PERFORMANCE EVALUATION OF PALM KERNEL MARKETING IN ONDO STATE, NIGERIA

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CERTIFICATION

I hereby certify that this project work was carried out by ADEGBULE, DEBORAH AYOKANMI with matriculation number AEE/93/4361 in the Department of Agricultural Economics and Extension, Federal University of Technology, Akure, Ondo State, Nigeria.

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30/3/2011
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DEDICATION

This project work is dedicated to the Almighty God who made it possible for me to begin and also conclude this programme. All glory be to His Holy name.

ACKNOWLEDGEMENT

"O that men will praise the Lord for His goodness and for His wonderful works to the children of men!" I am very grateful to the Almighty God who has made it possible for me to conclude this programme. Despite circumstances that were not pleasant that surrounded me, yet the Lord saw me through. All praises be to His Holy name.

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you are ever fresh on my mind and can not be forgotten. I hope to see you one day on the resurrection morn. Thank you very much Mummy.

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Adegbule, Deborah Ayokanmi.

ABSTRACT

This study examined the Performance of Palm Kernel marketing in Ondo state, Nigeria. Two Local Government Areas, Okitipupa and Irele were purposively selected in the state with well structured questionnaire distributed randomly to 100 respondents in the study area. The data collected from the questionnaire were analysed using descriptive statistics for the socio-economic characteristics. Net Profit Analysis and profitability ratio were used to determine the profitability of the business. Gini coefficient and its adaptation of Lorenz curve and the concentration ratio were used to determine the structure of the palm kernel market. Multiple Regression analysis was used to measure the influence of specific variables on the quantity of the palm kernel marketed and the extent to which they significantly determine the quantity (cracked kernel).

From the analysis, socio-economic characteristics indicated that 73% of the marketers were males while 27% were females. In terms of age, 76% were within the economically active age. This could be as a result of the drudgery of the processes involved in the business.

The high Gini Coefficient result of 0.6806 indicates that there is a high degree of inequality in total sales distribution among the respondents which is a reflection of inefficiency of the palm kernel market structure.

Concentration ratio, CR_5 which is 44% indicated that only five (5) out of 100 marketers were controlling 44% of the market. With other characteristics like

few buyers and sellers, no free entry except through joining association, huge capital involvement make the palm kernel business to be oligopolistic in nature.

From the Net Profit analysis, palm kernel marketing was found to be profitable in the study area with mean profit of ₦746,534.80 per annum. The result of the regression analysis showed that R^2 of 0.968 indicated that about 96.8% variation in the output of palm kernel marketers were explained by the included eight variables of the model. The quantity of processed/ cracked kernel marketed will increase with increase in labour, cost of cracking, tonnes of uncracked kernel purchased, transportation and operational expenses.

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CHAPTER ONE

1.0 Introduction

1.1 Overview of Nigerian Agricultural Sector

Before independence, Nigeria's economy was largely sustained through export trade in agricultural commodities such as cocoa, groundnut, rubber, cotton, palