chamberlin, 1933) recognize mutual dependence (collusive).

Price and Output Decision: Equilibrium

i) Non-Co-operative Solution (Non-Collusive Oligopoly)

In non-collusive oligopoly model prices are typically administered, products are differentiated, and firms engage in rigorous rivalry behavior that is strategic. The intensity of rivalry varies from industry to industry over a range of time; and it determines the status of a firm: dominant or fringe player (Lipsey and Chrystal, 2006). However, it is important to note that, generally the acquisition of dominance status is a function of natural factors or strategic behavior of firms in the industry. The natural factors comprise of economies of scale (large firms have advantage over small firms since large scale production lowers average costs); fixed costs (the larger the firm's sales the lower the fixed cost to be recovered from revenues accruable from sales); and economies of scope (multiproduct firms are capable of sharing resources and facilities between different products that makes it possible for unit cost per product to be lower). Generally, where size confers a cost advantage through economies of either scale or scope, there may be room for only a few firms even when the market is large (Schotter, 2001).

In Lipsey and Chrystal (2006) the acquisition of dominance by strategic behavior of firms focuses on the strategic choices that firms make that leads to the shrinking of the number of competing firms in the industry. Such strategic choices can take the form of acquisition (outright buyout of rival firms or competitors; e.g. the purchase of Daewoo by Hyundai Motors, Access/Intercontinental Bank, Dangote Group/Benue Cement, etc), Mergers (coming together of two different firms by mutual consent with the larger firm being the dominant partner e.g.

UBA/Standard Trust bank, SmithKline/Beecham, Glaxo/Wellcome and recently Glaxo/SmithKline merged to become GlaxoSmithKline); and predatory practices (driving rivals into bankruptcy, reduction in market shares of rival firms through cutting edge advertisements that are cost prohibitive and high level sales promos; e.g. Coke/Pepsi, Kingsway/Leventis, Nestle/Cadbury/Unilever, Indomie Noodles/Dangote Noodles/Honeywell Noodles, MTN/Airtel/Glo, Toyota/Honda, Mercedes/BMW).

However, the question that is often asked by both Academics and Industry players is: Is dominance more of a natural consequence or mainly firm created? It can be argued that it is a combination of both natural factors and the strategic behavior of firms. In some industries, production is dominated by a few firms because of the efficiency generated by size relative to the existing market. In other industries, dominance may not be a function of efficiency but of the desire to acquire larger market power through size and entry restrictions. In Lipsey and Chrystal's (2006) view it is debatable to ascertain the relative importance of these two forces; dominance by efficiencies of large scale and scope, and the desire to create market power by growing large (e.g. oligopoly in manufacturing can be easily traced to the efficiency of large scale production; Schotter, 2001).

According to Varian (1996) and, Lipsey and Chrystal (2006) an equilibrium level can be reached by firms when they choose to calculate their individual interests or gains without colluding with others. This is a non-co-operative equilibrium or Nash equilibrium. This equilibrium is achieved at that point in which each firm's best strategy is to maintain its present behavior given the present behavior of the other firms in the industry.

ii Co-operative Solution: Collusive Oligopoly

In collusive oligopoly model firms can choose to co-operate to produce a predetermined monopoly output and maximize profits jointly. If this is achieved we have in that industry what is known as co-operative solution or collusive oligopoly. This situation would then represent that of a single monopoly firm if it owns all the firms in that industry. However, explicit co-operation by firms could be sanctioned by anti-competition laws. But a group of firms can exploit legal provisions to choose between aggressive competition and passivity. It is critical to note that in certain cases such passivity could be equivalent to tactical co-operation.

Strategic Interaction: The Duopoly Case

Generally, equilibrium in an industry is that point at which each firm's best strategy is to maintain its present behavior given the present behavior of other firms, especially the Nash equilibrium case (Lipsey and Chrystal, 2006). This presupposes that there are no further incentives to change behavior by any of the firms in the industry. The consequences of non-co-

operative behavior among firms in oligopoly are best represented by the special case of an industry containing only two firms called duopoly. When one firm makes its choice with respect to price and quantity, it could be that it is done with the knowledge of the choices of the other firm. The first to choose price is the price leader and the second is the price follower. Also, the first to choose quantity is the quantity leader and the second is the quantity follower (Varian, 1996). This is a sequential choice situation.

There is a situation in which one firm makes choices for price and quantity without the knowledge of the choices made by the second firm. In which case the firm will have to anticipate or at best guess about the rival firm's decision in order to arrive at the decision that will make it competitive. This is a simultaneous choice situation (Varian, 1996). In this case there are two possibilities: the firms could each simultaneously choose prices or simultaneously choose quantities. Varian (1996) identified four choice possibilities from these scenario; first, quantity leadership; second, price leadership; third, simultaneous quantity setting; and simultaneous price setting. In Varian's (1996) opinion, each of these interactions produces different sets of strategic choice situations and issues.

Non-Co-operative Solution: The Cournot Equilibrium

Cournot (1838) demonstrated a non-co-operative equilibrium using the duopoly model; in which two firms that constitute the industry produces identical products at zero marginal cost. In this model Cournot (1838) assumed that each firm chooses its profit maximizing output on the assumption that the other firm would hold its output constant. Cournot (1838) called the first firm, Firm-1 and the second firm, Firm-2. For any given quantity produced by Firm-2, Firm-1 only needs to subtract that quantity from the market demand curve to obtain its own demand curve. Firm-1 can then calculate its profit maximizing output based on Firm-2's output by equating MC = MR. According to Cournot (1838), if the entire process is repeated for each possible output of Firm-2 yields a set of corresponding outputs for Firm-1. This is Firm-1's reaction function. This reaction function shows Firm-1's profit maximizing output for each possible quantity sold by Firm-2. The mathematical derivation of the Cournot (1838) equilibrium is summarized below.

The Duopoly market demand: $X = a + bP$ or

$$P = a + bX \quad b < 0$$

Given that $X = X_1 + X_2$

$$\frac{\partial X}{\partial X_1} = \frac{\partial X}{\partial X_2} = 1 \quad \text{----- (2.1)}$$

Note that the MRs of the duopolists need not be the same (if the duopolists are of unequal size the one with the larger output will have the smaller MR).

Proof: $R_i = pX_i$
 $p = a + b(X_1 + X_2) = f(X_1, X_2)$

Thus, $\frac{\partial R_i}{\partial X_i} = p + X_i \frac{\partial P}{\partial X_i}$ ----- (2.2)

Note that $\frac{\partial P}{\partial X_1} = \frac{\partial P}{\partial X_2} = \frac{\partial P}{\partial X} = b$ ----- (2.3)

Therefore $\frac{\partial R_i}{\partial X_i} = p + X_i \frac{\partial P}{\partial X_i} = p + (X_i)(b)$ ----- (2.4)

Given that $p > 0$ while $b < 0$, it is clear that the larger X_i is, the smaller the MR will be.

The two duopoly firms have different costs

$$C_1 = f_1(X_1) \text{ and } C_2 = f_2(X_2)$$

According to Cournot (1838) Firm-1 maximizes profit by assuming X_2 constant, irrespective of its own decisions, while Firm-2 maximizes its profit by assuming that X_1 will remain constant.

Thus, the first order condition for maximum profits of Firm-1 and Firm-2 is given by

$$\frac{\partial \pi_1}{\partial X_1} = \frac{\partial R_1}{\partial X_1} - \frac{\partial C_1}{\partial X_1} = 0$$
 ----- (2.5)

$$\frac{\partial \pi_2}{\partial X_2} = \frac{\partial R_2}{\partial X_2} - \frac{\partial C_2}{\partial X_2} = 0$$
 ----- (2.6)

Rearranging

$$\frac{\partial R_1}{\partial X_1} = \frac{\partial C_1}{\partial X_1}$$
 ----- (2.7)

$$\frac{\partial R_2}{\partial X_2} = \frac{\partial C_2}{\partial X_2}$$
 ----- (2.8)

Solving equation (2.4) for X_1 yields X_1 as a function of X_2 , that is, it gives the reaction function of Firm-1. The function implies the output which Firm-1 must produce in order to maximize its profit for any given output X_2 of Firm-2. Solving equation (2.5) for X_2 yields X_2 as a function of X_1 , that is, it gives the reaction function of Firm-2.

Solving equations (2.4 and 2.5) simultaneously yields the Cournot equilibrium, the values of X_1 and X_2 which satisfy both equations; this is the point of intersection of the two reaction curves.

The second order condition for equilibrium requires that

$$\frac{\partial^2 \pi_i}{\partial X_i^2} = \frac{\partial^2 R_i}{\partial X_i^2} - \frac{\partial^2 C_i}{\partial X_i^2} < 0 \quad (i = 1, 2)$$
 ----- (2.9)

or

$$\frac{\partial^2 R_i}{\partial X_i^2} < \frac{\partial^2 C_i}{\partial X_i^2}$$
 ----- (2.10)

Firm-1 and Firm-2's MR must be increasing less rapidly than their respective MC, that is, MC must cut the MR from below for both firms in the industry.

Non-Co-operative Solution: The Bertrand Equilibrium

Bertrand (1883) presented a critique of Cournot equilibrium by pointing out that Cournot's analysis does not adequately represent reality. According to Bertrand (1883) each firm determines its own best quantity on the assumption that the other firm would hold its quantity constant. Bertrand's (1883) analysis showed that each firm assume that the other would hold its price constant and then ask itself what is the best price to charge. In Bertrand's (1883) view this resulted in destructive competition popularly known as price war, which drove price to the level of short-run marginal cost so that firms could no longer cover fixed costs.

If Firm-1 follows Bertrand's (1883) reasoning and asks: if Firm-2 holds its price constant what is my best price? The answer is to under-cut Firm-2's price by a marginal amount. Firm-1 will then gain the whole market for a small price cut. Firm-2 would reason the same way and also under-cut Firm-1's current price by marginal amount and capture the entire market. If it refuses, then its sales will be zero amounts.

The incentive for price-cutting is always present and appealing as long as each firm can increase its profits by capturing the whole market. The only stable position is when price has been driven to short run Marginal cost (which is zero in this case). At this price neither firm has the incentive for further price cut. It is true that any of the firm can further cut price to gain the entire market by selling at a price below the marginal cost of production which is not profitable.

The obvious question that arises from the analysis above is: How realistic are the assumptions of these two equilibria? According to Varian (1996) and, Lipsey and Chrystal (2006) each firm learns that its competitor will not act passively by holding its price or output constant while the other firm adopts its best strategy. It is clear that as the process of price or quantity under-cutting continues each firm certainly will come to know that it is absolutely wrong assume a passive response from its rival. Both the Cournot solution and the Bertrand solution are abstraction of reality meant to show the existence of a possible point of equilibrium which if achieved will be self-perpetrating. Thus the relevance of both equilibria is that they are self policing.

Self policing implies that if firms engage in active competition by varying quantities until they reach Cournot's equilibrium by any means they would tend to stay there. Any other combination of output would not be self policing since each firm would have incentive to vary its quantity (Schotter, 2001). The same can be said of Bertrand's equilibrium. If firms vary prices in competition until $P = MC$ there would be no incentive for any one firm to change that price level. This is because if any firm raises its price further sales will adjust to zero, while

price cutting will capture the market but at a price below variable cost which is not profitable (Frank, 1997).

Collusive Solution: The Cartel Model Equilibrium

Note that strategic behavior of firms in an oligopolistic industry makes the firm to face a basic dilemma either to compete or co-operate with one another. The fundamental problem is that firms can make profits as a group if they decide to co-operate rather than compete. However, any one firm can make more profits for itself if it goes it alone while the others co-operate. The few firms in oligopoly industry recognizes the fact that co-operation will help to avoid possible loss of profits that could result from competition (Varian, 1996; Lipsey and Chrystal, 2006).

Following Koutsoyiannis (1979), one way of avoiding the uncertainty arising from oligopolistic competition is to enter into collusive agreements, and a major type of collusion is cartels. Cartels imply direct (although secret) agreements among the competing oligopolist with the aim of reducing the uncertainty arising from their mutual interdependence. The aim of the cartel is the maximization of the industry (joint) profit. This can be achieved under certain conditions that are rare; that a) each firm knows the monopoly price, that is, has a correct knowledge of the market demand and of the costs of all firms; b) that each firm recognizes its interdependence with the others in the industry; c) all firms have identical costs and identical demands. There are two typical forms of cartels: cartels aiming at joint-profit maximization and cartels aiming at the sharing of the market.

According to Koutsoyiannis (1979) the case of the cartel that aims at joint-profit maximization is identical with that of a multi-plant monopolist. In this case the pure oligopoly industry that produces a homogeneous product is of interest. The firms appoint a central agency to which they delegate the authority to decide not only the total quantity and the price at which it must be sold so as to attain maximum group profits, but also the allocation of production among the members of the cartel, and the distribution of the maximum joint profit among the participating members (Varian, 1996). The central agency has access to the cost figures of the individual firms, and could possibly calculate the market demand curve and the corresponding MR curve. From the horizontal summation of the MC curves of individual firms the market MC curve is derived. The central agency acting as a multi-plant monopolist will set the price defined by the intersection of the industry MR and MC curves.

Since the cartel model which aims at joint profit maximization is identical to that of multi-plant monopolist; thus:

$$\text{Maximize } \Pi = \Pi_1 + \Pi_2$$

given that

$$p = f(X) = f(X_1 + X_2)$$

$$C_1 = f_1(X_1)$$

$$C_2 = f_2(X_2)$$

then

$$\Pi_1 = R_1 - C_1$$

$$\Pi_2 = R_2 - C_2$$

Therefore,

$$\dot{\Pi} = R_1 + R_2 - C_1 - C_2 = R - C_1 - C_2 \quad \text{----- (2.11)}$$

The market MR is given by

$$\partial R / \partial X = \partial R / \partial X_1 = \partial R / \partial X_2$$

According to Koutsoyiannis (1979) this implies that each additional unit will bring the same MR, irrespective of the plant in which it is produced, since all units of X are sold at the same price P. The first order condition for profit maximization of the joint profit is the allocation of output in such a way that the MC of each firm is the same:

$$\dot{\partial \Pi} / \partial X_1 = \partial R / \partial X - \partial C_1 / \partial X_1 = 0 \quad \partial R / \partial X = \partial C_1 / \partial X_1 \quad \text{--- (2.12)}$$

$$\dot{\partial \Pi} / \partial X_2 = \partial R / \partial X - \partial C_2 / \partial X_2 = 0 \quad \partial R / \partial X = \partial C_2 / \partial X_2 \quad \text{--- (2.13)}$$

or

$$\text{MR} = \text{MC}_1 = \text{MC}_2$$

The second order condition for maximization of joint profit requires that;

$$\partial^2 R / \partial X^2 < \partial^2 C_1 / \partial X_1^2 \text{ and } \partial^2 R / \partial X^2 < \partial^2 C_2 / \partial X_2^2$$

This implies that the MC of each firm must be increasing faster than the (common) MR of the output of the cartel as a whole.

It is important to note that the model of profit-maximizing cartel, where output of each member is decided by the central agency on the basis of marginalist rules, is also applicable to mergers of firms producing the same product (Koutsoyiannis, 1979). Again, Koutsoyiannis (1979) pointed out that a market-sharing cartel as a form of collusive solution is more common in practice because it is more popular. The firms agree to share the market, but keep a considerable degree of freedom concerning the style of their output, their selling activities and other decisions.

2.6 Empirical Literature

The review of empirical literature undertaken in this study covers broadly two main areas: The first area consist of Nigeria case studies, second area deals with other countries, especially emerging economies case studies.

2.6.1 Nigerian Case Studies

Adenikinju (2012) used Trend in Aggregate Energy Intensities to evaluate the efficiency of the energy sector and its impact on the competitiveness of Nigerian economy. Adenikinju (2012) provided evidence of the impact of the poor quality, unreliability and limited availability of power supply on Nigeria's economic development and highlighted its debilitating effects on the industrialization process in Nigeria. Using data that profile the electricity infrastructure industry and generation capacity in Nigeria, Adenikinju (2012) found that the statistics on the power sector have been appalling. Only about 40 per cent of Nigerians have access to electricity. Also, Adenikinju (2012) showed that in terms of efficiency and performance, the Nigerian electric power sector has been rated by the UNDP/World Bank Report (1993) as having one of the highest rate of losses (33%), the lowest generating capacity factor (20%), the lowest revenue at 1.56c/kWh, the lowest rate of return (-8%) and the longest average account receivable period (15 months), among a group of 20 low income and upper income countries.

The results from Adenikinju (2012) further indicated that Nigerian manufacturers have consistently identified poor electricity supply as the most important constraint to their businesses. The majority of them have to supplement publicly supplied electricity with very expensive auto-generation. The study showed that respondents rank electricity supply and petroleum shortages a major obstacle to their businesses in Nigeria. Furthermore, Adenikinju's (2012) study showed that the share of total investment devoted by firms to their own provision of electricity facilities was between 10% - 20%. This costs as expected varies inversely with the scale of operations of the firms. Small scale firms spend on the average between 10 to 20 percent of initial investment on self generation compared to large scale firms that spend less than 10 percent. However, across all the firms, the additional investment costs borne by these firms to mitigate the unreliability of PHCN is an avoidable cost that simply increases the costs of business operations and lower firms' competitive ability in Nigeria. The study concluded that the development of the energy sector for sustainable electricity supply is indispensable to in any attempt to cut down on the cost of doing business and consequently the competitiveness of the economy.

Adebanjo (2012) studied the determinants of the demand for electricity in Nigeria. Specifically, Adebanjo's (2012) study was focused to highlight electricity as a basic

infrastructure which significantly influences business performance. The study used multiple regression analysis to investigate the constraint factors of the electricity sector in Nigeria among which are generation deficits, weak transmission and distribution infrastructure, poor utility performance, and a long period of investment and maintenance neglect. The study also evaluated the relationship between electricity consumption and its determinants in Nigeria. The results showed that population, prices of other goods and real per capita income are positively related to demand for electricity. By implication, the prices of other goods significantly determine how much of household income will be available to pay for electricity. Again, the cost and availability of electricity influences significantly the final consumer prices of other goods and thus, affects to a large extent what profit margin business would have available to them in any given period.

Oduola (2008) analyzed the nexus between global competitiveness and Nigeria's Vision 20:2020 using the narrative and historical methodology. Oduola (2008) reviewed the key elements of Vision 20:2020, the pillars of global competitiveness and the ranking of Nigeria on global indicators of competitiveness (GCI), size (GDP) and living standard (PCI). The study assessed the challenges Nigeria must overcome to achieve Vision 20:2020 in view of the significance of global competitiveness in determining national productivity and living standards, and the significance of economic growth and growth in exports. Oduola (2008) established a positive correlation between global competitiveness index (GCI) and GDP. The further revealed that the achievement of global competitiveness is precursor to attaining the goals of Vision 20:2020 in Nigeria. Therefore, the study postulated that for Nigeria to achieve global competitiveness priority must be given to innovation and technology advancement, institution building and research. The findings of Oduola (2008) underscore the implications of competitiveness for investment, business growth, and growth in incomes, employment and the overall living standards in Nigeria.

Anyanwu and Erhijakpor (2008) assessed Nigeria's competitiveness in the African context with specific focus on "Natural Resource Curse" using Linear Regression Growth Model and trend analysis. The study's variables of interest were Nigeria's competitiveness in the World Economic Forum's Global Competitiveness Index (GCI), oil revenue-GDP ratio, external debt-GDP ratio and institutional quality. The study assessed African Competitiveness Index (ACI) as a means to highlighting Nigeria's competitive strengths and weaknesses. Anyanwu and Erhijakpo's (2008) main objective was to identify the areas Nigeria need to target in order to achieve sustainable growth. Also, the study aimed at examining the hypothesis that resource rich countries like Nigeria are faced with "natural resource curse"; by evaluating Nigeria's

expenditure management of oil revenue to leverage economic growth. The study found that first, Nigeria's major competitive weaknesses are in basic requirements for growth (infrastructure and technology), while Nigeria's competitive strength lie in macroeconomic environment and financial innovation. Second, Nigeria has not been able to lay the foundation for sustainable growth. Therefore, Anyanwu and Erhijakpo (2008) postulated that for Nigeria to enhance its global competitiveness it must target the main constraints of infrastructure that are basic to business growth. Again, Anyanwu and Erhijakpo (2008) study further shows that issues of competitiveness both in the global and African context are critical to Nigeria's business growth and sustainable economic growth with clear implications for employment and income earning capacities at individual, corporate and national levels.

Furthermore, a study by Asogwa (2008) puts the issue of competitiveness in the front burner of the debate for sustainable growth policies by analyzing the qualitative and quantitative competitiveness of the Nigerian Banking System within a global banking regime context. The study used trend analysis to examine the aspects of the indicators of both the qualitative and quantitative competitiveness of the Nigerian banking system. The quantitative indicators used in Asogwa (2008) are bank activities and payment and settlement system; while the qualitative factors comprised of compliance with international financial reporting standards (IFRS), compliance with international code of corporate governance and compliance with anti money laundering standards. Asogwa (2008) found that the Nigerian banking system cannot yet be described as fully competitive globally. This was despite the various banking sector reforms between 1986 and 2004 that led to a significant increase in banks' minimum capital requirements. Asogwa (2008) pointed out that the way in which the banking sector gains competitiveness globally has changed from a focus on achieving quantitative superiority to qualitative superiority. The study showed that at the global level there is a general agreement that apart from product/technological innovation, the adoption of internationally accepted standards and codes of good banking practice can make an important contribution to sounder financial sectors and more competitive banking markets. Asogwa (2008) concluded that the competitiveness of a country's economy and firms has been an important theme for governments and businesses alike. Irrespective of the fact that competitiveness tend to imply a win/lose situation for some, rather it more accurately represent a situation of comparative advantage in a particular area allowing a firm, or a nation, to outperform others. Clearly, issues of business performance and growth both at the firm and national level are competitiveness based with specific attention paid to both the quantitative and qualitative factors.

Tella (2008) noted that the Nigerian economy was uncompetitive in the face of increasing global competitiveness and globalization. Therefore, Tella (2008) used trend analysis to identify the external constraints to the competitiveness of the Nigerian economy. The major variables of interest in the study were trade performance measures, external balance, regional economic groupings, product standardization and absence of R&D, capital flow and mobility, currency convertibility and exchange rate stability, and policy on cross border investment. Tella (2008) identified total factor productivity, unit labor cost, output price, state of infrastructural facilities, trade performance measures, external balance, innovation, and technological advancement as the basic indicators of competitiveness used for policy analysis. The study found that the major factors that serve as external constraints to the competitiveness of the Nigerian economy were imposition of some trade barriers to imports that elicited repercussions from trading partners; dependence on crude oil as a major trading commodity whose price is exogenously determined and unpredictable; low intra-regional trade within the Economic Community of West African States (ECOWAS); growing regional integration across the world with resultant market imperfections; issues of capital flow and capital mobility; lack of financial depth and the consequent unattractive environment for portfolio investment; high product standard requirements for manufactured goods by industrialized countries; lack of policy on cross-border investments and inconvertibility of the domestic currency with attendant international payment problems. However, Tella (2008) noted that generally, competitiveness depends mainly on two main variables: price and quality of products that bring about profitability and increased income to the private investor and improved standard of living for citizens of a nation.

Olawale, et al (2008) investigated China-Nigeria Economic relations with emphasis on the following variables; co-operation agreements, investment relations (trend and composition of Chinese foreign direct investment in Nigeria); and trade relations (Size, Composition and Significance of Exports to China, China's Share of Nigeria's Exports, China's share of Nigeria's imports, top 10 export commodities, top 10 import commodities).The study used measure of central tendency to analyze data on the variables listed above. The results of the analysis showed that; although, information about Chinese activities in the country points to increasing economic (trade, commerce and investment), social (health and education) and technical relation, the composition of Chinese foreign direct investment (FDI) into Nigeria was fragmented. The major Chinese investments in Nigeria have been in oil and gas, construction especially building of infrastructure. Olawale, et al (2008) showed that Chinese investment in the commanding heights of the Nigeria economy such as telecommunication and petroleum sectors raises issues such as

anti-competitive and restrictive business practices; tax avoidance and abusive transfer pricing; volatile flows of investment and related payments deleterious for balance of payments; transfer of polluting activities and technologies; and excessive influence on economic affairs with possible negative effects on industrial development and national security. The study pointed out that the lack of competitiveness in terms of technological requirements in the sectors named above is solely responsible for the seemingly takeover by the Chinese.

Furthermore, Olawale, et al (2008), showed that in contrast to the nature of Nigeria's top 10 export commodities, the top 10 import commodities from China were all manufactured goods. Top on the list were electrical machinery equipment parts, sound records followed closely by vehicles, etc, as well as nuclear reactors, boilers, machinery and mechanical appliances. Coming at a distant fourth are articles of iron or steel followed by plastics and articles thereof. Included in the lower part of the list were ceramic products as well as inorganic chemicals and radioactive elements.

Olawale et al (2008) concluded that Nigeria's export to China is dominated by crude oil to the tune of about 95%. In terms of relative share of market, China constitutes only about 1.5% of the value of Nigeria's exports. Nigeria's import from China is more diversified than the exports. The observed structure of trade pattern is inconsistent with the Nigeria's quest to export manufactured or processed products. The need to diversify export products may be an uphill task given China's preference for raw materials and fuel and gas. More worrisome is skewed balance of payments position which has consistently been in favour of China. This scenario clearly suggests a case of weak competitiveness in the production of standard manufactured goods. Thus there is the need to examine the competitiveness of Nigeria manufacturing firms in terms of those factors that could position businesses or firms to meet global quality standard. Perhaps more importantly is an analysis of constraints facing producers and exporters in responding fully to market openings.

Ayogu (2000) evaluated the political economy of infrastructure investments in Nigeria with focus on the implications of such investment decisions on the economic competitiveness of the benefiting area. Essentially, Ayogu's (2000) study examined the influence of political factors on public investments in Nigeria. First, Ayogu (2000) argued that the assessment of the World Bank attributes most of the low growth rates in many African countries including Nigeria, to inefficiencies in public sector infrastructure investment. Second, the study (Ayogu, 2000) was of the opinion that the patterns in infrastructure stocks in Nigeria may be explained better by political economy rather than by economic efficiency. This view is plausible given the large-scale involvement of government in infrastructure investments.

The study (Ayogu, 2000) used the Calibrated Regional Production Function (CRPF) to model political influence in infrastructure investment in Nigeria. The CRPF model uses, as inputs, estimates of the production parameters, to approximate hypothetically-optimal allocations of infrastructure investments. These optimal allocations are then compared to the actual distributions to generate estimates of economic distortions, called influence costs. The output is then used to examine the extent to which these costs can be attributed to political influence in the arena where public capital expenditure decisions are made. Thus, the measure of economic distortion can be used to bench-mark the role of political influence. The aim of Ayogu (2000) was to improve the quality of public investment decision by identifying costs associated with the political economy of infrastructure investments in order to leverage the economic competitiveness of the benefiting area. Ayogu (2000) hoped that a better understanding of distributive politics can help to prevent political factors from hampering efficient policies on public expenditure.

The results of Ayogu (2000) indicated that the parameter estimates as well as the joint and several tests of the restriction that each political position does not matter either contemporaneously or with a lag. The values of the test statistics were computed as an asymptotic chi-squared test of the linear restrictions. Although the pattern of distortion clearly showed a regional trend, still the data do not support the often-claimed influence of Power Blocs in each of the geopolitical zones in Nigeria. Therefore, in this instance, clout seems to attend specific positions but not to the group coalition. Furthermore, the other specifics of the empirical result were that there is always the possibility that political pressures may lead to differential improvement in infrastructure investment, quality and maintenance. The linkages examined were between the quality adjusted stock of infrastructure and political influence. The quality linkage was admittedly very weak and thus many of the political positions that would otherwise assume prominence failed to do so as consequence. On the basis of these results Ayogu (2000) concluded that the pervasive influence of distributional politics in Nigeria and the ascendancy of the center state occasioned by an early intervention of the military in Nigerian politics contributed to the concentration of oil wealth in the center, as well as the commitment after the Nigerian civil war to a state directed economic development reconciliation, rehabilitation, and reconstruction. Therefore, infrastructure investment decisions were not made with economic competitiveness in view. The consequences of this action were obviously weak competitiveness of the economy of the most benefiting areas in some parts of Nigeria due to non-viability of both public and private investments. Ayogu (2000) recommended a resolute pursuit of privatization

of delivery of infrastructure investments decisions and services in Nigeria to engender economic competitiveness of deserving areas.

2.6.2 Other Related Studies

The first country-case study reviewed here is the study on improving business competitiveness and increasing economic growth in Ghana by Hewitt Associates (2006). The study used cross-sectional data and document to evaluate and discuss the role of information and communication technology (ICT) and information technology-enabled services (ITES) in improving business competitiveness and increasing economic growth in Ghana. In this context, the cross-sectional data used focused on information in the following areas: an analysis of Ghana's ability to compete globally as well as regionally in the information technology enabled services (ITES)-business process outsourcing/off-shoring (BPO) sector and the primary constraints to improving Ghana's competitiveness in the sector; recommendations for concrete actions for Ghana to increase its competitiveness and capability as an ITES-BPO destination, and target ITES-BPO activities and market segments in which it can be competitive in the short and medium term; a roadmap for developing the ITES-BPO industry in Ghana, including a skills development component, policy framework, and measurement matrix; recommended investment promotion strategy for developing and attracting investments in Ghana's ITES-BPO sector; a monitoring and evaluation framework for the ITES-BPO sector in Ghana, providing baselines and targets.

The study (Hewitt Associates, 2006) showed Ghana's current positioning under each of the classifications of Five Driver Model, namely People, Infrastructure, Environment, Incumbents and Clusters. The analytical framework for conducting the benchmarking aspects of the study was built upon these five drivers. Each of these drivers was further broken down into factors, parameters, and elements to comprehensively analyze each aspect. Weights were assigned to each driver and parameter level to get the overall scores for comparator countries both at regional and international levels. These were; People Driver (40%); Infrastructure Driver (30%); Environment Driver (20%), and Clusters and Incumbents Drivers (10%). Overall, Ghana was placed in the 10th position with respect to the selected countries. Ghana's positioning across these Drivers was benchmarked with respect to that of five leading and upcoming International ITES-BPO destinations (India, China, Philippines, Romania and Mexico) as well as six regional emerging or potential ITES-BPO destinations (South Africa, Egypt, Mauritius, Botswana, Nigeria and Senegal). In addition to the above, the study (Hewitt Associates, 2006) had several interactions with stakeholders, including incumbent organizations during the course of the study. Based on the findings from the international benchmarking and analysis of the development of

Ghana's ITES-BPO sector, Hewitt Associates (2006) identified the overall SWOT for Ghana and the facilities that would help to improve business competitiveness and economic growth.

Specifically, Hewitt Associates (2006) hinted that People Driver which implies human resources is a key differentiator of the capability of a location to attract a particular industry and sustain competitiveness. More so, that the ITES-BPO sector is especially labor intensive and dependent on talent. Ghana would require availability of an abundant, low-cost, efficient, and suitable talent pool. Again, availability of reliable infrastructure is another critical aspect for ITES-BPO establishments. The industry is heavily dependent on real time connectivity, with high demand for a robust telecom and power infrastructure. Civic amenities such as good roads, transportation systems, etc., make it easier for companies to do business out of a particular location. Also, in Hewitt Associates' (2006) view external environment refers to the legal and regulatory setup. The attitude and support of government and other related administrative bodies in terms of policies, procedures, ease of getting approvals, incentives, exemptions, special benefits, ease of handling, etc, are relevant in reducing the 'pain-points' of doing business in a particular location.

Furthermore, Hewitt Associates (2006) defined cluster driver as a concentration of companies and sub-industries in a geographic region that are interconnected by the industry they serve and the products they produce. While incumbents drivers refer to businesses in the relevant industry sectors that are already established and operating in the country. Established businesses can provide immense insight about what works and what doesn't. Hewitt Associates (2006) in view of the limited resources available to Ghana recommended that Ghana prioritize activities to be undertaken in the short term and those to be undertaken in the medium and long run that would secure and sustain business attractiveness and competitiveness.

According to Nir (2007) e-commerce arguably has a potential to add a higher value to businesses and consumers in developing countries than in developed countries. However, most developing country-based enterprises have failed to reap the benefits offered by modern information and communications technologies. Therefore, Nir (2007) studied the barriers to e-commerce and competitive business models with a Nepal based e-commerce firm Thamel.com as case study. The study explained the how and why of e-commerce in developing countries and identified the contexts and mechanism for e-commerce and its consequences for the competitiveness of any given business model. To accomplish this, Nir (2007) used a single-case research design with multiple data sources. First, Nir (2007) collected and analyzed extensive secondary materials on Thamel.com. Second, Nir (2007) interviewed Thamel.com CEO and Marketing Director based in Nepal.

Nir (2007) provided a qualitative description of Thamel.com business model in Nepal. The study indicated that Thamel.com was established in 1999 as a web portal. Its physical office is located in Thamel, a street in Kathmandu. At the onset Thamel.com targeted tourists. Then the company shifted its focus on Nepalese expatriates. The company found its niche as a gift provider to expatriates and their families. Nepalese expatriates tend to have a higher Internet adoption rates, a higher disposable incomes and a higher rate of credit cards ownership. This segment was thus more e-commerce ready with a greater value-creation opportunity. The company also targeted foreign expatriates living in Nepal. As at 2004, about 80% of Thamel.com's customers were Nepalese expatriates and the rest were foreigners. Thamel.com had also launched a web-based remittance system. The business model was built on word of mouth referrals. To attract visitors, it offered Nepalese news, e-mail services and real-time Internet chats. In 2004, the company received 15–20 orders a day on its website during non-peak seasons and 300–350 during major holidays. As at 2005 Thamel.com had 500 local business affiliates, which products are featured on its website. The affiliates range from some of the biggest businesses in Nepal to street vendors with revenues less than US\$1000 per year. In 2004, Thamel.com had 50 full-time employees. During major holidays, the company hired additional 100–150 employees mainly to deliver gifts.

Furthermore, Nir (2007) identified three major factors that constitute barriers to e-commerce and competitive business model in Nepal. These include economic factors, sociopolitical factors and cognitive factors. With respect to economic barriers, Nepalese e-commerce market lacks economies of scale. Perhaps the most notable feature associated with Nepal's slow rate of e-commerce take off is low penetration rate of base ICTs. In terms of infrastructure, as of 2001, total bandwidth in Nepal was less than 4 Mbps. ICT access charges are prohibitively expensive. Monthly fee to access the Internet 20 h a week in 2000, for instance, was more than the per capita annual income in Nepal compared to 1.2% in the US. Likewise, the cost for telephone calls to stay connected to the Internet for one day in 2001 exceeded the monthly ISP subscription fee. Likewise, while credit cards have been recently introduced, the penetration rate is very low. As at 2006 Nepal was still a cash-based society, and do not even accept checks, let alone credit card.

In terms of legal framework, a classification of Asian countries by levels of the adoption of digital and electronic signature (DES) puts Nepal at level 0 (that is, no legal recognition to electronic records). As of the mid-2004, Nepal had not enacted DES laws. Cognitive barriers related to knowledge, skill and confidence related to e-commerce usage constitute stronger barriers in Nepal e-commerce business. According to Nir (2007) estimates suggest that only 2%

of the population is English literate in Nepal and over half of the adult population is illiterate. These problems are compounded by highly underdeveloped and unreliable postal systems. Insecurity, unreliability and theft are common problems in the postal system of Nepal.

Nir (2007) showed that Thamel.com was able to get round these barriers by using three basic approaches viz: relational objective, value objective and multi-business model. In network development as the relational objective, Thamel.com established connectivity among multiple external parties such as the Nepalese expatriates and tourists. In terms of value objective Thamel.com found that culture is a common thread linking expatriates with their homeland and that goods with cultural value, appeal and content are thus attractive for this segment. Therefore, Thamel.com included in their e-commerce services an intermediary role that bridges the gap between expatriates and the homeland by helping to transfer funds that enables them to acquire items for cultural activities participation. Also, the firm got involved in the outsourcing of technology requirement and partnership with the public and private sector.

Nir's (2007) findings showed that in a developing country, a company's success depends on its ability to simultaneously deploy and manage multiple business models. Economic, sociopolitical and cognitive factors determine an appropriate business model. These factors determine which relational and value-based objectives best fit a market. The lack of economies of scale in a developing country prohibits the ability of the country's businesses to concentrate in one or a few business activities. In relatively small markets of developing countries, firms can add value by bundling together various products and services. To deliver full potential, developing country-focused Internet business models are required to outsource some functions to the industrialized world. It is impossible for a developing country-based company to break all e-commerce related barriers. The only way to overcome some of the barriers is to locate some e-commerce functions in the industrialized countries. E-commerce barriers discussed above make it necessary to locate some functions (e.g., credit card processing for hamel.com) to the industrialized world. Some functions, on the other hand, are to be performed outside to enhance the value delivery. Nir (2007) concluded that economic, sociopolitical and cognitive factors play important roles in the adaptation of business models in the context of the developing world.

2.7 Theoretical Framework for the Study

2.8 Implications of Literature for the Study

Generally, the theoretical literature reviewed has provided a robust discussion on the conceptual framework for evaluating business competitiveness and the fundamental theories that has established the building blocks for the nature and intensity of competition among firms in an industry. Again, the linkage between country competitiveness and business competitiveness has

been succinctly established. The issues that are clearly identifiable from the theoretical literature is that the nature and intensity of competition is defined by the market structure and the environment (societal and task) in which businesses operate. This will provide a clear guide to the conduct of the deductive and inductive analysis in this study.

The review of empirical studies on Nigeria and other selected developing economies provide insight to the seriousness attached to the challenge of business competitiveness. While most of the empirical studies on Nigeria have focused on the impact of infrastructure on business growth in terms of impact on cost of production; none has focused on business competitiveness in terms of profit maximization, quality of products and services; and market share, profit growth rate, pricing policy, low cost of production, new product development (R&D) and out sourcing of raw materials. According to Lynch (2006); and Wheelen and Hunger (2006), these variables constitute a bench mark for measuring business competitiveness. Clearly, the methodological approach in the empirical literature surveyed is clearly dominated by the qualitative approach. The only exception being Adebajo (2012) study; which clearly suffered specification error by including only a single variable of infrastructure (electricity) in the metrics of the determinants of business competitiveness in Nigeria. It is on the basis of this that this study used a combination of the quantitative and the qualitative approach. Essentially, the quantitative approach incorporated a metrics of variables that determine business competitiveness as identified in Wheelen and Hunger (2006), while the qualitative approach allowed for the inclusion of the unquantifiable internal and external dynamics of business competitiveness such as relational and value objectives.

CHAPTER THREE

METHODOLOGY OF RESARCH

3.0 Framework for Methodology

Plant closures and business shut downs, poor business growth and developments are issues that have characterized the business landscape in Nigeria. There are strong arguments that poor business competitiveness and growth manifest in form of businesses' inability to meet the goals of profit maximization, growing market share, sustained growth rate, competitive pricing policy, falling cost of production, out sourcing of raw materials and new product development. This raises the question of competitiveness both in the domestic and global business space for Nigeria businesses. Clearly, a lack of business competitiveness has implications for both public and private business growth and development; and consequently public and private income and employment growth. Therefore, the focus of this study is the evaluation of the performance and competitiveness of businesses indexed to pricing policy, quality of products and services, new product development, market share growth rate, profit maximization, and profit growth rate with specific focus on businesses located in Kaduna Metropolis and Zaria area of Kaduna State.

Research Hypothesis

Sustained profits, growing market share, and sustained growth rate, competitive pricing policy, low cost of production, new product development and out sourcing of raw materials by any firm depends on its competitiveness. Thus:

Null Hypothesis: Competitiveness is not significant for sustained profits, growing market share, and sustained growth rate, competitive pricing policy, low cost of production, and new product development.

Alternate Hypothesis: Competitiveness helps to achieve sustained profits, growing market share, and sustained growth rate, competitive pricing policy, low cost of production, new product development.

The Study Area

The area covered by this study comprises of Kaduna metropolis comprising of two local government areas namely: Kaduna-North and Kaduna-South and Zaria Area comprising of three local government areas namely; Zaria, Sabon Gari and Makarfi in Kaduna state. Kaduna metropolis is the commercial and industrial hub of Kaduna state; while Zaria area is located in the northern part of Kaduna state. The choice of these areas in Kaduna state is based on; first, major businesses in Kaduna state are located in Kaduna metropolis where there is appreciable access to vital infrastructure and market for finished product or services is readily available. Second, Zaria area ranks next to Kaduna metropolis in terms of commercial and industrial

presence in Kaduna state. Also, the selection of the local government areas was based on the diversities of commercial and industrial activities in these areas.

Zaria area is about eighty to one hundred kilometers away from Kaduna metropolis, which clearly satisfies the need for appropriate study coverage. The Zaria area falls within the jurisdiction of a famous monarchical traditional institution known as the Zazzau Emirate, ruled by the Emir of Zazzau whose palace is located in Zaria city. The Zazzau Emirate comprises of about seven local government areas with as many chiefdoms presided over by the 'Sarki' or 'Mai Angwar' as the case may be. The Zazzau Emirate has a place of pride in the history of northern Nigeria because of the heroics of one of the most popular leaders in northern Nigeria, Queen Amina of Zaria. Kaduna metropolis is the political headquarters of Northern Nigeria, where a wide range of commercial and industrial businesses are located.

Note that in research circles all the selected three local government areas in Zaria area are regarded as 'Zaria area' because of the common socioeconomic features (Jibril, 2011). This is arguably so, because Zaria area is home to a wide range of major tertiary institutions such as Ahmadu Bello University, Nigerian College of Aviation Technology (NCAT), National Institute of Transport Technology (NITT), College of Chemical and Leather Technology (CHELTECH), National Research Institute for Chemical Technology (NARICT), Federal College of Education (FCE), etc. Zaria and Sabon Gari are the central commercial areas within the study area where semi-urban markets for agricultural produce and a wide range of finished consumer products are readily available. The 2006 census puts the population of the selected local governments in Zaria area at 408,198, 286,871 and 146,259 for Zaria, Sabon Gari and Makarfi respectively and the population for selected local governments in Kaduna metropolis at 357, 694 and 402, 390 for Kaduna-North and Kaduna-South respectively.

The study area possesses rich cultural, social and economic history especially in commerce, industry and agriculture. In Zaria area commerce and agriculture are the predominant economic activities among the people who are about 90% Hausas by tribe. About 50% of the people are engaged in small farming, while 30% are engaged in the many hand craftsmanship (blacksmith, weaving, cloth dying, leather works, etc) and off-farm activities; and 20% are engaged in various commercial and industrial activities. In Kaduna metropolis, commerce and industry are the predominant economic activities among the people who a mix of the various ethnic nationalities in Nigeria. About 80% of the people in Kaduna metropolis are engaged in commercial and industrial activities.

Sample Design and Data Collection

The sampling technique used in this study is the purposive sampling technique. This is considered appropriate due to the specific characterization of businesses required to provide a framework for the design of the instrument of data collection in order to meet the objectives of the study. Also, because of the critical need to seek out specific businesses with minimum business records and the willingness on the part of businesses to part with vital information the purposive sampling technique was considered appropriate.

For the purpose of this study businesses are classified into the following categories namely; Manufacturing, Food and Beverage; and Advertising. This study used a sample size of 40 businesses from each category listed above, that gives a total sample size of 240 businesses from Kaduna metropolis and Zaria area. Two set of structured questionnaires were designed and administered to the selected 240 businesses in the study area. The variables of interest for which data were sought from the sampled businesses include; electricity, cost of production, innovation and technology, rate of change in technology application, market structure, quality of products and services; and market share, profit growth rate, pricing policy, new product development (R&D), quality of labor employed and out sourcing of raw materials. Based on these, the designed instruments (questionnaires) were used to collect data and information that helped to accomplish the study objectives.

3.1 Empirical Framework

The objectives of the study are mainly empirical. Therefore, it was important that an appropriate inductive method be developed that would enable the achievement of the research objectives. However, the deductive and the historical methods are considered necessary to provide a foundation for the inductive method (Jibril, 2011). This is because the existing economic theories developed deductively from assumptions about business competitiveness provided a clear guide to the conduct of the inductive analysis. Theories of competition reviewed are clearly relevant as a framework for the evaluation of business competitiveness. The literature on competitiveness of the Nigeria economy in terms of its trade relation with other countries has been presented. The relevance of this lies in the fact that Nigeria's history of competitiveness is useful for appreciating any form of data that documents that history.

Specifically, the study used the general form of the Probit and Tobit Models to evaluate business competitiveness and to measure the intensity of each of the variables to which competition was indexed in the categories stated in this study. The Pearson Minimum Chi-Square model was used to assess if businesses were able to meet their goals of growing profit

maximization, quality standard, growing market share and sustainable pricing policy in Kaduna Metropolis and Zaria Area.

Purposive Sampling Technique

Purposive sampling technique is a non-probability sampling method used where sample randomness cannot be guaranteed in view of the fact that the elements of the population may not have the privilege of equal chance or definite probability of being selected in the sampling process (Asika, 1990). However, randomness may occur by chance. But it is of little significance whether randomness occurs or not in non-probability sampling process since the population elements are not deliberately given equal chances of selection.

Based on Asika's (1990) view, in certain population, some characteristics or features are easily identifiable. These characteristics or features may need to be represented in the sampling process in order that the required information may be isolated in a manner that will be representative of the entire population. Therefore, the selection of some sample elements was guided by what is considered to be typical cases which are most likely to provide the required data or information as used in Jibril (2011). Samples chosen in this way are known as purposive or judgment samples.

Note that under normal circumstances probability sampling is preferred. But non-probability sampling is used in situations where probability sampling is not feasible. Generally, there are sampling situations where non-probability sampling method is best suited to generate the required data and information outcome; such as:

- i. Where there is a case of infinite population in which most sample subjects cannot be reached or the population elements can only be imagined
- ii. Where random sampling technique is not likely to guarantee the inclusion of typical cases or objects
- iii. Where generalization of results is not intended
- iv. Associated costs and time required to conduct a study using probability sampling may be prohibitive (Yates, 1971; Jibril, 2011).

This study anticipated the fact that random sampling will not guarantee the inclusion of the required businesses with minimum business records needed to measure the variables of interest. Also, it would have require the study of all the businesses in the study area in order to identify the relevant businesses if random sampling was employed, which will involve enormous financial cost.

The Probit Model

The Probit model is a qualitative or binary response regression model in which the response variable is dichotomous. However, in certain cases in which the Probit Model is used the response variable may not necessarily be restricted to Yes or No categories only; that is, the Probit Model could be applicable in cases where the response variable is trichotomous (Gujarati, 2003). It is important to note that in the application of the Probit Model, relationship between the dependent and independent variables is non-linear (Eboh, 2009).

Specifically, the Probit Model estimates the behavior of a categorical dependent variable assumed to be a proxy for a true underlying continuous normal distribution (Gujarati, 2003). Also, according to Eboh (2009) the Probit Model is based on the assumption that the categorical dependent variable reflects cumulative normal distribution also referred to as the normal cumulative distributive function (CDF). Thus, the Probit coefficient is interpreted in terms of how much difference a unit change in the independent variable(s) makes in relation to the cumulative normal probability of the dependent variable. In other words, the Probit coefficient measures the effect of the independent variable on the Z scores of the dependent variable (Eboh, 2009).

Note that the probability of the dependent variable is not a linear function of Z, rather is a cumulative normal function of Z. Therefore, in Eboh's (2009) view the calculated probability difference is called the elasticity of $P(Y)$ with respect to the independent variable, when variables are held at their sample means, where Y is the dependent variable. The elasticity is the effect of a unit increase in the independent variable on the probability that the dependent variable is equal to 1, when all other independent variable(s) are held constant at their mean values. Thus, the Probit Model is properly suited to measure the probability of business competitiveness with respect to the identified index of competitiveness (growing profit maximization, quality standard, and growing market share, etc) in this study; when these variables are held at their sample means.

The Tobit Model

According to Gujarati (2003) the Tobit Model is an extension of the Probit Model developed by James Tobin. Note that in the Probit Model the major concern is the measurement of the probability of the phenomenon of interest occurring as a function of some specific unrelated variables. In the Tobit Model the concern is in finding out the strength of the probability of the phenomenon of interest occurring in relation to the specific unrelated variables. Thus, Eboh (2009) affirmed that Tobit Model is suited in cases where the dependent

variable is either zero or positive. Also, the Tobit Model is useful in situations where the dependent variable has the tendency to jump discretely to zero or any other threshold.

The common dilemma that usually confronts any user of the Tobit Model as indicated by Gujarati (2003) is the fact that in most cases information/data on the phenomenon of interest may be available if it has a high probability of occurring. While information/data may not be available if the probability of the phenomenon of interest occurring is close to zero. Therefore, the elements of the phenomenon of interest are divided into two groups, one consisting of n_1 group about which there is information/data on the regressors (growing profit maximization, quality standard, and growing market share, etc) as well as the regressand (competitiveness). And the second consisting of n_2 group about which there is information only on the regressors and not on the regressand (Gujarati, 2003). A sample in which information on the regressand is available only for some observations is known as a censored sample. It is for this reason that the Tobit Model is referred to as a censored regression model. In this study information on the regressand are available only for some observations; therefore, the study adopted the censored limited dependent variable Tobit Model to measure the strength of the index factors on business competitiveness in the selected industries in this study.

The Minimum Chi-Square Method

In statistics, Minimum Chi-Square estimation is a method of estimation of unobserved quantities based on observed data (e.g. Berkson, 1980). According to Berkson (1980) in certain chi-square tests, one rejects a null hypothesis about a population distribution if a specified test statistic is too large, when that statistic would have approximately a chi-square distribution if the null hypothesis is true. In minimum chi-square estimation, one finds the values of parameters that make that test statistic as small as possible. Among the consequences of its use is that the test statistic actually does have approximately a chi-square distribution when the sample size is large. Generally, one reduces by 1 the number of degrees of freedom for each parameter estimated by this method.

The Pearson minimum Chi-Square method is used in this study to test the null hypothesis that business competitiveness is not significant for growing profit maximization, quality standard, growing market share and sustainable pricing policy. Note that generally, the Chi-square statistics test the significance of the difference between a set of observed frequencies and a set of unobserved or expected frequencies on the basis of a given hypothesis concerning some population. In other words Chi-square statistics is applicable in testing hypothesis about categories data which consist of data organized in the form of frequency counts rather than measured magnitudes. But the general Chi-square test is applicable to small sample size. Since

test statistics of the Pearson Minimum Chi-Square has properties that could approximate the chi-square statistics when the sample size is large, therefore, it was considered appropriate for use in this study. It allowed for the determination of the degree of impact of the identified variables on business competitiveness.

3.2 Model Specification

3.2.1 The Probit Model

Suppose response variable Y is *binary*, that is, it can have only two possible outcomes which are denoted as 1 and 0. For example, Y may represent presence/absence of a certain condition, success/failure of some device, answer yes/no on a survey, etc. Also, if there is a vector of regressors X , which are assumed to influence the outcome Y ; then we can specifically, assume that the Probit model takes the general form (as in Gujarati, 2003; Eboh, 2009; Abba, 2013):

$$\Pr(Y = 1 | X) = \Phi(X'\beta), \text{ ----- 3.1}$$

Where:

\Pr = probability,

Φ = Cumulative Distribution Function (CDF) of the standard normal distribution

β = parameters to be estimated by maximum likelihood

Note that it is possible to transform the Probit model into a latent variable model (Gujarati, 2003). In that case if we assume that there exists an auxiliary random variable in the form:

$$Y^* = X'\beta + \varepsilon, \text{ ----- 3.2}$$

Where: $\varepsilon \sim N(0, 1)$. Then Y can be viewed as an indicator for whether this latent variable is positive:

$$Y = \begin{cases} 1 & \text{if } Y^* > 0 \text{ i.e. } -\varepsilon < X'\beta, \\ 0 & \text{otherwise.} \end{cases}$$

Note that in Albert and Chib's (1993) view the use of the standard normal distribution causes no loss of generality compared with using an arbitrary mean and standard deviation because adding a fixed amount to the mean can be compensated by subtracting the same amount from the intercept, and multiplying the standard deviation by a fixed amount can be compensated by multiplying the weights by the same amount. To show that 3.1 and 3.2 are equivalent, note that

$$\begin{aligned}
\Pr(Y = 1 | X) &= \Pr(Y^* > 0) = \Pr(X'\beta + \varepsilon > 0) \\
&= \Pr(\varepsilon > -X'\beta) \\
&= \Pr(\varepsilon < X'\beta) \quad (\text{by symmetry of the normal dist}) \\
&= \Phi(X'\beta)
\end{aligned}$$

Therefore, in this study equation 3.2 was used to estimate business competitiveness. Thus, Y^* is the dependent variable that measures competitiveness as a function of X' which constitute the group of independent variables. Thus, the general specification of the Probit Regression model for this study is given by

$$Y^* = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \varepsilon \quad \text{---3.3}$$

Where

Y^* = Business Competitiveness

X_1 = infrastructure

X_6 = market share

X_2 = cost of production

X_7 = profit growth rate

X_3 = innovation and technology

X_8 = pricing policy

X_4 = market structure

X_9 = new product development R&D)

X_5 = quality of products and services

X_{10} = out sourcing of raw materials

β_0 ---- β_{10} are parameters to be estimated by maximum likelihood

$\varepsilon \sim N(0, 1)$

Expected Results

On a priori basis this study expects that

$$Y^* = 1 | X; [\Pr(Y^* > 0)]$$

$$\beta_0 \text{ ---- } \beta_{10} > 0; \Pr(X'\beta + \varepsilon > 0)$$

Since Probit Model is estimated using maximum likelihood estimation method, it is important to present the procedure for maximum likelihood estimation.

Maximum Likelihood Estimation procedure for the Probit Model

According to Bliss (1938) and confirmed by Gujarati (2003); suppose data set $\{y_i, x_i\}_{i=1}^n$ contains n independent statistical units corresponding to 3.1 and 3.2 above. Then their joint log-likelihood function is

$$\ln \mathcal{L}(\beta) = \sum_{i=1}^n \left(y_i \ln \Phi(x'_i \beta) + (1 - y_i) \ln(1 - \Phi(x'_i \beta)) \right)$$

The estimator $\hat{\beta}$ which maximizes this function is expected to be consistent, asymptotically normal and efficient provided that $E[XX']$ exists and is not singular (Bliss, 1938). Bliss (1938) showed that this log-likelihood function is concave in β , and therefore standard numerical algorithms for optimization will converge rapidly to the unique maximum.

According to Bliss (1938) asymptotic distribution for $\hat{\beta}$ is given by

$$\sqrt{n}(\hat{\beta} - \beta) \xrightarrow{d} \mathcal{N}(0, \Omega^{-1}),$$

where

$$\Omega = E \left[\frac{\varphi^2(X'\beta)}{\Phi(X'\beta)(1 - \Phi(X'\beta))} XX' \right], \quad \hat{\Omega} = \frac{1}{n} \sum_{i=1}^n \frac{\varphi^2(x'_i \hat{\beta})}{\Phi(x'_i \hat{\beta})(1 - \Phi(x'_i \hat{\beta}))} x_i x'_i$$

and $\varphi = \Phi'$ is the Probability Density Function (PDF) of standard normal distribution.

3.2.2 The Tobit Model

Recall that the Tobit Model is an extension of the Probit Model. Again, note that in the Probit Model the major concern is the measurement of the probability of business competitiveness occurring as a function of the specified independent variables. In the Tobit Model the concern is to find out the intensity of influence exerted by each of the specified index factors (independent variables) on the level of business competitiveness. The measurement of the intensity of influence exerted by the index factors on the level of business competitiveness presupposes that their scores would vary between 0 and 1. In other words the business competitive scores were double-truncated or censored at 0 and 1. It follows that the closer the coefficient value of an index factor (independent variable) is to 1, the greater the influence (positive) it exerts on the level of competition. Thus, for any value less than 0 for an index factor, the lesser the influence (negative) it exerts on the level of competition. Therefore, a two limit Tobit Model where 0 is lower limit and 1 is upper limit was used.

According to Greene (2003) the general form of the Tobit Model with a limited dependent variable is given by:

$$Y_t = \beta_t + \sum_{i=1}^n \beta_i X_{ij} + \mu_i, \quad \mu_i \sim IN(0, \delta^2) \quad \text{-----} \quad 3.4$$

Where

Y_t = Latent (dependent) variable representing the intensity of competitiveness score of business j

β_i = Vector of unknown parameters to be estimated

X_i = Vector of explanatory variables $m(m-1, \dots, K)$ for enterprises j .

μ_i = An error term that is independently and normally distributed with a mean of zero and a constant (δ^2)

$$Y_i = \beta_t + \sum_{i=0}^n \beta_i X_{ij} + \mu_i, \quad \text{if } \mu_i > \beta_0 + \sum_{i=0}^n \beta_i X_{ij} \quad \text{----- 3.5}$$

$$Y_i = 0; \text{ if } \mu_i \leq \beta_0 + \sum_{i=0}^n \beta_i X_{ij} \quad \text{----- 3.6}$$

The dependent variable in the regression equations above cannot have a normal distribution because the value varies between 0 and 1. As indicated in Maddala (1999), Gujarati (2003) and Abba (2013) the use of Ordinary Least Square (OLS) estimation will give biased estimates. Thus the maximum likelihood method of estimation is more appropriate as it gives consistent and asymptotically efficient estimators for parameters and variance (Greene, 2003). The implication of this is that the validity of standard inference procedures such as t-statistics and F-test which yield efficient and asymptotically normal distributed estimates for unknown parameters vectors is confirmed (Abba, 2013).

Maximum Likelihood Estimation procedure for the Tobit Model

The likelihood function for estimating β and α in the Tobit regression model is given as

$$L(\beta, \sigma/y_j, x_j L_{1j}, L_{2j}) = \prod \Phi\left(\frac{L_{1j} - \beta' x_j}{\sigma}\right) \prod_{y_j=y_j} \frac{1}{\sigma} \phi\left(\frac{y_j - \beta' x_j}{\sigma}\right) \prod_{y_t=L_{2t}} 1 - \Phi\left(\frac{L_{2j} - \beta' x_j}{\sigma}\right) \quad \text{----- 3.7}$$

Where

$L_{1j} = 0$ (lower limit and $L_{2j} = 1$ (upper limit)

$\Phi (.)$ and $\phi (.)$ are distributed function and density function of the standard and normal respectively; denoted by

$\Phi\left(\frac{L_{1j} - \beta' x_j}{\sigma}\right)$ and $\Phi\left(\frac{L_{2j} - \beta' x_j}{\sigma}\right)$ by Φ_{1j} and Φ_{2j} , respectively; with corresponding

definitions for Φ_{1j} and Φ_{2j} , the $E(y_i)$ expression in terms of the conditional expectation of y_j is given by

$$E(y_i/L_{1j} < y^*_j < L_{2j}) = \beta'x_j + E(\mu_i/L_{1j} - \beta'x_j < \mu_i/L_{2j} - \beta'x_j) \quad \text{-----} 3.8$$

$$\beta'x_j + \delta \frac{\phi_{1j} - \phi_{2j}}{\Phi_{2j} - \Phi_{1j}} \quad \text{-----} 3.9$$

Also, the unconditional expectation of y_j is defined by

$$\begin{aligned} E(y_1) &= P(y_j = L_{1j}) \cdot L_{1j} + P(L_{1j} < Y^*_j < L_{2j}) \cdot E(y_j/L_{1j} < Y^*_j < L_{2j}) + P(y_j = L_{2j}) \\ &= \Phi_{1j} L_{1j} \beta'x_j (\Phi_{2j} - \Phi_{1j}) + \delta(\Phi_{1j} - \Phi_{2j}) + (1 + \Phi_{2j}) L_{2j} \quad \text{-----} 3.10 \end{aligned}$$

Note that in practical terms, the log function is monotonically an increasing function (Abba, 2013). Greene (2003) has noted that it is simpler to use log of likelihood than the likelihood function and that the maximize values of the functions are equivalent. Thus, the marginal effects of the Tobit Model are computed as

$$\partial E \left(\frac{y_j}{x_j} \right) / \partial x_{jm} = \beta_m \quad (\text{This is the probability of censored observations}) \quad \text{-----} 3.11$$

Given the framework of the Tobit Model above, we included operating environment, efficiency of production, rate of technological change and application; and profit maximization and quality of labor employed within the vectors of independent variables as a modification to the Probit Model in order to evaluate the intensity and level of competitiveness by businesses. Thus, the Tobit Regression Model for evaluating the intensity and level of business competitiveness in this study is specified as:

$$Y^* = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + U_i \quad \text{--} 3.12$$

Where

X_1 = infrastructure

X_6 = pricing policy

X_2 = operating environment

X_7 = market structure

X_3 = efficiency of production

X_8 = market share

X_4 = rate of technological change and application

X_9 = quality of product/service

X_5 = profit maximization

X_{10} = quality of labour employed

β_0 ---- β_{10} are parameters to be estimated by log of likelihood

U_i = Random error term

Expected Results

On a priori basis it is expected that

$$Y^* = 0 \sim 1 | X; [\Pr(Y^* > 0)]$$

$$\beta_0 \text{ ---- } \beta_{10} > 0; \Pr (X' \beta + U_i > 0)$$

3.2.3 The Minimum Chi-Square Method

The Minimum Chi-Square method can be used when there are many observations of response variable y_i having the same value of the vector of regressors x_i (such situation may be referred to as "many observations per cell"). Thus, the model can be formulated as follows.

Suppose among n observations $\{y_i, x_i\}_{i=1}^n$ there are only T distinct values of the regressors, which can be denoted as $\{x_{(1)}, \dots, x_{(T)}\}$. Let n_t be the number of observations with $x_i = x_{(t)}$, and r_t the number of such observations with $y_i = 1$. As indicated in Abba (2013) it is assumed that there are indeed "many" observations per each "cell": for each t , $\lim_{n \rightarrow \infty} n_t/n = c_t > 0$

Denote

$$\hat{\sigma}_t^2 = \frac{1}{n_t} \frac{\hat{p}_t(1 - \hat{p}_t)}{\varphi^2(\Phi^{-1}(\hat{p}_t))} \text{----- 3.13}$$

Thus, the minimum chi-square estimator is a generalized least squares estimator in a regression of $\Phi^{-1}(\hat{p}_t)$ on $x_{(t)}$ with weights $\hat{\sigma}_t^{-2}$:

$$\hat{\beta} = \left(\sum_{t=1}^T \hat{\sigma}_t^{-2} x_{(t)} x_{(t)}' \right)^{-1} \sum_{t=1}^T \hat{\sigma}_t^{-2} x_{(t)} \Phi^{-1}(\hat{p}_t) \text{----- 3.14}$$

Where

$\hat{\beta}$ = minimum Chi-square estimate parameter

σ = variance

$x_{(t)}$ = observations (Vectors of independent variables)

n_t = number of independent variables

r_t = number of observations

Φ = standard error

This estimator is adjudged (e.g. Berkson, 1980) to be consistent (as $n \rightarrow \infty$ and T fixed), asymptotically normal and efficient. Its advantage is the presence of a closed-form formula for the estimator.

Expected Results

$$\beta_i x_j = 0 | X_j; [\Pr(\beta_i x_j = 0)]$$

In this study, equation 3.14 was used to estimate β_i parameter in the Probit Regression Model and Tobit Regression Model to test the null hypothesis that business competitiveness is not significant for sustained profits, growing market share, and sustained growth rate, competitive pricing policy, low cost of production, and new product development (R&D).

3.3 Method of Estimation

The dependent variables in the Probit regression equation and the Tobit regression equation above do not have normal distributions; therefore the Ordinary Least Square (OLS) estimation method was considered irrelevant as it will give biased estimation (Maddala, 1999; Abba, 2013). Thus, for the Probit regression maximum likelihood function estimation was used; while for the Tobit regression log of likelihood function estimation was used. This is essentially because the parameter estimate of the maximum likelihood gives consistent and asymptotically efficient estimators for parameters and variance (Greene, 2003). This study used E-views version 4.0 (Probit) and NLOGIT version 4.0.1 (Tobit) software to estimate the regression equations.

3.4 Sources of Data

The major source of data for this study is the primary source. Data was obtained from the study area with the use of structured questionnaires. However, relevant secondary sources such as Nigerian Journal of Economic and Social Research were consulted for documented evidence and data of related studies.

CHAPTER FOUR

ANALYSIS OF DATA, DISCUSSION AND INTERPRETATION OF RESULTS

The presentation, analysis of data, interpretation and discussion of the results of this study is carried out with a view to provide a platform for the evaluation of business competitiveness indexed by availability of electricity, cost of production, innovation and technology, market structure, pricing policy, quality of products and services, new product development (research and development- R&D), market share, profit maximization, and profit growth rate with specific focus on businesses located in Kaduna Metropolis and Zaria area of Kaduna State.

4.0 Framework for Interpretation of Results

a) Probit Results

The response variable Y (proxy for business competitiveness) in the Probit Model is binary, thus it assumes 1 or 0 value; 1 implies competitiveness and 0 for non-competitiveness. Therefore, the Probit coefficient is interpreted in terms of the presence or absence of competitiveness. In other words, the Probit regression coefficient measures the change in the Z-score of the dependent variable for a one unit increase or decrease in the independent variable. The sign of the coefficient indicates the direction of change in the independent variable.

b) Tobit Results

In this study, the Tobit Model is used to measure the intensity of influence exerted by each of the index factors (independent variables) on the level of business competitiveness (dependent variable). The measurement of the intensity of influence exerted by the index factors on the level of business competitiveness presupposes that their scores vary between 0 and 1. In other words the business competitive scores are double-truncated or censored at 0 and 1. It follows that the closer the coefficient value of an index factor (independent variable) is to 1, the greater the influence (enhancement of competitiveness) it exerts on the level of business competitiveness. Thus, any value less than 0 or equal to 0 for an index factor implies a negative influence (decreases competitiveness to zero) exerted on the level of competitiveness. Therefore, a two limit Tobit Model where 0 is lower limit and 1 is upper limit was used.

4.1 Business Competitiveness in Kaduna Metropolis

4.1.1 Manufacturing

Table 4.1a shows the Probit regression results for evaluating competitiveness in manufacturing businesses in Kaduna metropolis. Given the likelihood ratio (LR) statistics value of 19.64, whose P-value is about 0.0009; all the independent variables have impact on the Z-score of the dependent variable (competitiveness). The McFadden R^2 is 0.45 which is indicative

of a fairly good fit. Recall that in a Probit model the dependent and independent variables are not linearly related.

From the results on Table 4.1a electricity, cost of production, market structure, quality of product, market share, profit growth rate and out sourcing of raw materials have negative coefficients (note that the coefficients values are less than 0 for these variables) that are significant at the 5% level. Holding all other factors constant, this implies that, given unavailability of electricity, high cost of production, lack of knowledge about market structure, poor quality of products, falling market share, low profit growth rate and poor out-sourcing of raw materials the sampled manufacturing businesses in Kaduna metropolis are not competitive. The field survey report supports the results as 87.5% (Appendix I) of the sampled manufacturing businesses indicated that electricity was not available in the form, quantity and quality required by their businesses in Kaduna metropolis.

Table 4.1a: Maximum Likelihood Binary Probit Result: Kaduna (Manufacturing)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
Constant	2.3548	2.012	1.1704	0.2419
Electricity	-8.2743	0.942	-8.7837	0.0003
Cost of Production	-6.5703	0.935	-7.0271	0.0115
Innovation and Technology	0.2861	0.528	0.5420	0.3784
Market Structure	-7.2639	1.471	-4.9380	0.0158
Quality of Product	-3.1047	1.102	-2.8173	0.0253
Market Share	-0.8014	0.511	1.5683	0.6135
Profit Growth Rate	-7.0525	1.586	-4.4467	0.0059
Pricing Policy	0.5417	0.915	0.5920	0.5140
New Product Development (R&D)	1.3642	1.408	0.9689	0.3850
Out Sourcing of Raw Materials	-2.7601	0.912	-3.0264	0.0069
LR Statistic (10df) = 19.6405		McFadden R² = 0.4512		
Probability (LR statistic) = 0.0009		Log likelihood = 18.524		

Results obtained from E-views 4.0

Also, 50% (Appendix IIa) of the sampled manufacturing businesses depends on private generators as source of electricity with heavy cost implications on production (about 77.5% of the sampled manufacturing businesses in Kaduna metropolis indicated that their production cost was high, Appendix I). Clearly, escalating cost of production forces businesses to raise per unit price of their products that has implications for the market demand for their products and consequently revenue would fall leading to a reduction in profit. This study's survey report indicated that about 70% of the sampled manufacturing businesses pointed out that high cost of

production have impact on the quality of products (Appendix IIa). In other words, unit increases in cost of production decreases the Z-score of the dependent variable (business competitiveness) as indicated on Table 4.1a.

The negative coefficient of the market structure variable on Table 4.1a is not confirmed by the study field survey report in Appendix I which showed that 87.5% of the sampled manufacturing businesses indicated that the market structure in which they operate has influence on their business decisions. Information about demand and supply, price and other market indicators necessary for business decisions depend to an extent on the knowledge of the type of market a business operates in. This study observed that there is a lacuna in access to adequate vital market information to the sample manufacturing businesses in Kaduna metropolis which may have contributed to lack of competitiveness as price and quantity could be grossly misjudged by most of the sampled firms.

Irrespective of the fact that the field survey report (Appendix I) showed that 92.5% of the sampled manufacturing businesses in Kaduna metropolis indicated that the quality of their products is standardized; the coefficient of quality of product is negative and significant at 5% level (Table 4.1a). This can be attributed to the low quality of available local raw materials as well as low level technology and innovation used by about 67.5% (Appendix I) of the sampled manufacturing firms. Thus, most manufactured products in Kaduna metropolis cannot compete favorably with their imported counterparts. Furthermore, field report showed that 50% (Appendix IIa) of the sampled manufacturing businesses pointed out low patronage for high quality products as additional reason for non-standardization of some of their products. With this scenario, imported products competed favorably against locally manufactured products. Unofficial discussions with some of the sampled manufacturers showed that they consider the prevailing income levels in their operating environment and their core target consumers before deciding on the quality of their products. This has implications for core market share which indicated a negative coefficient that is not significant at 5% level in the results on table 4.1a. Though about 57.5% of the market is controlled by manufacturing businesses located in Kaduna metropolis (Appendix I); 50% indicated that growth in market share of manufacturing businesses' products in Kaduna metropolis is poor because of competition from imported similar products and shrinking market outlets (Appendix IIa).

With respect to profit growth rate, this variable has a negative coefficient that is significant at the 5% level (Table 4.1a). While 97.5% of the sampled businesses indicated that they are making profit, 60% indicated that they do not experience steady profit growth rate (Appendix I). Increase in new entrants (50%), rising business taxes (37.5%), and rising cost of

production (5%) are the major challenges to profit growth rate of the sample manufacturing businesses in Kaduna metropolis (Appendix IIa). Theoretically, if a business is not experiencing steady profit growth rate, such a business is not acquiring market dominance necessary for sustainable business competitiveness (Wheelen and Hunger, 2006).

Irrespective of the fact that the coefficients of innovation and technology, pricing policy and new product development (R&D) are positive as indicated on Table 4.1a; they have probability values greater than 0.05 which is an indication that they are not significant at the 5% level for manufacturing business competitiveness in Kaduna metropolis. The field survey report indicated that about 67.5% of the sampled manufacturing businesses have been unable to acquire recent technology; while only 40% have introduced some form of innovation (Appendix I). It is important to note that technology and innovation constitute a hallmark both for domestic and global business competitiveness.

About 80% of the sampled manufacturing businesses showed that they have a formal pricing policy (Appendix I); while 35% use market determined pricing policy, 30% employ arbitrary pricing policy, 25% use input cost based pricing policy and 10% use location pricing (Appendix IIa). From the results on Table 4.1a pricing policy is positively related to business competitiveness that is not significant at the 5% level. Given the arbitrariness in pricing policy by manufacturing businesses in Kaduna metropolis, the likelihood of high level fluctuations in product prices which average is high may have weakened competitiveness against imported products with relatively stable pricing policy.

Also, the study field survey showed that about 60% of the sampled manufacturing businesses considered new product development unit unnecessary, while 40% cited prohibitive set-up cost as the reason why they do not have such a unit (Appendix IIa). The impact of this variable on business competitiveness is positive, but not significant at the 5% level as indicated by the result on Table 4.1a. New product development is a key competitive factor in the manufacturing sector globally; and any business lagging behind in research and development may fall behind its competitors faster than envisaged (Wheelen and Hunger, 2006). Most of the sampled manufacturing businesses in Kaduna metropolis indicated that they do not use only local raw materials (62.5%; Appendix I). In other words, they out-source raw materials from outside Kaduna metropolis. However, the results on Table 4.1a indicate that out-sourcing of raw materials is negatively related to manufacturing business competitiveness. This may be due to high cost of imported raw materials that has implications for production cost and per unit price for final products.

Table 4.1b shows the Tobit regression results for evaluating the strength of influence exerted by each of the index factors (independent variables) on business competitiveness (dependent variable) in manufacturing businesses in Kaduna metropolis. Given the Log likelihood function (LLF) statistics value of 33.26, whose P-value is about 0.0000; all the index factors (independent variables) exert some level of influence on the probability Z-score of the dependent variable. The ANNOVA based fit measure is 0.9012 which is indicative of a good fit. Also, recall that in a Tobit model the dependent and independent variables are not linearly related.

Table 4.1b: Censored Maximum Likelihood Estimates: Tobits Result: Kaduna (Manufacturing)

Variable	Coefficient	Std. Error	b/Std. error	P[Z >z]	Mean of X
Constant	1.7589	0.762	2.307	0.0210	0.000
Electricity	0.0505	0.383	0.132	0.8950	0.275
Operating Environment	-4.1321	0.912	-4.531	0.0007	0.246
Efficiency in Production	-0.0791	0.363	-0.218	0.8275	0.700
Rate of Tech Change & Application	-3.4741	0.657	-5.288	0.0014	0.220
Profit Maximization	-5.0245	0.824	-6.098	0.0002	0.350
Pricing Policy	-0.1533	0.358	-0.428	0.6685	0.675
Market Structure	-0.4897	0.309	-1.585	0.1132	0.625
Market Share	-2.2560	0.652	-3.460	0.0041	0.386
Quality of Product	-2.3580	0.989	-2.384	0.0290	0.501
Quality of Labor Employed	-0.3473	0.498	-0.697	0.6125	0.812

Log Likelihood Function = 33.258 Prob. [|Z|>z] stat. = 0.000
ANNOVA based fit measure = 0.9012 DECOMP based fit measure = 0.4522

Results obtained from NLOGIT 4.0.1

The results on Table 4.1b shows that the coefficient values for all the index factors are negative except for electricity. This implies that holding electricity and other factors outside the model constant at their mean values; weak operating environment, inefficiency in production, lower rate of technological change and application, inconsistent profit maximization, poor pricing policy, lack of knowledge about market structure, absence of growth in market share, poor quality of product and poor quality of labor accounted for lack of business competitiveness in manufacturing in Kaduna metropolis at varying degrees. In absolute value terms, weak operating environment decreased manufacturing business competitiveness by 4.13% that is significant at the 5% level, while inefficiency in production decreased manufacturing business

competitiveness by 0.08% that is not significant at the 5% level. Also, lower rate of technological change and application, and inconsistent profit maximization decreased manufacturing business competitiveness by 3.47% and 5.02% respectively that is significant at the 5% level. Non-growing market share and poor quality of products decreased manufacturing business competitiveness in Kaduna metropolis by 2.26% and 2.36% respectively that is significant at the 5% level. Even though the quality of labor employed by manufacturing businesses in Kaduna metropolis decreased their competitiveness by 0.35%, however, it was not significant at the 5% level. Overall, the results on Table 4.1b show that the index factors that negatively affected manufacturing business competitiveness in Kaduna metropolis significantly are inconsistent profit maximization (-5.02), low rate of technological change and application (-3.47) and weak operating environment (-4.12).

4.1.2 Food and Beverage

Table 4.1c shows the Probit regression results for evaluating competitiveness in food and beverage businesses in Kaduna metropolis. Given the likelihood ratio (LR) statistics value of 19.51, whose P-value is about 0.0014; all the independent variables have impact on the Z-score of the dependent variable (competitiveness). The McFadden R^2 is 0.42 which is indicative of a fairly good fit.

Table 4.1c: Maximum Likelihood Binary Probit Result: Kaduna (Food and Beverage)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
Constant	0.9003	1.285	0.7006	0.4837
Electricity	-2.1024	0.627	-3.3531	0.0043
Cost of Production	0.4267	0.598	0.7135	0.4752
Innovation and Technology	-2.5012	0.724	-3.4546	0.0060
Market Structure	-0.4966	0.558	-0.8899	0.3735
Quality of Product	0.1678	0.538	0.3118	0.7551
Market Share	0.0451	0.500	0.0902	0.9279
Profit Growth Rate	-4.0797	0.896	-4.5532	0.0035
Pricing Policy	0.1182	0.510	0.2316	0.8168
New Product Development (R&D)	-2.2107	0.689	-3.2086	0.0040
Out Sourcing of Raw Materials	-0.6607	0.805	-0.8207	0.4109
LR Statistic (10df) = 19.5130		McFadden R^2 = 0.42017		
Probability (LR statistic) = 0.0014		Log likelihood = 37.211		

Results obtained from E-views 4.0

From the results on Table 4.1c electricity, innovation and technology, profit growth rate and new product development (R&D) have negative coefficients (that is, the coefficients

values are less than 0 for these variables) that are significant at the 5% level. The implication of this result is that if all other factors are held constant unavailability of electricity, low level of innovation and technology, lack of profit growth rate and non existence of research and development unit the sample food and beverage businesses in Kaduna metropolis are not competitive. The study field survey supports the results as 92.5% (Appendix I) of the sample food and beverage businesses indicated that electricity is not available in the form, quantity and quality required by their businesses in Kaduna metropolis. About 50% (Appendix IIb) of the sample food and beverage businesses source electricity from private generators; others depend solely on PHCN supply of electricity. 92.5% (Appendix I) of food and beverage businesses in Kaduna metropolis indicated that unavailability of electricity has severe consequences for their businesses out of which 50% showed that the major consequences are high cost of production, higher final consumer price (30%) and reduced profit (15%) as indicated on Appendix IIb. Clearly, with rising production cost (90% as indicated on Appendix I) and higher final consumer prices due to unavailability of electricity, food and beverage businesses in Kaduna metropolis are cost and price uncompetitive as sales dropped with consequences for profit and market share. About 75% of the sample businesses indicated electricity from private source as a major source of high cost of production, 15% and 10% indicated wages/salaries and technical inputs as major sources of high cost of production respectively (Appendix IIb). The field survey report showed that the impact of high cost of production on food and beverages in Kaduna metropolis are poor quality of product (60%), low profit (20%), low capacity utilization and other factors (5%) as indicated on Appendix IIb.

About 32.5% (Appendix I) of food and beverage businesses indicated they were yet to acquire the needed innovation and technology. Poor innovation and technology meant that food and beverage businesses operating in Kaduna metropolis are limited in standardized varieties and multi-value addition. However, the results on Appendix IIb showed that 62.5% of the sample food and beverage businesses indicated high cost of acquisition and stringent government regulations and other reasons (15%) accounted for their inability to acquire needed innovation and technology. It is important to note that 80% (Appendix I) of the sample businesses indicated they introduced some form of innovation in recent time and the areas in which they have introduced innovation are mainly around marketing (52.5%) and quality control (37.5%) as indicated on Appendix IIb. Innovation and technology is a major driver in food and beverage industry. Therefore, the platform for sustained competitiveness in the industry is constant innovation and the application to production of recent technology to keep up with industry requirements both domestically and globally. Otherwise, new product designs with

multifunctional values produced by other competitors would leave behind any business that allows for a lag in the use of recent innovations and technology.

About 97.5% of the sample food and beverage businesses indicated that their businesses have made profit, while 2.5% indicated they did not make profit during the last three year period (Appendix I). However, about 70% indicated that they did not experience steady growth in profit, while 30% claimed they experienced steady growth in profit (Appendix I). The major challenge to steady profit growth in food and beverage business in Kaduna metropolis is rising cost of production (65%) as indicated by the result of the study field survey on Appendix II, resulting mainly from unavailability of electricity and low level innovation and technology. Theoretically, a growing profit rate is indicative of growing competitiveness and when profits stop growing, competitiveness is falling. Thus, with a higher number of the sample businesses' profits not growing steadily, there is evidence that most of the food and beverage businesses in Kaduna metropolis are not competitive.

Another critical driver of business competitiveness is research and development (R&D). About 70% (Appendix I) of the sample food and beverage businesses in Kaduna metropolis do not have a R&D unit. The field survey report showed that the reasons advanced by the sample businesses for this are: unit not necessary (45%), prohibitive set-up cost (25%) and R&D is for the future (15%) as indicated on Appendix IIb. It is important to point out that the food and beverage businesses that indicated that R&D unit is not necessary are mainly non-registered businesses with National Foods and Drug Administration and Control (NAFDAC) agency. Such businesses use local technology for production and packaging. However, other businesses in the food and beverage industry acknowledged the usefulness of R&D unit and are at various levels of completion of the unit. The relevance of R&D to competitiveness is reflected in the fact that product improvement in terms of usefulness and multifunctional value to meet consumers' growing needs is made possible by this unit. Thus, poor attitude towards R&D by food and beverage businesses in Kaduna metropolis meant that they cannot compete favorably with improved counterpart products from across the borders.

Table 4.1d shows the Tobit regression results for evaluating the strength of influence exerted by each of the index factors (independent variables) on business competitiveness (dependent variable) in food and beverage businesses in Kaduna metropolis. The Log likelihood function (LLF) statistics value is 35.25, and the P-value is 0.0009. This shows that all the independent variables exert some level of influence on the probability Z-score of the dependent variable. The ANNOVA based fit measure is 0.6034 which is indicative of a good fit.

From the results on Table 4.1d the coefficients of electricity, operating environment, efficiency of production, rate of technology change and application, market structure and quality of product are negative and significant at the 5% level. However, the coefficients of profit maximization, pricing policy, market share and quality of labor are positive but not significant at the 5% level. This implies that holding all other factors constant at their mean values unavailability of electricity, weak operating environment, inefficiency in production, lower rate of technological change and application; lack of knowledge about market structure and poor quality of product significantly accounted for lack of business competitiveness in food and beverage industry at varying degrees in Kaduna metropolis.

In absolute terms, unavailability of electricity in Kaduna metropolis decreased competitiveness in the food and beverage business by 1.99% and is significant at the 5% level, while weak operating environment decreased competitiveness in the industry by 1.21% that is significant at 5% level. Also, inefficiency in production decreased competitiveness by 0.93% that is significant at the 5% level. Lower rate of technological change and application; and lack of knowledge about market structure of food and beverages industry decreased competitiveness by 0.71% and 0.98% respectively that are both significant at the 5% level. Poor quality of products decreased competitiveness in food and beverage industry in Kaduna metropolis by 0.92% that is significant at the 5% level. Profit maximization, pricing policy, market share and quality of labor have positive coefficients which are not significant at 5% level (note that the coefficients are far away from 1).

Table 4.1d: Censored Maximum Likelihood Estimates Tobit Result: Kaduna (Food and Beverage)

Variable of X	Coefficient	Std. Error	b/Std. error	P[Z >z]	Mean
Constant	0.5196	0.405	1.283	0.2001	0.000
Electricity	-1.9984	0.975	-2.049	0.0184	0.403
Operating Environment	-1.2140	0.465	-2.611	0.0110	0.380
Efficiency in Production	-0.9266	0.286	-3.239	0.0055	0.587
Rate of Tech Change & Application	-0.7065	0.279	-2.532	0.0103	0.420
Profit Maximization Pricing Policy	0.2464 0.1771	0.407 0.283	0.605 0.626	0.5449 0.5310	0.650 0.450
Market Structure	-0.9800	0.435	-2.253	0.0198	0.600
Market Share	0.1709	0.259	0.660	0.5092	0.575
Quality of Product	-0.9150	0.351	-2.607	0.0201	0.432
Quality of Labor Employed	0.2395	0.272	0.880	0.3793	0.700
Log Likelihood Function = 35.250		Prob. [Z >z] stat. = 0.009			
ANNOVA based fit measure = 0.6034		DECOMP based fit measure = 0.3171			

Results obtained from NLOGIT 4.0.1

The result on table 4.1d shows that the strength of the individual influence of the variables was not significant to keep the businesses in the sampled industry competitive. Overall, the index factors that negatively affected business competitiveness in food and beverage industry in Kaduna metropolis significantly as indicated on Table 4.1d are unavailability or electricity (-1.99), weak operating environment (-1.21), inefficiency in production (-0.93) low rate of technological change and application (-0.71), lack of knowledge about market structure (-0.98) and poor quality of product (-0.92).

4.1.3 Advertising

The Probit regression results for evaluating competitiveness in advertising businesses in Kaduna metropolis are shown on Table 4.1e. The likelihood ratio (LR) statistics is 13.72, while the P-value is 0.0027. Given these statistics all the independent variables have impact on the Z-score of the dependent variable (competitiveness). The McFadden R^2 of 0.38 is fairly representative of a good fit since the variables are not linearly related.

From the results on Table 4.1e, the coefficient of electricity is positive and significant at the 5% level. While the coefficients of innovation and technology, market structure, profit

growth rate and new product development (R&D) are negative (that is, the coefficients values are less than 0 for these variables) and significant at the 5% level. The implication of a positive coefficient of electricity is that if all other factors are held constant at their mean values given availability of electricity in Kaduna metropolis businesses in the advertising industry are competitive.

Table 4.1e: Maximum Likelihood Binary Probit Result: Kaduna (Advertising)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
Constant	0.5417	1.046	0.5178	0.6046
Electricity	1.4334	0.653	2.1951	0.0392
Cost of Production	-0.9149	0.781	-1.1714	0.2428
Innovation and Technology	-3.4234	0.998	-3.4302	0.0035
Market Structure	-3.3520	0.878	-3.8200	0.0097
Quality of Product and Service	0.8069	0.846	0.9538	0.6074
Market Share	0.7068	0.496	1.4250	0.7010
Profit Growth Rate	-2.5701	0.689	-3.1302	0.0198
Pricing Policy	0.1762	0.612	0.2879	0.5122
New Product Development (R&D)	-3.8762	0.980	-3.9553	0.0011
Out Sourcing of Raw Materials	-1.8720	0.754	-2.4830	0.0300

LR Statistic (10df) = 13.7206 McFadden R² = 0.3800
Probability (LR statistic) = 0.0027 Log likelihood = 26.008

Results obtained from E-views 4.0

However, given coefficient values of less than 0, low level of innovation and technology, lack of growth in profit and non existence of research and development unit the sample businesses in advertising in Kaduna metropolis are not competitive. It is important to note that availability of electricity alone cannot guarantee business competitiveness in any industry. There are plethoras of factors that jointly determine competitiveness in a business or the industry. The study field survey report does not support availability of electricity in the form and quantity required by advertising businesses in Kaduna metropolis. The study field survey report (Appendix I) indicated that 85% of the sample businesses said electricity was not available in the form and quantity required by them. The positive coefficient of electricity may be as a result of the fact that most of the sample businesses use private electricity generating sets (67.5%, as indicated on Appendix IIc) as alternative to electricity from PHCN. The field survey report showed that all the sample businesses (100%) indicated that electricity from PHCN was only available from 0-6hours and was not constant at all (100%) over any range (daily, weekly and monthly) of period in Kaduna metropolis (Appendix IIc). About 90% of the sample business

indicated that unavailability of electricity significantly affected their businesses (Appendix I) and 50% showed that lack of electricity affected advertising businesses in Kaduna metropolis by way of higher cost of production (Appendix IIc). When asked about the major sources of high cost of production to advertising businesses, electricity from private sources ranked highest (55%) followed by wages/salaries (25%) and technical inputs (20%) as indicated on Appendix IIc. It is theoretically difficult to argue that as cost of production increases with consequences for final consumer prices that competitiveness will be sustained while there are cheaper alternatives. Specifically, higher cost of production has been cited as the major reason for which consumer advertisements by telecommunication giants in Nigeria (MTN and AIRTEL), Unilever and other multinationals are imported as finished products into Nigeria from South Africa. Obviously, higher cost of production resulting from unavailability of electricity certainly diminished the competitive ability of advertising businesses in Kaduna metropolis.

About 80% of the sample businesses have not acquired recent technology in advertising business (Appendix I), while 37.5% (Appendix I) have introduced innovations in recent time (the last three years). With respect to specific areas in which sampled advertising businesses in Kaduna metropolis have not introduced innovation and technology; 50% indicated quality control while 50% indicated marketing (Appendix IIc). On the reasons why most of the sample advertising businesses are yet to introduce innovation and technology; 70% cited high cost of acquisition, while 25% cited unavailability of technology (Appendix IIc). Innovation and technology is a major driver in the advertising business globally. And without recent technology and innovation the cost of production will not only be high, the quality of product and service will also be sub-standard and outdated. Therefore, absence of use of recent technology in advertising by advertising businesses certainly led to low level patronage by users of advertising services in Kaduna metropolis and consequently low level of competitiveness.

The study field survey report showed that about 92.5% (Appendix I) of the sample advertising businesses in Kaduna metropolis know and understand the market structure in which their business operates. However, 85% indicated that the market structure influence their business decisions (Appendix I). All the sample advertising businesses in Kaduna metropolis indicated that the business decision that is mainly influenced by the structure of advertising market is product pricing (100%), as indicated on Appendix IIc. The field survey report on Appendix II showed that about 47.5% of the sample businesses claimed they employed market determined pricing policy, while 52.5% used arbitrary pricing system. The study field survey report does not support the Probit regression results on Table 4.1e. There is a mix of market determined pricing policy and arbitrary pricing (as indicated on Appendix IIc) in the pricing

policy of advertising businesses in Kaduna metropolis. However, the reason for the negative coefficient of the market structure variable in the Probit regression result on Table 4.1e could be due to the fact that a significant number of the sample advertising businesses in Kaduna metropolis use arbitrary pricing which does not wholly depend on market signals. It is important to recognize that one of the basic assumptions of the general producer behavior theory is that the market structure fundamentally informs decisions about input use, quantity and price. Therefore, for any business to be competitive it must possess adequate knowledge of the market structure in which it operates and consequently base decisions on input use, quantity and price on such knowledge. Thus, arbitrary pricing policy used by advertising businesses in Kaduna metropolis did not generate competitiveness as shown by the Probit regression results on Table 4.1e.

Irrespective of the fact that 95% of the sampled advertising businesses in Kaduna metropolis indicated that they are making profit, 62.5% indicated that their businesses are not experiencing steady profit growth rate (Appendix I). The sampled businesses cited increase in new entrants (60%) and rising cost of production (40%) as the major challenges to profit growth rate (Appendix IIc). These results are indicative of the fact that new entrants into advertising business in Kaduna metropolis have consequences for profits of existing firms. It is expected that existing advertising businesses would do more in terms of innovations and technology applications to either increase their share of the market or cut production costs in order to raise profits. Clearly, if profits have not been growing for existing businesses, it shows a drop in their competitive edge that could have consequences for their overall survival. This confirms the result of the Probit regression on Table 4.1e with negative coefficient for profit growth rate in the sampled advertising businesses in Kaduna metropolis. Therefore, the sampled advertising businesses are not competitive.

Research and development (R&D) as a critical business competitiveness driver is fundamental to sustained growth in the advertising industry. About 77.5% (Appendix I) of the sample advertising businesses in Kaduna metropolis do not have a R&D unit. The field survey report showed that the reasons advanced by the sample businesses for this are: prohibitive set-up cost (85%) and high cost of hiring experts (15%) as indicated on Appendix IIc. Some of the sampled businesses noted that they acknowledge the usefulness of R&D and for this reason they send their staff on training and re-training to university, Polytechnics and Professional Computer Software applications training institutes. While some are at various levels of completion of their R&D unit. The relevance of R&D to competitiveness is reflected in the fact that product improvement in terms of usefulness and multifunctional value to meet consumers' growing needs is made possible by this unit. Thus, poor attitude towards R&D by advertising businesses

in Kaduna metropolis meant that they cannot compete favorably with improved counterpart products from other states in Nigeria and across the borders. Some of the sampled businesses pointed out that there are quite a number of advertising services that has to be taken to Lagos and South Africa to access computer software and sometimes across borders. This means outsourcing jobs for others that certainly cuts down profit.

Table 4.1f shows the Tobit regression results for evaluating the strength of influence exerted by the index factors (independent variables) on business competitiveness (dependent variable) in advertising businesses in Kaduna metropolis.

Table 4.1f: Censored Maximum Likelihood Estimates Tobit Result: Kaduna (Advertising)

Variable of X	Coefficient	Std. Error	b/Std. error	P[Z >z]	Mean
Constant	1.1426	0.288	3.967	0.0001	0.000
Electricity	-2.4267	0.835	-2.906	0.0103	0.325
Operating environment	-3.1250	0.799	-3.911	0.0047	0.518
Efficiency in Production	0.6810	0.734	0.927	0.8104	0.447
Rate of tech change & application	0.2751	0.475	0.579	0.5078	0.269
Profit Maximization	-0.7853	0.864	-0.909	0.0919	0.429
Pricing policy	-0.5400	0.230	-2.348	0.0301	0.258
Market Structure	-0.2972	0.189	-1.572	0.3383	0.537
Market Share	-0.5847	0.278	-2.103	0.0501	0.468
Quality of Product and Service	-1.6792	0.678	-2.477	0.0262	0.314
Quality of Labor Employed	-0.4870	0.269	-1.810	0.4201	0.350

Log Likelihood Function = 30.135 Prob. [|Z|>z] stat. = 0.000
 ANNOVA based fit measure = 0.3712 DECOMP based fit measure = 0.4017

Results obtained from NLOGIT 4.0.1

The Log likelihood function (LLF) statistics value is 30.13, and the P-value is 0.0000. This shows that all the independent variables exert some level of influence on the probability Z-score of the dependent variable. The ANNOVA based fit measure is 0.3712 which is indicative of a good fit.

From the results on Table 4.1f the coefficients of electricity, operating environment, profit maximization, pricing policy, market structure, market share, quality of product and quality of labor employed are negative and significant at the 5% level. However, the coefficients of efficiency in production and, rate of technological change and application are positive but not significant at the 5% level. This implies that holding all other factors constant at their mean values unavailability of electricity, weak operating environment, inconsistent profit

maximization, poor pricing policy, lack of knowledge about market structure, non growing market share, poor quality of product and labor employed significantly decreased competitiveness in advertising businesses at varying degrees in Kaduna metropolis.

In absolute terms, unavailability of electricity in Kaduna metropolis decreased competitiveness in advertising business by 2.43% and is significant at the 5% level, while weak operating environment decreased competitiveness in the industry by 3.12% that is significant at 5% level. Also, inconsistent profit maximization decreased competitiveness in advertising in Kaduna metropolis by 0.78%, while non-market based pricing policy decreased competitiveness by 0.54% that is significant at the 5% level. Lack of knowledge about market structure and falling market share decreased competitiveness by 0.29% and 0.58% respectively that is significant at the 5% level. Again, poor quality of product and labor employed decreased competitiveness by 1.68% and 0.49% respectively that is significant at the 5% level in the sampled advertising businesses in Kaduna metropolis. Note that efficiency in production and, rate of technological change and application are positive but not significant at the 5% level (it can be seen that the coefficients of these variables are far less than 1). The implication is that the strength of the individual influence of the two variables was not significant to engender competitiveness in advertising industry in Kaduna metropolis. Overall, the index factors that negatively affected business competitiveness in the advertising industry in Kaduna metropolis significantly as indicated on Table 4.1f are unavailability or electricity (-2.43), weak operating environment (-3.12), inability to maximize profit (-0.78), non-market based pricing policy (-0.54), lack of knowledge of market structure (-0.29), falling market share (-0.58), poor quality of product (-1.68) and labor employed (-0.49).

4.2 Business Competitiveness in Zaria Area

4.2.1 Manufacturing

The Probit regression results for the evaluation of competitiveness in manufacturing business in Zaria area are presented on Table 4.2a. The likelihood ratio (LR) statistics value of 23.30, whose P-value is about 0.0050 points to the fact that all the index factors (independent variables) have had some level of impact on the Z-score of the dependent variable (competitiveness). The McFadden R^2 value of 0.39 shows the cumulative effect of the index factors on the dependent variable. It is important to point out that the dependent variable and independent variables are not linearly related as a basis for understanding the low value of the McFadden R^2 .

Table 4.2a: Maximum Likelihood Binary Probit Result: Zaria (Manufacturing)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
Constant	-0.7758	1.100	-0.7050	0.4808
Electricity	-2.2536	0.759	-2.9692	0.0088
Cost of Production	-0.3522	0.913	-0.3857	0.6979
Innovation and Technology	-1.8785	0.720	-2.6090	0.0052
Market Structure	0.8073	0.697	1.1582	0.1078
Quality of Product	-1.7874	0.708	-2.5245	0.0068
Market Share	0.4676	0.451	1.0368	0.1788
Profit Growth Rate	0.2092	0.469	0.4460	0.5500
Pricing Policy	0.5057	0.605	0.8359	0.4875
New Product Development (R&D)	0.1586	0.578	0.2744	0.6839
Out Sourcing of Raw Materials	-1.5746	0.569	-2.7673	0.0045

LR Statistic (10df) = 23.3016	McFadden R² = 0. 3917
Probability (LR statistic) = 0.0050	Log likelihood = 29.5639

Results obtained from E-views 4.0

From the results on Table 4.2a electricity, cost of production, innovation and technology, quality of product and out sourcing of raw materials have negative coefficients (note that the coefficients values are less than 0 for these variables) that are significant at the 5% level. The result implies that if all other factors are held constant, given unavailability of electricity, high cost of production, poor innovation and technology, poor quality of product and inability to outsource raw materials the sampled manufacturing businesses in Zaria area are not competitive. The field survey report supports the results as 92.5% (Appendix I) of the sampled manufacturing businesses indicated that electricity was not available in the form, quantity and quality required by their businesses in Zaria area. The major source of electricity to manufacturing businesses in Zaria area is private generator (50%) and PHCN (50%) as indicated on Appendix IIa. All the sampled businesses (100%) indicated that electricity from PHCN is available for about 0-6hours per day and ‘not constant at all’ as shown on Appendix II. Unavailability of electricity has heavy cost implications for production (about 92.5% of the sampled manufacturing businesses in Kaduna metropolis indicated that their production cost was high, Appendix I) with severe consequences for per unit cost of finished product. An increase in per unit price of finished products has negative implications for the market demand and consequently revenue would fall leading to a reduction in profit. This study’s field survey report indicated that about 80% and 7.5% of the sampled manufacturing businesses pointed out that high cost of production have impact on the quality of product and low profit respectively, while 5% and another 5% indicated

that high cost of production impacted on low capacity utilization and inability to employ skilled labor respectively (Appendix IIa). In other words, unavailability of electricity and unit increases in cost of production decreases the Z-score of the dependent variable (business competitiveness) to less than zero in Zaria area as indicated on Table 4.2a. Thus, unavailability of electricity and high cost of production experienced by manufacturing businesses in Zaria area have made them to be uncompetitive.

About 67.5% of the sampled manufacturing businesses in Zaria indicated they were yet to acquire the technology needed by their businesses and 75% indicated that the technology used by their manufacturing businesses is not recent (Appendix 1). Low innovation and technology meant that manufacturing businesses operating in Zaria area are limited in standardized varieties and multifunctional value addition and consequently cannot compete favorably with imported manufactured products. Appendix IIa shows that 77.5% and 22.5% of the sample manufacturing businesses indicated high cost of acquisition and stringent government regulations respectively as the reason for their inability to acquire needed innovation and technology. However, 80% (Appendix I) of the sample businesses indicated they introduced some form of innovation in recent time and the areas in which they have introduced innovation are mainly around quality control (40%), marketing (20%), multifunction (12.5%) and packaging (7.5%) as indicated on Appendix IIa. Innovation and technology as a major driver in the manufacturing industry cannot be over emphasized. The platform for sustained competitiveness in the industry is constant innovation and the application to production of recent technology. The sampled manufacturing businesses in Zaria area are clearly lagging behind in this; thus, they are not competitive. This is one of the major reasons for which products from China, India and other Asian countries such as Malaysia, Indonesia and Taiwan have flooded the Nigerian market and particularly the market in Zaria area.

Poor quality of product by the sampled manufacturing businesses in Zaria area is a bane that has affected their competitiveness. 95% of the sampled businesses indicated that their product is not standardized (Appendix 1). This is connected to the fact that technology used is not recent and non registration with Nigerian Standard Organization (NSO) and International Standard Organization (ISO). However, the field survey report (Appendix II) showed that 50% of the sample manufacturing businesses in Zaria area cited low quality of available raw materials, 37.5% higher cost of producing quality products and 12.5% indicated low level technology as the reasons for the non standardization of product. With low quality product, competition with other standardized products from other countries is bound to be low and unsustainable.

From the study field survey reported on Appendix I 72.5% of the sampled manufacturing businesses in Zaria area indicated that they do not use only local raw materials. Some of the sampled businesses noted that that they depend on imports for the major inputs for production. However, they do not import directly by themselves but depend on major importers. In other words, they out-source raw materials outside Zaria area. From the results on Table 4.2a outsourcing of raw materials is negatively related to manufacturing business competitiveness. This may be due to high cost of imported raw materials that has implications for production cost and per unit price for final products. Higher per unit price for final products will discourage patronage and consequently revenue will fall.

Table 4.2b shows the Tobit regression results for the evaluation of the strength of influence exerted by the index factors (independent variables) on business competitiveness (dependent variable) in manufacturing businesses in Zaria area.

Given the Log likelihood function (LLF) statistics value of 25.72, whose P-value is about 0.0009; all the index factors (independent variables) exerted some level of influence on the probability Z-score of the dependent variable. The ANNOVA based fit measure is 0.87 which is indicative of a good fit. Note that the dependent and independent variables are not linearly related.

Table 4.2b: Censored Maximum Likelihood Estimates Tobit Result: Zaria (Manufacturing)

Variable of X	Coefficient	Std. Error	b/Std. error	P[Z >z]	Mean
Constant	0.0165	0.273	0.060	0.9517	0.000
Electricity	-1.9268	0.566	-3.404	0.0047	0.420
Operating Environment	0.1756	0.178	0.986	0.7203	0.538
Efficiency in Production	-1.7230	0.550	-3.133	0.0080	0.398
Rate of Tech Change & Application	-0.9897	0.280	-3.535	0.0028	0.362
Profit Maximization	-0.2652	0.259	-1.024	0.7408	0.707
Pricing Policy	0.4800	0.210	2.286	0.0437	0.350
Market Structure	0.3009	0.672	0.448	0.3901	0.579
Market Share	0.2958	0.189	1.565	0.0982	0.478
Quality of Product	-1.3602	0.570	-2.386	0.0401	0.345
Quality of Labor Employed	2.2051	0.898	2.455	0.0187	0.420

Log Likelihood Function = 25.723

Prob. [|Z|>z] stat. = 0.0009

ANNOVA based fit measure = 0.8798

DECOMP based fit measure = 0.5278

Results obtained from NLOGIT 4.0.1

The results on Table 4.2b shows that the coefficient values for electricity, efficiency in production, rate of technological change and application, profit maximization and quality of product are negative and significant at the 5% level. However, the coefficient values for operating environment, pricing policy, market structure, market share and quality of labor employed are positive but not significant at the 5% level. This results imply that if operating environment, pricing policy, market structure, market share and quality of labor employed and other factors outside the model are held constant at their mean values; unavailability of electricity, inefficiency in production, lower rate of technological change and application, inconsistency in profit maximization and poor quality of product accounted for lack of business competitiveness in manufacturing in Zaria area at varying degrees. In absolute value terms, unavailability of electricity decreased business competitiveness in manufacturing in Zaria area by 1.93%, while inefficiency in production decreased competitiveness by 1.72% that is significant at 5% level. Lower rate of technological change and application decreased competitiveness by 0.99%, inconsistent profit maximization decreased competitiveness by 0.26% and poor quality of product decreased competitiveness by 1.36%.

Overall, the strength of influence exerted by index factors that negatively affected business competitiveness in Zaria area significantly are unavailability of electricity (-1.93), inefficiency in production (-1.72), lower rate of technological change and application (-0.99), inconsistent profit maximization (-0.26) and poor quality of product (-1.36) as indicated on Table 4.2b.

4.2.2 Food and Beverage

The Probit regression results for evaluating competitiveness in food and beverage businesses in Zaria area are presented in Table 4.2c. Given the likelihood ratio (LR) statistics value of 28.26, whose P-value is about 0.0005; all the independent variables have impact on the Z-score of the dependent variable (competitiveness). The McFadden R^2 is 0.56 which is indicative of a good fit.

From the results on Table 4.2c electricity, cost of production, market structure, market share and out sourcing of raw materials have negative coefficients (that is, the coefficients values are less than 0 for these variables) that are significant at the 5% level. The implication of this result is that if all other factors are held constant, given unavailability of electricity, growing cost of production, lack of knowledge about market structure, non growing market share, absence of research and development unit the sampled food and beverage businesses in Zaria area are not competitive. However, the coefficient of pricing policy is positive (note that the coefficient value is 1) and significant at the 5% level with a probability value that is less than

0.05. This implies that some of the sampled businesses used formal pricing policy (70%, see Appendix I). The study field survey report on Appendix I support the results as 95% of the sample food and beverage businesses indicated that electricity is not available in the form, quantity and quality required by their businesses in Zaria area. 92.5% of the sampled business confirmed that unavailability of electricity from PHCN significantly affected their businesses with higher cost implications (90%) as indicated on Appendix I.

Table 4.2c: Maximum Likelihood Binary Probit Result: Zaria (Food and Beverage)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
Constant	2.3039	3.060	0.7529	0.1024
Electricity	-2.2359	0.780	-2.8665	0.0088
Cost of Production	-2.1264	0.698	-3.0464	0.0047
Innovation and Technology	0.0684	0.740	0.0924	0.4563
Market Structure	-4.2100	0.998	-4.2184	0.0015
Quality of Product	4.0403	1.194	3.3838	0.0038
Market Share	-3.5812	0.879	-4.0742	0.0021
Profit Growth Rate	0.5482	0.785	0.6983	0.5874
Pricing Policy	1.1135	0.494	2.2540	0.0387
New Product Development (R&D)	-0.3248	0.572	-0.5678	0.4079
Out Sourcing of Raw Materials	-2.3409	0.982	-2.3838	0.0410

LR Statistic (10df) = 28.2581	McFadden R² = 0.5660
Probability (LR statistic) = 0.0005	Log likelihood = 18.011

Results obtained from E-views 4.0

About 50% of the sampled food and beverage businesses confirmed that their major source of electricity is private generator plant, while 100% of the sampled businesses indicated that electricity from PHCN is only available for between 0-6hours and 90% indicated that supply was not constant at all (Appendix IIb). 97.3% of the sampled businesses indicated that 0-6hours supply of electricity by PHCN was ‘not constant at all’ while 2.7% said supply was 0-6hours on a weekly basis (Appendix IIb). On the effects of unavailability of electricity from PHCN on the sample food and beverage business in Zaria area, 55% indicated high cost of production, 27.5% higher final consumer price and 17.5% indicated low/reduced profit (Appendix IIb). The sampled businesses further cited electricity from private sources (70%), wages/salaries (10%) and technical inputs (20%) as the major sources of high cost of production (Appendix IIb). The study field survey report showed that there were some clear impact of higher cost of production on the sampled food and beverage businesses in Zaria area which are poor quality of products (50%), low profit (27.5%) and low capacity utilization (12.5%) as indicated on Appendix IIb.

About 95% of the sampled food and beverage businesses in Zaria area indicated that they are aware of the market structure their businesses operate in, while 85% confirmed that the market structure influence/determine their business decisions (Appendix I). Also, 85.3% indicated that the market structure particularly influence product pricing in the food and beverage businesses in Zaria area. The study field survey indicated that 75% of the sampled businesses employed arbitrary pricing policy, while 15% used market determined pricing policy for product pricing (Appendix IIb). These results do not indicate a clear understanding of the meaning of market structure on the part of the sampled food and beverage businesses in Zaria area. Note that the Probit regression result on Table 4.2c indicated a positive pricing policy coefficient that is marginally greater than to 1 and significant at the 5% level. This result implies the presence of business competitiveness in terms of pricing policy by the sampled food and beverage businesses in Zaria area since the coefficient is greater than 1. A mixed result of this nature carries with it certain implications such as inconsistency in unit pricing, inability to maintain customers and consumer loyalty, irregular growth in revenue and consequently inconsistent profit growth rate. The overall competitiveness of any business is the result of the presence of a combination of factors, thus, a single factor may not be sufficient to sustain competitiveness over time.

The study field survey report shows that 55% of the sampled food and beverage businesses in Zaria area control a significant share of the market, while 45% indicated that they do not control the market (Appendix I). While 60% affirmed that their market share is growing, 40% indicated that their market is not growing (Appendix I). The sampled businesses cited many competing higher quality products (20%), availability of foreign brands in the market (65%) and inability to access other markets (10%) as the reasons for poor growth in market share. Observations from the field survey showed that there were quite a number of higher quality brands of food and beverage in the market in Zaria area. Majority of the brands are imported either from China or South Africa where some of the multinational food and beverage companies have plants. For instance, it was observed that Unilever Plc products such as Margarine (Blue Band) were produced in plants located in South Africa for Unilever Plc plants in Lagos. Obviously, the finishing of these products appeared much better than similar products produced by small scale makers in Zaria area.

The study field report shows that 65% of the sampled food and beverage businesses in Zaria area indicated that they do not use only local raw materials (Appendix I). This is an indication that some of the sampled businesses out source raw materials from sources outside Zaria area. However, some of the sampled businesses noted that that they do not import raw

materials directly by themselves but depend on major importers for raw materials that are not available locally. From the results on Table 4.2c out-sourcing of raw materials is negatively related to food and beverage business competitiveness. This may be due to high cost of imported raw materials that has implications for production cost and per unit price for final products. Higher per unit price for final products will discourage patronage and consequently revenue will fall with consequences for profit.

The Tobit regression results for evaluating the strength of influence exerted by the index factors (independent variables) on business competitiveness (dependent variable) in food and beverage businesses in Zaria area are presented on Table 4.2d. The Log likelihood function (LLF) statistics value is 38.03, with P-value of 0.001. This means that all the index factors (independent variables) exerted some level of influence on the probability Z-score of the dependent variable. The ANNOVA based fit measure is 0.60 which is indicative of a good fit. The dependent and independent variables are not linearly related.

Table 4.2d: Censored Maximum Likelihood Estimates Tobit Result: Zaria (Food and Beverage)

Variable	Coefficient	Std. Error	b/Std. error	P[Z >z]	Mean of X
Constant	1.1381	0.323	3.523	0.0014	0.000
Electricity	0.1517	0.208	0.730	0.1830	0.382
Operating Environment	-1.4637	0.386	-3.792	0.0027	0.548
Efficiency in Production	0.4307	0.413	1.043	0.275	0.329
Rate of Tech Change & Application	-1.0125	0.318	-3.184	0.0067	0.292
Profit Maximization	-2.1401	0.698	-3.066	0.0102	0.422
Pricing Policy	-1.2033	0.575	-2.093	0.0410	0.345
Market Structure	-2.0067	0.682	-2.942	0.0215	0.430
Market Share	-0.3380	0.375	-0.901	0.5216	0.543
Quality of Product and Service	-1.5350	0.398	-3.857	0.0014	0.445
Quality of Labor Employed	-0.2481	0.267	-0.930	0.1656	0.518

Log Likelihood Function = 38.032

Prob. [|Z|>z] stat. = 0.003

ANNOVA based fit measure = 0.6024

DECOMP based fit measure = 0.6421

Results obtained from NLOGIT 4.0.1

From the results on Table 4.2d the coefficient values of operating environment, rate of technological change and application, profit maximization, pricing policy, market structure and quality of product are negative and significant at the 5% level. The coefficient values of market share and quality of labor employed are negative but not significant at the 5% level. Also, the coefficient values for electricity and efficiency in production are positive but not significant at

the 5% level. These results imply that if electricity, efficiency in production, market share, quality of product and other factors outside the model are held constant at their mean values; weak operating environment, lower rate of technological change and application, inconsistent profit maximization, poor pricing policy, lack of adequate knowledge about market structure and poor quality of product accounted for lack of business competitiveness in food and beverage businesses in Zaria area at varying degrees. In absolute value terms, weak operating environment decreased competitiveness by 1.46%, while low rate of technological change and application decreased competitiveness by 1.01% that is significant at the 5% level. Inconsistent profit maximization decreased competitiveness by 2.14%, while poor pricing policy decreased competitiveness by 1.20% that is significant at the 5% level. Lack of adequate knowledge about market structure decreased competitiveness by 2.01%, while poor quality of product decreased competitiveness by 1.53% that is significant at the 5% level.

Overall, the strength of influence exerted by index factors that negatively affected competitiveness in food and beverage businesses in Zaria area significantly are weak operating environment (-1.46), lower rate of technological change and application (-1.01), inconsistent profit maximization (-2.14), poor pricing policy (-1.20), lack of adequate knowledge about market structure (-2.01) and poor quality of product (-1.53) as indicated on Table 4.2d.

4.2.3 Advertising

Table 4.2e shows the Probit regression results for evaluating competitiveness in advertising business in Zaria area. The likelihood ratio (LR) statistics is 19.62 and the P-value is about 0.0015. This shows that the index factors (independent variables) have impact on the Z-score of the dependent variable (competitiveness). The McFadden R^2 is 0.42 which is indicative of a fairly good fit.

From the results on Table 4.2e, the coefficients of electricity, cost of production, quality of product and service, and new product development (R&D) are negative and significant at the 5% level. While the coefficients of innovation and technology, market structure, market share, profit growth rate and pricing policing are positive but not significant at the 5% level. The implication of this result is that if innovation and technology, market structure, market share, profit growth rate and pricing policing and other factors outside the model are held constant at their mean values, and given unavailability of electricity, high cost of production, poor quality of product and service and absence of R&D, businesses in advertising industry in Zaria area are not competitive.

Table 4.2e: Maximum Likelihood Binary Probit Result: Zaria (Advertising)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
Constant	17.3238	2.5236	2.902	0.0205
Electricity	-1.4010	0.5628	-2.489	0.0310
Cost of Production	-1.8146	0.6670	-2.720	0.0247
Innovation and Technology	1.4006	0.7672	1.825	0.3350
Market Structure	1.2465	1.0407	1.198	0.5561
Quality of Product and Service	-2.5320	0.8972	-2.822	0.0098
Market Share	0.7834	0.9790	0.800	0.4564
Profit Growth Rate	0.8670	0.6351	1.365	0.4721
Pricing Policy	1.2833	0.9974	1.287	0.1672
New Product Development (R&D)	-1.5830	0.6350	-2.493	0.0200
Out Sourcing of Raw Materials	-1.2447	0.7441	-1.673	0.5201

LR Statistic (10df) = 19.6240 **McFadden R² = 0.4205**
Probability (LR statistic) = 0.0015 **Log likelihood = 15.657**

Results obtained from E-views 4.0

The study field survey report in Appendix I support the results on Table 4.2e as about 90% (Appendix I) of the sample advertising businesses indicated that electricity from PHCN was not available in the form, quantity and quality required by their businesses in Zaria area. The major source of electricity to advertising businesses in Zaria area is private generator (62.5%) and PHCN (37.5%) as indicated on Appendix IIc. All the sampled businesses (100%) indicated that electricity from PHCN is only available for about 0-6hours per day and ‘not constant at all’ as shown on Appendix II. Unavailability of electricity has heavy cost implications for production (70% of the sample businesses indicated that their production cost was high, while about 95% of the sample advertising businesses indicated that unavailability of electricity affects their businesses significantly, Appendix I). The study field survey report on Appendix IIc indicates that 77.5% of the sampled businesses confirmed that high cost of production and reduced profit (17.5%) are the major effects of unavailability of electricity on advertising business in Zaria area. Furthermore, the study field report revealed that the major sources of high cost of production to the sample businesses are electricity from private sources (55%), wages and salaries (30%) and technical inputs (15%) as indicated on Appendix IIc.

Also, the impact of high cost of production on the sample advertising businesses in Zaria area are low profit (55%), poor quality of product (25%), low capacity utilization (10%) and inability to employ skilled labor (10%) as indicated on Appendix IIc. Clearly, unavailability of electricity in Zaria area has severe consequences for per unit cost of finished advertising

products and services. Thus, as per unit price of advertising products and services increased the market demand fell and consequently there was a drop in revenue leading to a reduction in profit. Again, unavailability of electricity has consequences for capacity utilization by advertising businesses. When there is capacity underutilization production will not be efficient in terms of input use, which has consequences for demand and supply management, price, revenue and profit. In other words, unavailability of electricity and cost of production decreases the Z-score of the dependent variable (business competitiveness) to less than zero in Zaria area as indicated on Table 4.2e. Thus, unavailability of electricity and high cost of production experienced by the sample advertising businesses in Zaria area made them to be uncompetitive.

The coefficient of the quality of product variable is less than 1 (-2.5320) and is significant at the 5% level as indicated on Table 4.2e. This means that if all other factors are held constant and given poor quality of product, the sample advertising businesses in Zaria area are not competitive. Observations from the field survey revealed that most of the advertising businesses domiciled in Zaria area are a small unit enterprise that can only handle less sophisticated print advertisements and very little electronic advertisements. Consumers of advertising products and services in Zaria area out source advertising agencies from Kaduna, Kano, Abuja and Lagos. Some of the sample businesses noted that advertisement products of large firms with offices in Zaria area are usually done at the headquarters of the firms located either in Abuja or Lagos or sometimes from abroad.

The study field survey showed that the products and services of about 67.5% of the sample advertising businesses in Zaria area are not standardized, while 32.5% offer standardized products and services (Appendix I). On the reasons for non-standardization of products and services, the field survey report showed that 40% of the sample businesses indicated higher cost of producing quality products, low level technology (30%), low patronage for high quality product (20%) and lack of research and development (10%) as indicated on Appendix IIc. Also, observations from the field survey revealed that the major reasons for poor quality products and services by the sample advertising businesses in Zaria area are absence of recent technology in advertising and non registration with the advertising regulatory body, Advertising Practitioners Association of Nigeria (APAN). Most of the sample businesses noted high cost of acquisition as the reason for which they do not use recent technology. Technology and innovation in the advertising industry is constantly changing, especially multifunctional advertising software packages. For any advertising firm to be competitive, it must constantly update its software technology to meet professional requirements and global standard. Thus, lack of use of recent

technology accounted for poor quality of products and services by the sample advertising businesses in Zaria area that made them uncompetitive.

Technically, research and development (R&D) is a critical business competitiveness driver in the advertising industry (Lynch, 2006). About 87.5% (Appendix I) of the sample advertising businesses in Zaria do not have a R&D unit, while 12.5% have R&D unit. The reasons advanced by the sampled businesses for this are: prohibitive set-up cost (52.5%), unit not necessary (27.5%), 'it is for the future' (15%) and stringent government regulations (5%) as indicated on Appendix IIc. Some of the sampled businesses noted that they acknowledge the usefulness of R&D and for this reason send their staff on training and re-training to Polytechnics and Professional Computer Software applications training institutes. The relevance of R&D to competitiveness is reflected in the fact that product improvement in terms of usefulness and multifunctional value to meet consumers' growing needs is made possible by this unit. Thus, poor attitude towards R&D by advertising businesses in Zaria area means that they cannot compete favorably with improved counterpart products from other states in Nigeria and across the borders.

The Tobit regression results for evaluating the strength of influence exerted by the index factors (independent variables) on business competitiveness (dependent variable) in advertising businesses in Zaria area are presented on Table 4.2f. The Log likelihood function (LLF) statistics value is 33.22, with P-value of 0.000. This means that all the index factors (independent variables) exerted some level of influence on the probability Z-score of the dependent variable. The ANNOVA based fit measure is 0.55 which is indicative of a good fit. The dependent and independent variables are not linearly related.

Table 4.2f: Censored Maximum Likelihood Estimates Tobit Result: Zaria (Advertising)

Variable of X	Coefficient	Std. Error	b/Std. error	P[Z >z]	Mean
Constant	0.1378	0.278	0.496	0.6107	0.000
Electricity	0.2463	0.349	0.706	0.3553	0.408
Operating Environment	-2.4564	0.672	-3.655	0.0082	0.388
Efficiency in Production	-1.9833	0.568	-3.492	0.0101	0.573
Rate of Tech Change & Application	0.6890	0.538	1.281	0.5330	0.379
Profit Maximization	0.8047	0.726	1.108	0.6503	0.445
Pricing Policy	1.5490	0.558	2.776	0.0312	0.379
Market Structure	1.4618	0.420	3.480	0.0150	0.438
Market Share	0.2850	0.289	0.986	0.5521	0.328
Quality of Product and Service	0.3058	0.301	1.016	0.6104	0.536
Quality of Labor Employed	-2.1370	0.565	-3.782	0.0052	0.387

Log Likelihood Function = 33.216 Prob. [|Z|>z] stat. = 0.000
ANNOVA based fit measure = 0.5503 DECOMP based fit measure = 0.4019

Results obtained from NLOGIT 4.0.1

From the results on Table 4.2f the coefficients of operating environment, efficiency in production and quality of labor employed are negative and significant at the 5% level. Also, the coefficients of pricing policy and market structure are positive and significant at the 5% level. This implies that if all other variables are held constant at their mean values weak operating environment, inefficiency in production and poor quality of labor employed have made the sample advertising businesses in Zaria area uncompetitive at varying degrees. On the other hand, if all other factors are held constant at their mean values appropriate pricing policy and adequate knowledge about market structure has contributed minimally to improve competitiveness in advertising businesses in Zaria area at varying degrees. However, it is important to note the value of the coefficients 1.5490 and 1.4618 for pricing policy and market structure respectively. These values show that the respective variables exerted an appreciable level of influence in enhancing competitiveness in the sampled advertising businesses in Zaria area. The coefficients of electricity, rate of technological change and application, profit maximization, market share and quality of product and service are positive but not significant at the 5% level. In absolute terms, weak operating environment decreased competitiveness by 2.46%, while inefficiency in production decreased competitiveness by 1.98% that is significant at 5% level. Quality of labor employed by the sample advertising businesses in Zaria area decreased competitiveness by

2.14%. Also, appropriate pricing policy increased competitiveness by 1.55% and knowledge about market structure increased competitiveness by 1.46% in the sampled advertising businesses in Zaria area that is significant at the 5% level.

Overall, the strength of influence exerted by index factors that negatively affected competitiveness in advertising businesses in Zaria area significantly are weak operating environment (-2.46), inefficiency in production (-1.98) and poor quality of labor employed (-2.14). While the strength of influence exerted by index factors that positively affected competitiveness in advertising businesses in Zaria area significantly are appropriate pricing policy (1.55) and knowledge about market structure (1.46) as indicated on Table 4.2f.

4.3 Chi-Square Tests Results for Probit Model and Tobit Model

The Pearson minimum Chi-Square method was used to estimate the coefficient of the parameters of the Probit model and Tobit model to test the null hypothesis that business competitiveness is not significant for profit maximization, growing market share, sustained profit growth rate, competitive pricing policy, low cost of production, efficiency of production, and growing market share. Note that only the results of Chi-Square tests for the Probit and Tobit models that are significant at the 5% level have been reported in Appendix III.

4.3.1 Probit Model Chi-Square Tests Results: Kaduna Metropolis

The Chi-square test result for Probit model in respect of the selected Manufacturing businesses in Kaduna metropolis indicated that the following variables infrastructure (electricity), cost of production, innovation and technology, market structure, quality of product, market share and pricing policy were not significant at the 5% level for business competitiveness. While profit growth rate, new product development (R&D) and out sourcing of raw materials were significant at the 5% level as indicated on Appendix IIIa – IIIc. These results are consistent with the Probit regression results for the selected Manufacturing businesses in Kaduna metropolis. Manufacturing businesses in Kaduna metropolis are frequently confronted with little or no electricity supply by PHCN, thereby triggering high cost of production through private sources of electricity. Low level innovation and technology, inadequate knowledge of the market structure, low quality of product among other constraints made the selected Manufacturing businesses in Kaduna metropolis non competitive. However, a few of these businesses had new product development units (R&D at the infancy stage; and recorded a slow growth in profit.

The Chi-square test results for Probit model in respect of the selected food and beverages businesses, and Advertising businesses in Kaduna Metropolis showed that none of the index factors (infrastructure, cost of production, innovation and technology, market structure, quality

of product/service, market share, profit growth rate, pricing policy, new product development (R&D) and out sourcing of raw materials) was significant at the 5% level for business competitiveness. The results are consistent with the Probit regression results for the selected Food and Beverages businesses in Kaduna metropolis.

4.3.2 Probit Model Chi-Square Tests Results: Zaria Area

The Chi-square test results for Probit model in respect of the selected Manufacturing businesses in Zaria area showed that none of the index factors (infrastructure, cost of production, innovation and technology, market structure, quality of product/service, market share, profit growth rate, pricing policy, new product development (R&D) and out sourcing of raw materials) was significant at the 5% level for business competitiveness. It is important to note that though, the Probit regression results for the selected Manufacturing businesses in Zaria area indicated that electricity, innovation and technology, quality of product and out sourcing of raw materials were significant at the 5% level; the coefficients were less than zero. This is indicative of a negative relationship between these variables and business competitiveness in respect of the selected Manufacturing businesses in Zaria area. Therefore, the Chi-square results confirm the Probit regression results that the index factors are not significant for business competitiveness in the selected Manufacturing businesses in Zaria area.

The Chi-square test result (Appendix IIIb) for the selected Food and Beverages businesses in Zaria area indicated that only out sourcing of raw materials variable is significant at the 5% level for business competitiveness. Theoretically, it is arguable that out sourcing of raw material can not sufficiently account for the overall competitiveness of any given business. Business competitiveness is an outcome of an array of factors that collectively provides the needed leverage for sustained competition among other businesses. Thus, it can be concluded that the selected Food and Beverages in Zaria area are not competitive.

The results of the Chi-square test for the Probit model in respect of the selected Advertising businesses in Zaria area indicated that none of the index factors was significant at the 5% level for business competitiveness. Therefore, the selected Advertising businesses in Zaria area are not competitive.

4.3.3 Tobit Model Chi-Square Tests Results: Kaduna Metropolis

Note that in this study, the Tobit model is used to measure the intensity of influence each of the index factors (independent variables) exerts on business competitiveness (dependent variable). Therefore, any variable that is significant at the 5% level in the Tobit model Chi-square test implies that it positively influences business competitiveness.

The results of the Tobit model Chi-square test for the selected manufacturing businesses in Kaduna metropolis revealed that none of the index factors (Electricity, operating environment, efficiency or production, rate of technological change and application, profit maximization, pricing policy, market structure, market share, quality of product/service and quality of labor employed) is significant at the 5% level for business competitiveness. The implication is that unavailability of electricity, weak operating environment, inefficiency in production, low rate of technological change and application, poor pricing policy, lack of knowledge of market structure, non growing market share, poor quality of product and poor quality of labor employed by the selected Manufacturing businesses in Kaduna metropolis rendered them uncompetitive.

The Chi-square test result for the Tobit model in respect of the selected Food and Beverages businesses in Kaduna metropolis showed that none of the index factors is significant at the 5% level for business competitiveness. Also, the results of the Chi-square test of Tobit Model for the selected Advertising businesses in Kaduna metropolis indicated that none of the index factors is significant at the 5% level for business competitiveness.

4.3.4 Tobit Model Chi-Square Tests Results: Zaria Area

The results of the Tobit model Chi-square test for the selected manufacturing businesses in Zaria indicated that none of the index factors (Electricity, operating environment, efficiency or production, rate of technological change and application, profit maximization, pricing policy, market structure, market share, quality of product/service and quality of labor employed) is significant at the 5% level for business competitiveness. This study observes that infrastructural decay is quite pronounced in Zaria area. This accounts for poor supply of electricity to businesses in this area, weak operating environment, inefficiency in production, low rate of technological change and application, poor pricing policy, and poor quality of product the selected Manufacturing businesses in Zaria area.

The Chi-square test result (Appendix IIIc) for the Tobit model in respect of the selected Food and Beverages businesses in Zaria area indicated that profit maximization variable is significant at the 5% level for business competitiveness. It is worth noting that irrespective of the fact that profit is a key indicator for business competitiveness; a weak infrastructure base and operating environment, rising production cost, persistently low quality of product and services as well as slow adaption to rate of technological change and application would render profit maximization unsustainable in a globalized market.

The Chi-square test result for the Tobit model in respect of the selected Advertising businesses in Zaria area showed that none of the index factors is significant at the 5% level for

business competitiveness. The bane of most of the selected advertising businesses in Zaria area is poor quality of products and services due to their inability to match the rate of technological change and application especially the acquisition of specialized latest version of advertising software computer packages. Modern advertising business is highly technology dependent both in the print and electronic sub-sector of the industry; thus, competition is fierce and innovation motivated globally. Therefore, most of the consumers of advertising products and services in Kaduna metropolis and Zaria area out-source advertising agencies from Lagos and sometimes South Africa.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Major Findings

This study has evaluated business competitiveness in Manufacturing, Food and Beverages, and Advertising businesses selected from Kaduna metropolis and Zaria area in Kaduna State. The major findings of the study are summarized below.

5.1.1 Business Competitiveness in Kaduna Metropolis

Manufacturing

The Probit regression results for the selected manufacturing businesses in Kaduna metropolis revealed that electricity, cost of production, market structure, quality of product, market share, profit growth rate and out sourcing of raw materials have negative coefficients that are less than 0 and significant at the 5% level. This implies that holding all other factors constant, given unavailability of electricity, high cost of production, lack of knowledge about market structure, poor quality of products, falling market share, low profit growth rate and poor out-sourcing of raw materials the sampled manufacturing businesses in Kaduna metropolis are not competitive. The Tobit regression results showed that in absolute terms, weak operating environment decreased manufacturing business competitiveness in Kaduna metropolis; while lower rate of technological change and application, and inconsistent profit maximization decreased manufacturing business competitiveness. Non-growing market share and poor quality of products decreased manufacturing business competitiveness in Kaduna metropolis.

Food and Beverages

The Probit regression results for the selected Food and Beverages businesses in Kaduna metropolis indicated that electricity, innovation and technology, profit growth rate and new product development have negative coefficients values of less than 0 that are significant at the 5% level. The implication of this result is that if all other factors are held constant unavailability of electricity, low level of innovation and technology, lack of profit growth rate and non existence of research and development (R&D) unit made the sample food and beverage businesses in Kaduna metropolis not to be competitive. The study field survey supports the results as 92.5% of the sampled food and beverage businesses indicated that electricity is not available in the quantity and quality required by their businesses in Kaduna metropolis. While 32.5% of food and beverage businesses indicated they were yet to acquire the needed innovation and technology and 70% indicated that they did not experience steady growth in profit. About 70% of the sampled food and beverage businesses in Kaduna metropolis do not have a R&D unit.

The Tobit regression results showed that the coefficients of electricity, operating environment, efficiency of production, rate of technology change and application, market structure and quality of product are negative and significant at the 5% level. In absolute terms, unavailability of electricity, weak operating environment in Kaduna metropolis decreased competitiveness in the food and beverage business that is significant at the 5% level. Also, inefficiency in production, lower rate of technological change and application and lack of knowledge about market structure as well as poor quality of products decreased competitiveness in the food and beverages industry in Kaduna metropolis that is significant at the 5% level.

Advertising

The Probit regression results for evaluating competitiveness in advertising businesses in Kaduna metropolis showed that the coefficients of innovation and technology, market structure, profit growth rate and new product development are less than 0 and significant at the 5% level. About 80% of the sample businesses have not acquired recent technology in advertising business, while 37.5% have introduced innovations within the last three years. With respect to specific areas in which sampled advertising businesses in Kaduna metropolis have not introduced innovation and technology; 50% indicated quality control while 50% indicated marketing. On the reasons why most of the sampled advertising businesses are yet to introduce innovation and technology; 70% cited high cost of acquisition, while 25% cited unavailability of technology. A significant number (52.5%) of the sampled advertising businesses in Kaduna metropolis use arbitrary pricing which does not wholly depend on market signals. About 62.5% of the sample businesses indicated that their businesses are not experiencing steady profit growth rate and cited increase in new entrants (60%) and rising cost of production (40%) as the major challenges to profit growth rate. 77.5% of the sampled advertising businesses in Kaduna metropolis do not have a R&D unit. The field survey report showed that the reasons advanced by the sampled businesses for this are: prohibitive set-up cost (85%) and high cost of hiring experts (15%).

The Tobit regression results showed that the coefficients of electricity, operating environment, profit maximization, pricing policy, market structure, market share, quality of product and quality of labor employed are negative and significant at the 5% level. This implies that holding all other factors constant at their mean values unavailability of electricity, weak operating environment, inconsistent profit maximization, poor pricing policy, lack of knowledge about market structure, non growing market share, poor quality of product and labor employed significantly decreased competitiveness in advertising businesses at varying degrees in Kaduna metropolis. In absolute terms, erratic electricity supply in Kaduna metropolis decreased

competitiveness in advertising business that is significant at 5% level, weak operating environment decreased competitiveness in the industry that is significant at 5% level. Also, inconsistent profit maximization, poor pricing policy, lack of knowledge about market structure and falling market share decreased competitiveness in advertising in Kaduna metropolis that is significant at the 5% level. Also, poor quality of product and labor employed decreased competitiveness that is significant at the 5% level in the sampled advertising businesses in Kaduna metropolis.

5.1.2 Business Competitiveness in Zaria Area

Manufacturing

The Probit regression results for the evaluation of competitiveness in manufacturing business in Zaria area revealed that electricity, cost of production, innovation and technology, quality of product and out sourcing of raw materials have negative coefficients that are significant at the 5% level. The result implies that if all other factors are held constant, unavailability of electricity, high cost of production, poor innovation and technology, poor quality of product and inability to outsource raw materials made the sampled manufacturing businesses in Zaria area uncompetitive. The study field survey report supports the results as 92.5% of the sampled manufacturing businesses indicated that electricity was not available in the form, quantity and quality required by their businesses in Zaria area. While 92.5% of the sampled manufacturing businesses in Kaduna metropolis indicated that their production cost was high with severe consequences for per unit cost of finished products. About 67.5% of the sampled manufacturing businesses in Zaria indicated they were yet to acquire the technology needed by their businesses. Poor quality of product by the sampled manufacturing businesses in Zaria area is a bane that affects their competitiveness as about 95% of the sampled businesses indicated that their products are not standardized.

The Tobit regression results showed that the coefficient values for electricity, efficiency in production, rate of technological change and application, profit maximization and quality of product are negative and significant at the 5% level. These results imply that in absolute terms, unavailability of electricity, inefficiency in production, low rate of technological change and application, inconsistent profit maximization and poor quality of product decreased business competitiveness in manufacturing in Zaria area that is significant at the 5% level.

Food and Beverages

The Probit regression results for evaluating competitiveness in food and beverages businesses in Zaria area indicated that electricity, cost of production, market structure, market share and out sourcing of raw materials have negative coefficients that are significant at the 5%

level. This implies that if all other factors are held constant, given unavailability of electricity, growing cost of production, lack of knowledge about market structure, non growing market share, absence of research and development unit the sample food and beverage businesses in Zaria area are not competitive.

The Tobit regression results for evaluating the strength of influence exerted by the index factors (independent variables) on business competitiveness (dependent variable) in food and beverage businesses in Zaria area showed that the coefficient values of operating environment, rate of technological change and application, profit maximization, pricing policy, market structure and quality of product are negative and significant at the 5% level. These results mean that if electricity, efficiency in production, market share, quality of product and other factors outside the model are held constant at their mean values; weak operating environment, lower rate of technological change and application, inconsistent profit maximization, poor pricing policy, lack of adequate knowledge about market structure and poor quality of product accounted for lack of business competitiveness in food and beverage businesses in Zaria area at varying degrees. In absolute terms, weak operating environment, low rate of technological change and application, inconsistent profit maximization, poor price policy and lack of adequate knowledge about market structure, and poor quality of product that is significant at the 5% level.

Advertising

The Probit regression results for competitiveness in the selected advertising businesses in Zaria area showed negative coefficients for electricity, cost of production, quality of product and service, and new product development that are significant at the 5% level. While the coefficients of innovation and technology, market structure, market share, profit growth rate and pricing policing are positive but not significant at the 5% level. The implication of this result is that if innovation and technology, market structure, market share, profit growth rate and pricing policing and other factors outside the model are held constant at their mean values, and given unavailability of electricity, high cost of production, poor quality of product and service and absence of R&D, businesses in advertising industry in Zaria area are not competitive.

The Tobit regression results for evaluating the strength of influence exerted by the index factors (independent variables) on business competitiveness (dependent variable) in advertising businesses in Zaria show that the coefficients of operating environment, efficiency in production and quality of labor employed are negative and significant at the 5% level. Also, the coefficients of pricing policy and market structure are positive and significant at the 5% level. This implies that if all other variables are held constant at their mean values weak operating environment, inefficiency in production and poor quality of labor employed have made the sample advertising

businesses in Zaria area uncompetitive at varying degrees. On the other hand, if all other factors are held constant at their mean values appropriate pricing policy and adequate knowledge about market structure has contributed minimally to improve competitiveness in advertising businesses in Zaria area at varying degrees. In absolute terms, weak operating environment, inefficiency of production, poor quality of labor employed decreased competitiveness in the advertising industry in Zaria that is significant at 5% level. However, appropriate pricing policy and knowledge about market structure increased competitiveness in the sampled advertising businesses in Zaria area that is significant at the 5% level.

5.1.3 Chi-Square Tests Results for Probit Model and Tobit Model

The Chi-square tests results of the Probit model for evaluating business competitiveness in Kaduna metropolis indicated that profit growth rate, new product development (R&D) and out sourcing of raw materials are significant at the 5% level for business competitiveness only for manufacturing. While electricity cost of production, innovation and technology, market structure, quality of product and services, market share, and pricing policy were not significant at the 5% level for business competitiveness. The results of Chi-square tests of the Probit model for evaluating business competitiveness in Zaria area showed that out sourcing of raw materials is significant at the 5% level for the selected food and beverages businesses only.

The Chi-square test results of the Tobit model in respect of the selected businesses in Kaduna metropolis and Zaria area indicated that profit maximization variable is significant at the 5% level for Food and Beverages businesses in Zaria area.

5.2 Conclusion

The findings from the Probit regression model for this study has shown that the selected businesses (Manufacturing, Food and Beverages, and Advertising) in Kaduna metropolis and Zaria area are not competitive in terms of profit maximization, sustained growth rate in profit, quality of products/services, cost of production, growing market share, innovation and technology, pricing policy, new product development (R&D).

The Tobit regression model for this study revealed that unavailability of electricity, weak operating environment, and inefficiency in production, low rate of technological change and application, poor quality of labor employed and poor pricing policy decreased competitiveness in the selected businesses (Manufacturing, Food and Beverages, and Advertising) in Kaduna metropolis and Zaria area.

Furthermore, the Chi-square tests of the Probit and Tobit regression results showed that only profit growth rate, new product development (R&D) and out sourcing of raw materials are marginally indicative of competitiveness in Manufacturing in Kaduna metropolis. Only the out

sourcing of raw materials variable was indicative of competitiveness in Food and Beverages in Zaria area.

Generally, the findings of this study has shown that the selected businesses (Manufacturing, Food and Beverages, and Advertising) in Kaduna metropolis and Zaria area have been unable to meet their goals of efficiency in production, sustained growth rate in profit, quality of products/services, falling cost of production, growing market share, and new product development. The findings of this study further revealed that the major reasons for which the selected businesses have not been able to meet the aforementioned goals are unavailability of electricity, rising cost of production, weak operating environment, low rate of technological change and application, poor business innovations, and poor quality of labor employed and poor quality of products/services.

5.3 Recommendations

Based on the findings of this study, the following recommendations are put forward for policy purposes and for ensuring the application of best practices in business to enhance competitiveness.

Infrastructural Development

The major problem that confronted the selected businesses (Manufacturing, Food and Beverages and Advertising) in Kaduna metropolis and Zaria area that contributed significantly to their non-competitiveness is erratic power supply in the quantity and quality required. This had severe consequences for cost and efficiency of production, final consumer price (with consequences for demand and profit), and capacity utilization. Clearly, the greatest source of increase in the production cost of the selected businesses in the study area is the use of private electricity power plants to generate own electricity. Therefore, it is strongly recommended that there should be a synergy of efforts by the government at all levels and the private sector to fast-track completion of on-going Integrated Power Projects (IPP), fix and upgrade existing electricity power facilities in Nigeria in order to increase the amount of mega watts generated. This will significantly drive down costs, reduce final consumer price, raise efficiency and ensure sustained growth rate in profit.

Operating Environment

An operating environment that readily stimulates an effective and profitable enterprise development provides the requisite foundation for business competitiveness. Thus, a stable operating environment is sine qua non for business growth and competitiveness. The Nigerian operating environment adversely affected about 65% of the selected businesses in the study area

in terms of instability in macroeconomic aggregates such as monetary and fiscal policies (e.g. interest rate, exchange rate, credit and taxes), inflation, and weak institutional regulatory framework. Government is a key player in determining a stable operating environment for businesses; therefore, it is recommended that the government should adopt a monetary and fiscal policy stance that is amenable to change in response to changes in business competitiveness indicators such as profit growth rate, growing market share, cost and efficiency of production.

Rapid Adoption of Modern Technology and Innovation

Lower rate of technological change and application; and poor quality of products/services constituted formidable constraints to competitiveness by the selected businesses in the study areas. It is important to note that technology and innovation constitutes the hallmark both for domestic and global business competitiveness. All classes of businesses are technology and innovation driven, because it is the level of technology used that determines to a large extent the quality of product; which in-turn determines the price such a product can possibly attract in the market and consequently demand. It is recommended that Nigerian businesses should adopt the rapid response approach in the application of modern technology and innovation in order to improve on the quality of their products and services, and compete favorably with imported products and services.

Research and Development (R&D)

Another critical driver of business competitiveness is research and development (R&D). About 70% of the sample businesses in the study area do not have a R&D unit. The relevance of R&D to competitiveness is reflected in the fact that product improvement in terms of usefulness and multifunctional value to meet consumers' growing needs is made possible by this unit. Thus, poor attitude towards R&D by any business means the loss of a critical cutting edge tool for competing favorably with improved counterpart products from across the borders. Therefore, this study recommends that Nigerian businesses should as a matter of urgency set up standard R&D units. This should be done in consultation and close collaboration with specialized institutions with relevant research skills and facilities for products and services of interests. Where it is not possible to set up own R&D unit due to prohibitive set-up cost, such business should collaborate with requisite institutions with the required research facilities. This would fast-track product improvement, new product development and multi-functional adaptation at lower or manageable costs to businesses.

Quality of Labor Employed

It has been argued that “the quality of a product is as good as the quality of labor that produced it”.

It is strongly recommended that Nigerian businesses in all sectors must endeavor to seek out and employ quality labor with specialized skills required for modern technology and innovation. Businesses must invest in training and re-training of its key labor force in all departments to keep abreast with needed skills especially in the use of modern technology. This will help to sharpen its competitive edge and keep the business abreast global best practices to meet the graduating needs and expectations of consumers.

Market Structure

The market structure in which a business operates has influence on its decisions. This is because information about demand and supply, price, quantity and other market indicators necessary for business decisions depend to an extent on the knowledge of the type of market a business operates in. This study observed that there is a lacuna in access to adequate vital market information by the selected businesses in the study area that could have led to gross misjudgment in price and quantity thereby contributing to lack of competitiveness. Therefore, this study recommends that every Nigerian business as a matter of policy carry out periodic market survey and feasibility studies to acquire market information to enhance accurate business decisions.

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Appendix I: FIELD SURVEY REPORT- KADUNA AND ZARIA

Is electricity available in the form, amount, quantity and quality required by your business?								
Manufacturing			Food and Beverage			Advertising		
Response	Frequency	Percentage	Response	Frequency	Percentage	Response	Frequency	Percentage
Yes	5	12.5	Yes	3	7.5	Yes	6	15
No	35	87.5	No	37	92.5	No	34	85
Total	40	100	Total	40	100	Total	40	100
Does unavailability of electricity affect your business significantly?								
Yes	35	87.5	Yes	38	95	Yes	36	90
No	5	12.5	No	2	5	No	4	10
Total	40	100	Total	40	100	Total	40	100
Is your business' cost of production high? (Cost of Production)								
Yes	31	77.5	Yes	36	90	Yes	32	80
No	9	22.5	No	4	10	No	8	20
Total	40	100	Total	40	100	Total	40	100
Have you acquired the needed technology in your business? (Technology and Innovation)								
Yes	13	32.5	Yes	36	90	Yes	8	20
No	27	67.5	No	4	10	No	32	80
Total	40	100	Total	40	100	Total	40	100
Have you introduced any form of innovation recently?								
Yes	16	40	Yes	32	80	Yes	15	37.5
No	24	60	No	8	20	No	25	62.5
Total	40	100	Total	40	100	Total	40	100
Is your business mode of production capital intensive?								
Yes	34	85	Yes	37	92.5	Yes	33	82.5
No	6	15	No	3	7.5	No	7	17.5
Total	40	100	Total	40	100	Total	40	100

Appendix I (Kaduna: Continued)

Is the technology used in your business recent?								
Manufacturing			Food and Beverage			Advertising		
Response	Frequency	Percentage	Response	Frequency	Percentage	Response	Frequency	Percentage
Yes	22	55	Yes	38	95	Yes	23	57.5
No	18	45	No	2	5	No	17	42.5
Total	40	100	Total	40	100	Total	40	100
Do you know and understand the market structure your business operates in? (Market Structure)								
Yes	38	95	Yes	39	97.5	Yes	37	92.5
No	2	5	No	01	2.5	No	3	7.5
Total	40	100	Total	40	100	Total	40	100
Does the market structure influence/determine your business decisions?								
Yes	35	87.5	Yes	37	92.5	Yes	34	85
No	5	12.5	No	3	7.5	No	6	15
Total	40	100	Total	40	100	Total	40	100
Is the quality of your product/service standardized (Quality of product/service)								
Yes	37	92.5	Yes	38	95	Yes	36	90
No	3	7.5	No	2	5	No	4	10
Total	40	100	Total	40	100	Total	40	100
Does your business control a significant share of the market? (Market share)								
Yes	23	57.5	Yes	33	82.5	Yes	22	55
No	17	42.5	No	7	17.5	No	18	45
Total	40	100	Total	40	100	Total	40	100
Is the market share growing?								
Yes	23	57.5	Yes	32	80	Yes	24	60
No	17	42.5	No	8	20	No	16	40
Total	40	100	Total	40	100	Total	40	100

Appendix I (Kaduna: Continued)

Is your business making profit? (Profit growth rate)								
Manufacturing			Food and Beverage			Advertising		
Response	Frequency	Percentage	Response	Frequency	Percentage	Response	Frequency	Percentage
Yes	39	97.5	Yes	39	97.5	Yes	38	95
No	1	2.5	No	1	2.5	No	2	5
Total	40	100	Total	40	100	Total	40	100
Does your business experience steady profit growth rate?								
Yes	16	40	Yes	28	70	Yes	15	37.5
No	24	60	No	12	30	No	25	62.5
Total	40	100	Total	40	100	Total	40	100
Does your business have a formal pricing policy? (Pricing Policy)								
Yes	32	80	Yes	28	70	Yes	31	77.5
No	8	20	No	12	30	No	09	.5
Total	40	100	Total	40	100	Total	40	100
Does your business have a research and development (R&D) Unit? (New product development)								
Yes	14	35	Yes	12	30	Yes	13	22.5
No	26	65	No	28	70	No	27	77.5
Total	40	100	Total	40	100	Total	40	100
Do you use local raw materials only? (Out-sourcing of raw materials)								
Yes	15	37.5	Yes	10	25	Yes	14	35
No	25	62.5	No	30	75	No	26	65
Total	40	100	Total	40	100	Total	40	100

Appendix I (Kaduna: Continued)

Are there foreign content in the raw materials use by your business?								
Manufacturing			Food and beverage			Advertising		
Response	Frequency	Percentage	Response	Frequency	Percentage	Response	Frequency	Percentage
Yes	25	62.5	Yes	32	80	Yes	26	65
No	15	37.5	No	8	20	No	14	35
Total	40	100	Total	40	100	Total	40	100
Is it cheaper to import raw materials for your product/service?								
Yes	10	25	Yes	8	20	Yes	11	27.5
No	30	75	No	32	80	No	29	72.5
Total	40	100	Total	40	100	Total	40	100
Does the operating environment enhance your business confidence? (Operating Environment)								
Yes	28	70	Yes	13	32.5	Yes	29	72.5
No	12	30	No	27	67.5	No	11	27.5
Total	40	100	Total	40	100	Total	40	100
Is it cheaper to produce your product/service locally? (Efficiency of Production)								
Yes	29	72.5	Yes	30	75	Yes	30	75
No	11	27.5	No	10	25	No	10	25
Total	40	100	Total	40	100	Total	40	100
Has your business been able to meet the pace of change in technology? (Rate of technology change)								
Yes	8	20	Yes	31	77.5	Yes	7	17.5
No	32	80	No	9	22.5	No	33	82.5
Total	40	100	Total	40	100	Total	40	100
Has your business maximized profit since you started operation? (Profit Maximization)								
Yes	35	87.5	Yes	37	92.5	Yes	35	87.5
No	5	12.5	No	3	7.5	No	5	12.5
Total	40	100	Total	40	100	Total	40	100

Appendix I (Kaduna: Continued)

Is profit maximization a yearly experience?								
Manufacturing			Food and Beverage			Advertising		
Response	Frequency	Percentage	Response	Frequency	Percentage	Response	Frequency	Percentage
Yes	12	30	Yes	16	40	Yes	15	37.5
No	28	70	No	24	60	No	25	62.5
Total	40	100	Total	40	100	Total	40	100
Does the labor required by your business include specialized skills (Quality of Labor Employed)								
Yes	38	35	Yes	35	87.5	Yes	37	75
No	2	05	No	05	12.5	No	03	25
Total	40	40	Total	40	100	Total	40	100
Are such specialized skills available?								
Yes	29	72.5	Yes	13	32.5	Yes	30	75
No	11	22.5	No	27	67.5	No	10	25
Total	40	100	Total	40	100	Total	40	100
Does the wage/salary bill determine the number of skilled labor employed by your business?								
Yes	36	90	Yes	9	22.5	Yes	35	87.5
No	4	10	No	31	77.5	No	5	12.5
Total	40	100	Total	40	100	Total	40	100
Does the unavailability of the required specialized skills impose a constraint on the quality and quantity of your product/service?								
Yes	38	95	Yes	22	55	Yes	39	97.5
No	2	5	No	18	45	No	01	2.5
Total	40	100	Total	40	100	Total	40	100

Appendix I (Zaria: Continued)

Is electricity available in the form, amount, quantity and quality required by your business?								
Manufacturing			Food and Beverage			Advertising		
Response	Frequency	Percentage	Response	Frequency	Percentage	Response	Frequency	Percentage
Yes	3	7.5	Yes	2	5	Yes	4	10
No	37	92.5	No	38	95	No	36	90
Total	40	100	Total	40	100	Total	40	100
Does unavailability of electricity affect your business significantly?								
Yes	38	95	Yes	37	92.5	Yes	38	95
No	2	5	No	3	7.5	No	2	5
Total	40	100	Total	40	100	Total	40	100
Is your business' cost of production high? (Cost of Production)								
Yes	37	92.5	Yes	36	90	Yes	28	70
No	3	7.5	No	04	10	No	12	30
Total	40	100	Total	40	100	Total	40	100
Have you acquired the needed technology in your business? (Technology and Innovation)								
Yes	13	32.5	Yes	27	67.5	Yes	13	32.5
No	27	67.5	No	13	32.5	No	27	67.5
Total	40	100	Total	40	100	Total	40	100
Have you introduced any form of innovation recently?								
Yes	32	80	Yes	31	77.5	Yes	27	67.5
No	8	20	No	9	22.5	No	13	32.5
Total	40	100	Total	40	100	Total	40	100
Is your business mode of production capital intensive?								
Yes	35	87.5	Yes	36	90	Yes	37	92.5
No	5	12.5	No	4	10	No	3	7.5
Total	40	100	Total	40	100	Total	40	100

Appendix I (Zaria: Continued)

Is the technology used in your business recent?								
Manufacturing			Food and Beverage			Advertising		
Response	Frequency	Percentage	Response	Frequency	Percentage	Response	Frequency	Percentage
Yes	30	75	Yes	28	70	Yes	38	95
No	10	25	No	12	30	No	02	5
Total	40	100	Total	40	100	Total	40	100
Do you know and understand the market structure your business operates in? (Market Structure)								
Yes	39	97.5	Yes	2	5	Yes	38	95
No	1	2.5	No	38	95	No	2	5
Total	40	100	Total	40	100	Total	40	100
Does the market structure influence/determine your business decisions?								
Yes	38	95	Yes	6	15	Yes	36	90
No	2	5	No	34	85	No	4	10
Total	40	100	Total	40	100	Total	40	100
Is the quality of your product/service standardized (Quality of product/service)								
Yes	2	5	Yes	36	90	Yes	13	32.5
No	38	95	No	4	10	No	27	67.5
Total	40	100	Total	40	100	Total	40	100
Does your business control a significant share of the market? (Market share)								
Yes	33	82.5	Yes	22	55	Yes	33	82.5
No	7	17.5	No	18	45	No	7	17.5
Total	40	100	Total	40	100	Total	40	100
Is the market share growing?								
Yes	32	80	Yes	24	60	Yes	39	97.5
No	8	20	No	16	40	No	1	2.5
Total	40	100	Total	40	100	Total	40	100

Appendix I (Zaria: Continued)

Is your business making profit? (Profit growth rate)								
Manufacturing			Food and Beverage			Advertising		
Response	Frequency	Percentage	Response	Frequency	Percentage	Response	Frequency	Percentage
Yes	39	97.5	Yes	39	97.5	Yes	36	90
No	01	2.5	No	01	2.5	No	4	10
Total	40	100	Total	40	100	Total	40	100
Does your business experience steady profit growth rate?								
Yes	27	67.5	Yes	28	70	Yes	10	25
No	13	32.5	No	12	30	No	30	75
Total	40	100	Total	40	100	Total	40	100
Does your business have a formal pricing policy? (Pricing Policy)								
Yes	30	75	Yes	28	70	Yes	32	80
No	10	25	No	12	30	No	8	20
Total	40	100	Total	40	100	Total	40	100
Does your business have a research and development (R&D) Unit? (New product development)								
Yes	13	32.5	Yes	13	32.5	Yes	5	12.5
No	27	67.5	No	27	67.5	No	35	87.5
Total	40	100	Total	40	100	Total	40	100
Do you use local raw materials only? (Out-sourcing of raw materials)								
Yes	11	27.5	Yes	14	35	Yes	2	5
No	29	72.5	No	26	65	No	38	95
Total	40	100	Total	40	100	Total	40	100

Appendix I (Zaria: Continued)

Are there foreign content in the raw materials use by your business?								
Manufacturing			Food and beverage			Advertising		
Response	Frequency	Percentage	Response	Frequency	Percentage	Response	Frequency	Percentage
Yes	31	77.5	Yes	26	65	Yes	36	90
No	9	22.5	No	14	35	No	04	10
Total	40	100	Total	40	100	Total	40	100
Is it cheaper to import raw materials for your product/service?								
Yes	5	12.5	Yes	11	27.5	Yes	5	12.5
No	35	87.5	No	29	72.5	No	35	87.5
Total	40	100	Total	40	100	Total	40	100
Does the operating environment enhance your business confidence? (Operating Environment)								
Yes	28	70	Yes	29	72.5	Yes	2	5
No	12	30	No	11	27.5	No	38	95
Total	40	100	Total	40	100	Total	40	100
Is it cheaper to produce your product/service locally? (Efficiency of Production)								
Yes	14	35	Yes	30	75	Yes	36	90
No	26	65	No	10	25	No	4	10
Total	40	100	Total	40	100	Total	40	100
Has your business been able to meet the pace of change in technology? (Rate of technology change)								
Yes	27	67.5	Yes	7	17.5	Yes	10	25
No	13	32.5	No	33	82.5	No	30	75
Total	40	100	Total	40	100	Total	40	100\
Has your business maximized profit since you started operation? (Profit Maximization)								
Yes	32	80	Yes	35	87.5	Yes	32	80
No	8	20	No	5	12.5	No	8	20
Total	40	100	Total	40	100	Total	40	100

Appendix I (Zaria: Continued)

Is profit maximization a yearly experience?								
Manufacturing			Food and Beverage			Advertising		
Response	Frequency	Percentage	Response	Frequency	Percentage	Response	Frequency	Percentage
Yes	18	45	Yes	12	30	Yes	6	15
No	22	55	No	28	70	No	34	85
Total	40	100	Total	40	100	Total	40	100
Does the labor required by your business include specialized skills (Quality of Labor Employed)								
Yes	36	90	Yes	37	92.5	Yes	36	90
No	4	10	No	3	7.5	No	4	10
Total	40	100	Total	40	100	Total	40	100
Are such specialized skills available?								
Yes	12	30	Yes	29	72.5	Yes	32	80
No	28	70	No	11	27.5	No	8	20
Total	40	100	Total	40	100	Total	40	100
Does the wage/salary bill determine the number of skilled labor employed by your business?								
Yes	11	27.5	Yes	36	90	Yes	12	30
No	29	72.5	No	4	10	No	28	70
Total	40	100	Total	40	100	Total	40	100
Does the unavailability of the required specialized skills impose a constraint on the quality and quantity of your product/service?								
Yes	24	60	Yes	38	95	Yes	38	95
No	16	40	No	2	5	No	2	5
Total	40	100	Total	40	100	Total	40	100

Appendix IIa: Field Survey Report: MANUFACTURING – Kaduna and Zaria

Major Source(s) of Electricity to Manufacturing Firms (Infrastructure)				
Sources/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
PHCN	20	50	20	50
Private Generator	20	50	20	50
Solar Energy	0	0	0	0
Other sources	0	0	0	0
Total	40	100	40	100
Availability of electricity from PHCN to Manufacturing Firms				
Hours/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
0-6 hours	40	100	40	100
7-12 hours	0	0	0	0
16-20 hours	0	0	0	0
24 hours	0	0	0	0
Others	0	0	0	0
Total	40	100	40	100
Frequency/constancy of Electricity supply by PHCN to Manufacturing Firms				
Frequency/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Daily	0	0	0	0
Weekly	0	0	0	0
Monthly	0	0	0	0
Not constant at all	40	100	40	100
Others	0	0	0	0
Total	40	100	40	100
Effects of Lack of Electricity on Manufacturing				
Effects/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
High cost of production	30	75	25	62.5
Higher Final Consumer price	0	0	1	2.5
Low/reduced profit	05	12.5	7	17.5
Low level of output	05	12.5	5	12.5
Poor quality of product/service	0	0	1	2.5
Total	40	100	40	100

Appendix IIa (Continued) MANUFACTURING – Kaduna and Zaria

Sources of high cost of production to Manufacturing Firms (Cost of Production)				
Sources/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Electricity from private sources	31	77.5	5	12.5
Wages/salaries	5	12.5	3	7.5
Technical inputs	4	10	32	80
Taxes	0	0	0	0
Total	40	100	40	100
Impact of high cost of production on manufacturing				
Impact/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Low capacity utilization	9	22.5	2	5
Inability to employ skilled labor	3	7.5	2	5
Poor quality of product/service	28	70	32	80
Low profit	0	0	3	7.5
Others	0	0	1	2.5
Total	40	100	40	100
Reasons why some Manufacturing firms have not introduced technology (Technology & Innovation)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
High cost of acquisition	25	62.5	31	77.5
Stringent government regulation	13	32.5	9	22.5
Unavailability of technology	0	0	0	0
Lack of operating skills	2	5	0	0
Others	0	0	0	0
Total	40	100	40	100
Areas in which manufacturing firms have introduced innovations				
Area/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Packaging	9	22.5	3	7.5
Quality control	5	12.5	16	40
Multifunction	7	17.5	5	12.5
Marketing	11	27.5	8	20
Others	8	20	8	20
Total	40	100	40	100

Appendix IIa (Continued) MANUFACTURING – Kaduna and Zaria

How market structure influence manufacturing firms' decisions (Market Structure)				
Effects/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Level of output	14	35	15	37.5
Technology and innovation use	0	0	0	0
Product Pricing	21	52.5	23	57.5
Input price	0	0	0	0
Others	5	12.5	2	5
Total	40	100	40	100
Reasons for non-standardization of some manufacturing firms' product/service (Quality of Product/Service)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Low level technology	15	37.5	5	12.5
Lack of research and development	0	0	0	0
Higher cost of producing quality product	4	10	15	37.5
Low patronage for high quality product	20	50	0	0
Low quality of available raw materials	1	2.5	20	50
Total	40	100	40	100
Reasons for poor growth in market share of manufacturing firms' product/service (Market Share)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Many competing higher quality products	4	10	3	7.5
Availability of foreign brands in market	3	7.5	20	50
Inability to access other markets	3	7.5	9	22.5
Weak marketing outlet	20	50	0	0
Others	10	25	8	20
Total	40	100	40	100
Challenges to profit growth rate of manufacturing firms (Profit Grow Rate)				
Challenges/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Rising cost of production	2	5	1	2.5
Low demand	1	2.5	2	5
Increase in new entrants	20	50	20	50
Substandard foreign product/service	2	5	10	25
Rising business taxes	15	37.5	5	12.5
Total	40	100	40	100

Appendix IIa (Continued) MANUFACTURING – Kaduna and Zaria

Pricing Policy employed by Manufacturing firms (Pricing Policy)				
Pricing policy/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Market determined	14	35	11	27.5
Input cost based	10	25	5	12.5
Mark-up on cost and overhead	0	0	0	0
Arbitrary pricing	12	30	24	60
Location pricing	4	10	0	0
Others	0	0	0	0
Total	40	100	40	100
Reasons why most manufacturing firms do not have Research and Development (R&D) Unit				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Prohibitive set-up cost	16	40	10	25
Unit not necessary	24	60	25	62.5
Stringent government regulations	0	0	0	0
High cost of hiring experts	0	0	0	0
It is for the future	0	0	5	12.5
Total	40	100	40	100
Reasons why the operating environment of manufacturing firms does not enhance business confidence (Operating Environment)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Weak government business policies	0	0	0	0
Negative socio-cultural institutions	0	0	0	0
Insecurity/weak infrastructure/unionism	28	70	30	75
Slow pace of info-tech development	0	0	0	0
High cost of doing business	12	30	10	25
Total	40	100	40	100
Reasons why the cost of local manufacturing is higher (Efficiency of Production)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Poor and weak local infrastructure	0	0	5	12.5
Low capacity utilization	0	0	0	0
High factor/input cost	29	72.5	20	50
Slow pace of technology development	11	27.5	0	0
Lack of required technical skills	0	0	15	37.5
Total	40	100	40	100

Appendix IIa (Continued) MANUFACTURING – Kaduna and Zaria

Reasons for low rate of technological change and application by manufacturing firms (Technological Change & App)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
High cost of acquisition of new tech	30	75	35	87.5
High cost of retraining personnel	0	0	0	0
Low demand for product/service	0	0	0	0
High cost of technical personnel	10	25	5	12.5
Others	0	0	0	0
Total	40	100	40	100
Reasons why some manufacturing firms are unable to maximize profit (Profit Maximization)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Low demand /sales	6	15	5	12.5
Competition from foreign firms	4	10	2	5
Low market share due to new entrants	23	57.5	15	37.5
Higher final consumer prices	0	0	0	0
Rising cost of production due to weak infrastructure	7	17.5	18	45
Total	40	100	40	100
Does unavailability of specialized skill labor impose a constraint on manufacturing firms (Quality of labor Employed)				
Responses/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
YES	38	95	24	60
NO	2	5	16	40
Total	40	100	40	100

Appendix IIb: Field Survey Report: FOOD AND BEVERAGES – Kaduna and Zaria

Major Source(s) of Electricity to Food and Beverage Firms (Infrastructure)				
Sources/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
PHCN	20	50	20	50
Private Generator	20	50	20	50
Solar Energy	0	0	0	0
Other sources	0	0	0	0
Total	40	100	40	100
Availability of electricity from PHCN to Food and Beverage Firms				
Hours/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
0-6 hours	40	100	40	100
7-12 hours	0	0	0	0
16-20 hours	0	0	0	0
24 hours	0	0	0	0
0	0	0	0	0
Total	40	100	40	100
Frequency/constancy of Electricity supply by PHCN to Food and Beverage Firms				
Frequency/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Daily	3	7.5	0	0
Weekly	0	0	4	10
Monthly	0	0	0	0
Not constant at all	37	92.5	36	90
Others	0	0	0	0
Total	40	100	40	100
Effects of Lack of Electricity on Food and Beverage Firms				
Effects/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
High cost of production	20	50	22	55
Higher Final Consumer price	12	30	11	27.5
Low/reduced profit	6	15	7	17.5
Low level of output	0	0	0	0
Poor quality of product/service	2	5	0	0
Total	40	100	40	100

Appendix IIb (Continued) FOOD AND BEVERAGES – Kaduna and Zaria

Sources of high cost of production to Food and Beverage firms (Cost of Production)				
Sources/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Electricity from private sources	30	75	28	70
Wages/salaries	6	15	4	10
Technical inputs	4	10	8	20
Taxes	0	0	0	0
Total	40	100	40	100
Impact of high cost of production on Food and Beverage Firms				
Impact/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Low capacity utilization	2	5	5	12.5
Inability to employ skilled labor	0	0	4	10
Poor quality of product/service	24	60	20	50
Low profit	8	20	11	27.5
Others	6	15	0	0
Total	40	100	40	100
Reasons why some Food & beverage firms have not introduced technology (Technology & Innovation)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
High cost of acquisition	25	62.5	22	55
Stringent government regulation	10	25	6	15
Unavailability of technology	0	0	0	0
Lack of operating skills	0	0	12	30
Others	5	12.5	0	0
Total	40	100	40	100
Areas in which Food and Beverage firms have introduced innovations				
Areas/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Packaging	4	10	5	12.5
Quality control	15	37.5	25	62.5
Multifunction	0	0	0	0
Marketing	21	52.5	10	25
Others	0	0	0	0
Total	40	100	40	100

Appendix IIIb (Continued) FOOD AND BEVERAGES – Kaduna and Zaria

How market structure influences Food and Beverage firms' decisions (Market Structure)				
Area of influence/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Level of output	3	7.5	0	0
Technology and innovation use	2	5	8	20
Product Pricing	24	60	29	72.5
Input price	10	25	3	7.5
Others	1	2.5	0	0
Total	40	100	40	100
Reasons for non-standardization of some Food and Beverage firms' product/service (Quality of Product/service)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Low level technology	5	12.5	0	0
Lack of research and development	5	12.5	0	0
Higher cost of producing quality product	10	25	0	0
Low patronage for high quality product	0	0	0	0
Low quality of available raw materials	20	50	40	100
Total	40	100	40	100
Reasons for poor growth in market share of Food and Beverage firms' products/service (Market Share)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Many competing higher quality products	12	30	8	20
Availability of foreign brands in market	6	15	26	65
Inability to access other markets	4	10	4	10
Weak marketing outlet	18	45	2	5
Others	0	0	0	0
Total	40	100	40	100
Challenges to profit growth rate of Food and Beverage firms (Profit Growth Rate)				
Challenges/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Rising cost of production	26	65	22	55
Low demand	0	0	5	12.5
Increase in new entrants	10	25	10	25
Substandard foreign product/service	4	10	2	5
Rising business taxes	0	0	1	2.5
Total	40	100	40	100

Appendix IIIb (Continued) FOOD AND BEVERAGES – Kaduna and Zaria

Pricing Policy employed by Food and Beverage firms (Pricing Policy)				
Pricing Policy/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Market determined	21	52.5	6	15
Input cost based	0	0	2	5
Mark-up on cost and overhead	0	0	0	0
Arbitrary pricing	19	47.5	30	75
Location pricing	0	0	2	5
Others	0	0	0	0
Total	40	100	40	100
Reasons why most Food and Beverage firms do not have Research and Development (R&D) Unit				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Prohibitive set-up cost	10	25	0	0
Unit not necessary	18	45	30	75
Stringent government regulations	2	5	5	12.5
High cost of hiring experts	4	10	0	0
It is for the future	6	15	5	12.5
Total	40	100	40	100
Reasons why the operating environment of F and B firms does not enhance business confidence (Operating Environment)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Weak government business policies	0	0	0	0
Negative socio-cultural institutions	0	0	0	0
Insecurity/weak infrastructure/unionism	13	32.5	19	47.5
Slow pace of info-tech development	0	0	0	0
High cost of doing business	27	67.5	21	52.5
Total	40	100	40	100
Reasons why the cost of local Food and Beverage is higher (Efficiency of Production)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Poor and weak local infrastructure	19	47.5	0	0
Low capacity utilization	0	0	0	0
High factor/input cost	0	0	0	0
Slow pace of technology development	0	0	0	0
Lack of required technical skills	21	52.5	40	100
Total	40	100	40	100

Appendix IIIb (Continued) FOOD AND BEVERAGES – Kaduna and Zaria

Reasons for low rate of technological change and application by Food and Beverage firms (Technological change &App)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
High cost of acquisition of new tech	40	100	28	70
High cost of retraining personnel	0	0	6	15
Low demand for product/service	0	0	4	10
High cost of technical personnel	0	0	2	5
Others	0	0	0	0
Total	40	100	40	100
Reasons why some Food and Beverage firms are unable to maximize profit (Profit Maximization)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Low demand /sales	20	50	40	100
Competition from foreign firms	0	0	0	0
Low market share due to new entrants	16	40	0	0
Higher final consumer prices	0	0	0	0
Rising cost of production due to weak infrastructure	4	10	0	0
Total	40	100	40	100
Does unavailability of specialized skill labor impose a constraint on F&B firms? (Quality of labor Employed)				
Responses/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
YES	22	55	38	95
NO	18	45	2	5
Total	40	100	40	100

Appendix IIc Field Survey Report: ADVERTISING – Kaduna and Zaria

Major Source(s) of Electricity to Advertising Firms (Infrastructure)				
Sources/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
PHCN	13	32.5	15	37.5
Private Generator	21	67.5	25	62.5
Solar Energy	0	0	0	0
Other sources	6	0	0	0
Total	40	100	40	100
Availability of electricity from PHCN to Advertising Firms				
Hours/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
0-6 hours	40	100	40	100
7-12 hours	0	0	0	0
16-20 hours	0	0	0	0
24 hours	0	0	0	0
Others	0	0	0	0
Total	40	100	40	100
Frequency/constancy of Electricity supply by PHCN to Advertising Firms				
Frequency/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Daily	0	0	0	0
Weekly	0	0	0	0
Monthly	0	0	0	0
Not constant at all	40	100	40	100
Others	0	0	0	0
Total	40	100	40	100
Effects of Lack of Electricity on Advertising				
Effects/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
High cost of production	20	50	31	77.5
Higher Final Consumer price	4	10	0	0
Low/reduced profit	6	15	7	17.5
Low level of output	0	0	2	0
Poor quality of product/service	10	25	0	5
Total	40	100	40	100

Appendix IIc (Continued) ADVERTISING – Kaduna and Zaria

Sources of high cost of production to Advertising Firms (Cost of Production)				
Sources/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Electricity from private sources	22	55	22	55
Wages/salaries	10	25	12	30
Technical inputs	8	20	6	15
Taxes	0	0	0	0
Total	40	100	40	100
Impact of high cost of production on Advertising Business				
Impact/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Low capacity utilization	6	15	4	10
Inability to employ skilled labor	0	0	4	10
Poor quality of product/service	14	35	10	25
Low profit	20	50	22	55
Others	0	0	0	0
Total	40	100	40	100
Reasons why some Advertising firms have not introduced innovation and technology (Technology & Innovation)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
High cost of acquisition	28	70	40	100
Stringent government regulation	0	0	0	0
Unavailability of technology	10	25	0	0
Lack of operating skills	0	0	0	0
Others	2	5	0	0
Total	40	100	40	100
Areas in which Advertising firms have introduced innovations				
Areas/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Packaging	0	0	0	0
Quality control	20	50	40	100
Multifunction	0	0	0	0
Marketing	20	50	0	0
Others	0	0	0	0
Total	40	100	40	100

Appendix IIc (Continued) ADVERTISING – Kaduna and Zaria

How market structure influences Advertising firms' decisions (Market Structure)				
Area of influence/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Level of output	0	0	0	0
Technology and innovation use	0	0	0	0
Product Pricing	40	100	40	100
Input price	0	0	0	0
Others	0	0	0	0
Total	40	100	40	100
Reasons for non-standardization of some Advertising firms' product/service (Quality of Product/service)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Low level technology	0	0	12	30
Lack of research and development	0	0	4	10
Higher cost of producing quality product	30	75	16	40
Low patronage for high quality product	0	0	8	20
Low quality of available raw materials	10	25	0	0
Total	40	100	40	100
Reasons for poor growth in market share of Advertising firms' products/service (Market Share)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Many competing higher quality products	21	53.3	40	100
Availability of foreign brands in market	13	33.3	0	0
Inability to access other markets	0	0	0	0
Weak marketing outlet	6	13.3	0	0
Others	0	0	0	0
Total	40	100	40	100
Challenges to profit growth rate of Advertising firms (Profit Growth Rate)				
Challenges/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Rising cost of production	16	40	20	66.6
Low demand	0	0	0	0
Increase in new entrants	24	60	10	16.7
Substandard foreign product/service	0	0	10	16.7
Rising business taxes	0	0	0	0
Total	40	100	40	100

Appendix IIc (Continued) ADVERTISING – Kaduna and Zaria

Pricing Policy employed by Advertising firms (Pricing Policy)				
Pricing Policy/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Market determined	19	47.5	30	75
Input cost based	0	0	0	0
Mark-up on cost and overhead	0	0	0	0
Arbitrary pricing	21	52.5	10	25
Location pricing	0	0	0	0
Others	0	0	0	0
Total	40	100	40	100
Reasons why most Advertising firms do not have Research and Development (R&D) Unit				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Prohibitive set-up cost	34	85	21	52.5
Unit not necessary	0	0	11	27.5
Stringent government regulations	0	0	2	5
High cost of hiring experts	6	15	0	0
It is for the future	0	0	6	15
Total	40	100	40	100
Reasons why the operating environment of Advertising firms does not enhance business confidence (Operating Environment)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Weak government business policies	0	0	0	0
Negative socio-cultural institutions	0	0	0	0
Insecurity/weak infrastructure/unionism	40	100	37	92.5
Slow pace of info-tech development	0	0	0	0
High cost of doing business	0	0	3	7.5
Total	40	100	40	100
Reasons why the cost of local Advertising is higher (Efficiency of Production)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Poor and weak local infrastructure	40	100	40	100
Low capacity utilization	0	0	0	0
High factor/input cost	0	0	0	0
Slow pace of technology development	0	0	0	0
Lack of required technical skills	0	0	0	0
Total	40	100	40	100

Appendix IIc (Continued) ADVERTISING – Kaduna and Zaria

Reasons for low rate of technological change and application by Advertising firms (Technological change & App)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
High cost of acquisition of new tech	20	50	10	25
High cost of retraining personnel	8	20	4	10
Low demand for product/service	5	12.5	4	10
High cost of technical personnel	7	17.5	8	20
Others	0	0	14	35
Total	40	100	40	100
Reasons why some Advertising firms are unable to maximize profit (Profit Maximization)				
Reasons/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Low demand /sales	15	37.5	20	50
Competition from foreign firms	25	62.5	20	50
Low market share due to new entrants	0	0	0	0
Higher final consumer prices	0	0	0	0
Rising cost of production due to weak infrastructure	0	0	0	0
Total	40	100	40	100
Does unavailability of specialized skill labor impose a constraint on Advertising firms? (Quality of labor Employed)				
Responses/Study Area	Kaduna		Zaria	
	Frequency	Percentage (%)	Frequency	Percentage (%)
YES	39	97.5	38	95
NO	1	2.5	2	5
Total	40	100	40	100

Appendix IIIa: Results obtained from E-Views 4.0

CROSSTAB/CHI-SQUARE TESTS RESULTS FOR PROBIT REGRESSION: MANUFACTURING-KADUNA

BUSINESS COMPETITIVENESS*PROFIT GROWTH RATE

Crosstab

			Profit growth rate		Total
			No	Yes	No
Business Competitiveness	No	Count	1	14	15
		% within Business Competitiveness	6.7%	93.3%	100.0%
	Yes	Count	11	14	25
		% within Business Competitiveness	44.0%	56.0%	100.0%
Total	Count	12	28	40	
	% within Business Competitiveness	30.0%	70.0%	100.0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.222(b)	1	.013		
Continuity Correction(a)	4.571	1	.033		
Likelihood Ratio	7.225	1	.007		
Fisher's Exact Test				.015	.013
Linear-by-Linear Association	6.067	1	.014		
N of Valid Cases	40				

a Computed only for a 2x2 table

b 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.50.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.367	.013
N of Valid Cases		40	

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

Appendix IIIa (continued)

BUSINESS COMPETITIVENESS*NEW PRODUCT DEVELOPMENT (R&D)

Crosstab

			New product development (R&D)		Total
			No	Yes	No
Business Competitiveness	No	Count	14	1	15
		% within Business Competitiveness	93.3%	6.7%	100.0%
	Yes	Count	14	11	25
		% within Business Competitiveness	56.0%	44.0%	100.0%
Total	Count		28	12	40
	% within Business Competitiveness		70.0%	30.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.222(b)	1	.013		
Continuity Correction(a)	4.571	1	.033		
Likelihood Ratio	7.225	1	.007		
Fisher's Exact Test				.015	.013
Linear-by-Linear Association	6.067	1	.014		
N of Valid Cases	40				

a Computed only for a 2x2 table

b 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.50.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.367	.013
N of Valid Cases		40	

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

Appendix IIIa (continued)

BUSINESS COMPETITIVENESS*OUT SOURCING OF RAW MATERIALS

Crosstab

			Out sourcing of raw materials		Total
			No	Yes	No
Business Competitiveness	No	Count	2	13	15
		% within Business Competitiveness	13.3%	86.7%	100.0%
	Yes	Count	12	13	25
		% within Business Competitiveness	48.0%	52.0%	100.0%
Total		Count	14	26	40
		% within Business Competitiveness	35.0%	65.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.952(b)	1	.026		
Continuity Correction(a)	3.546	1	.060		
Likelihood Ratio	5.398	1	.020		
Fisher's Exact Test				.040	.027
Linear-by-Linear Association	4.829	1	.028		
N of Valid Cases	40				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.25.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.332	.026
N of Valid Cases		40	

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

Appendix IIIb: Results obtained from E-Views 4.0

CROSSTAB/CHI-SQUARE TESTS OF PROBIT REGRESSION RESULTS_FOOD AND BEVERAGES_ZARIA

Business Competitiveness*Out Sourcing of Raw Materials

Crosstab

			Out sourcing of raw materials		Total
			No	Yes	No
Business Competitiveness	No	Count	1	17	18
		% within Business Competitiveness	5.6%	94.4%	100.0%
	Yes	Count	7	15	22
		% within Business Competitiveness	31.8%	68.2%	100.0%
Total		Count	8	32	40
		% within Business Competitiveness	20.0%	80.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.268(b)	1	.039		
Continuity Correction(a)	2.784	1	.095		
Likelihood Ratio	4.786	1	.029		
Fisher's Exact Test				.054	.044
Linear-by-Linear Association	4.161	1	.041		
N of Valid Cases	40				

a Computed only for a 2x2 table

b 2 cells (50.0%) have expected count less than 5. The minimum expected count is 3.60.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.310	.039
N of Valid Cases		40	

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

Appendix IIIc: Results obtained from E-Views 4.0
CROSSTAB/CHI-SQUARE TESTS OF TOBIT REGRESSION RESULTS_FOOD AND BEVERAGES_ZARIA

Business Competitiveness * Profit Maximization

Crosstab

			Profit maximization		Total
			No	Yes	No
Business Competitiveness	No	Count	1	17	18
		% within Business Competitiveness	5.6%	94.4%	100.0%
	Yes	Count	7	15	22
		% within Business Competitiveness	31.8%	68.2%	100.0%
Total	Count	8	32	40	
	% within Business Competitiveness	20.0%	80.0%	100.0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.268(b)	1	.039		
Continuity Correction(a)	2.784	1	.095		
Likelihood Ratio	4.786	1	.029		
Fisher's Exact Test				.054	.044
Linear-by-Linear Association	4.161	1	.041		
N of Valid Cases	40				

a Computed only for a 2x2 table

b 2 cells (50.0%) have expected count less than 5. The minimum expected count is 3.60.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.310	.039
N of Valid Cases		40	

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

Appendix IV

QUESTIONNAIRE

Dear Respondent,

This questionnaire is specifically designed for research purposes only; in pursuant to the requirements for the award of MSc Degree in Economics, Ahmadu Bello University, Zaria-Nigeria. Your response shall be treated with utmost sense of responsibility, respect and the highest level of confidentiality. At your discretion, anonymity in terms of individual and institutional identity is guaranteed.

Please, your sincere response is highly solicited; while I thank you most sincerely for your valued co-operation.

BOLAJI, K. Eunice

(Student)

A. General Information (Please, tick as appropriate)

- a) Name of Business (optional) _____
- b) Sector/sub-sector _____
- c) Date of commencement of operation _____
- d) Type of ownership Sole proprietorship Partnership Limited liability PLC others (specify) _____
- e) Class of operation Multinational Indigenous/country based others (specify) _____

B. Key Infrastructure (Electricity)

- a) Which of the following is most important to your business?
Electricity Road Communication and Information others (specify) _____
- b) Is the selected infrastructure available in the form, amount, quantity and quality required by your business? Yes No
- c) If No, does this affect your business operations significantly? Yes No
- d) If Yes in (c) above, in what way(s) is your business affected? high cost of production higher final cost of product/service low/reduced profit low level of output low demand low quality of product/service
- e) Which of the following is the major source(s) of electricity to your business? PHCN private generator solar others (specify) _____
- f) Which of the sources above does your business prefer? _____
- g) Why does your business prefer it? cost efficiency uninterrupted supply full voltage

- h) What is the level/rate of electricity requirement for your business? 24 hour's 12 hour's when available others (specify) _____
- i) How many hours in a day do your business get electricity from PHCN? 0-6 hour's 7-12 hours above 12 hours others (specify) _____
- j) Is the supply constant for these hours through a daily, weekly or monthly period? daily weekly monthly not constant at all
- k) What is the estimated average cost of PHCN electricity to your business in a month? less than ₦45,000 ₦50,000 – ₦100,000 above ₦250,000 others (specify)_____
- l) When you use private source of electricity, how many hours do you use it in a day? less than 10 hours 12 hours – 15 hours 24hours and above
- m) What is the estimated average cost of using private source of electricity in a month? less than ₦100,000 ₦150,000 – ₦500,000 ₦750,000 – ₦1,000,000 above ₦1,000,000

C. Cost of Production

- a) Is your business' cost of production high? Yes No
- b) If Yes, what is/are the main source(s) of high cost of production to your business? electricity from private source wages/salaries technical inputs others (specify) _____
- c) How does the high cost of production selected in (b) above affect your business? lower capacity utilization inability to employ skilled labor poor quality of product/service others (specify) _____

D. Innovation and Technology

- a) Does your business require high level technology? Yes No
- b) If yes, have you been able to acquire the needed level of technology? Yes No
- c) Have you introduced any form of innovation recently? Yes No
- d) If No in (c) above, why? high cost of acquisition stringent government regulations unavailability of required technology others (specify) _____
- e) If Yes in (c) above, in which of the following areas did you introduce the innovation? packaging quality of product/service multifunction marketing others (specify) _____
- f) Is your mode of production capital intensive? Yes No
- g) Is the technology used in your business recent? Yes No

- h) If No, why has your business not deploy recent technology? high cost lack of operational skills stringent regulation

E. Market Structure

- a) Do you know and understand the market structure your business operates in? Yes No
- b) If Yes in (a) above, does the market structure influence/determine to your business decisions?
Yes No
- c) If Yes in (b) above, in which of the following way(s) does the market structure affect your business decisions? level of output price type of technology and innovation to be deployed others (specify) _____
- d) What type of market structure does your business operate in? Perfect market Oligopoly market Monopoly Monopolistic competition others (specify)_____

F. Quality of Product and Service

- a) Is the quality of your product/service standardized? Yes No
- b) If No in (a) above, what reason(s) would you adduce for it? low level technology lack of funds for research and development (R&D) high cost of producing higher quality product/service low patronage for higher quality product/service poor quality of available raw materials
- c) How would you rate the quality of your product compared to those imported high low moderate others (specify)_____

G. Market Share

- a) Does your business control a significant share of the market for your product/service?
Yes No
- b) If Yes in (a) above, is the market share growing? Yes No
- c) If Yes in (b), how would you rate the growth? high low
- d) If No in (b) above, why is the market share of your product/service not growing? too many higher quality product/service from competitors too many foreign brands in the market inability to access other market locations others (specify)_____
- e) Is the quality of your product the same as imported products in the market? Yes No

H. Profit Growth Rate

- a) Does your business make profit? Yes No
- b) Does your business experience steady profit growth rate? Yes No

- c) If No in (a), what do you think is responsible? rising cost of production low demand
increase in new entrants flooding the market with substandard foreign products/services rising business taxes others (specify)_____

I. Pricing Policy

- a) Does your business have a formal pricing policy? Yes No
- b) If No in (a), why? indeterminate nature of the market short term fluctuations in different Market locations different situations in different markets others (specify) _____
- c) If Yes in (a), what pricing policy does your business employ? market determined input cost based mark-up on cost and overhead arbitrary pricing others (specify)_____

J. New Product Development (R&D)

- a) Does your business have product /service research and development unit? Yes No
- b) If No in (a), why? prohibitive set-up cost unit not necessary stringent government regulations lack of experts to man the unit high cost of hiring experts it is for the future others (specify)_____
- c) If Yes in (a) above, has Research and Development in your business led to the development of new products/services? Yes No

K. Out-Sourcing of Raw Materials

- a) Do you use local raw materials only? Yes No
- b) Are there foreign input contents in the raw materials used by your business? Yes No
- c) Is it cheaper to import raw materials for your product or service? Yes No

L. Operating Environment

- a) Does the operating environment enhance your business confidence? Yes No
- b) If No in (a), which of the following is responsible? weak government business policies strong socio-cultural institutions with strong negative market influence insecurity inhibitive trade union activities poor customer response to market changes weak infrastructure such as electricity slow pace of information tech development high cost of doing business others (specify) _____

M. Efficiency of Production

- a) Is it cheaper to produce your product/service locally when compared to other business environments? Yes No

- b) If No in (a) above, why? poor public infrastructure like electricity escalating cost of private source of infrastructure low capacity utilization high factor/ input cost unavailability of required skilled labor slow pace of technology development

N. Rate of Technological Change and Application

- a) Does your business/firm require frequent change/update in technology used? Yes No
- b) If Yes in (a) above, have you been able to meet the required pace of change in technology?
Yes No
- c) If No in (b) above, why? prohibitive cost of acquiring the new technology high cost of retraining low demand for product/service others (specify) _____

O. Profit Maximization

- a) Has your business been able to maximize profit since you started operation? Yes No
- b) If Yes in (a) above, is profit maximization a yearly experience? Yes No
- c) If No in (b) above, what was responsible for your business' inability to maximize profit?
poor sales persistently low demand intense competition from foreign products/service higher taxes persistently rising cost of production due to weak infrastructure such as electricity shrinking market share due to new entrants higher final consumer prices of product/service others (specify)_____

P. Quality of Labor Employed

- a) Does the labor requirement by your business include specialized skills? Yes No
- b) If Yes in (a) above, are such specialized skills easily available? Yes No
- c) If Yes in (b) above, does the wage/salary bill determine the number of skilled labor employed by your business? Yes No
- d) If No in (b) above, does the unavailability of specialized skills impose a constraint on the quality and quantity of your product/service? Yes No

Eunice, 2014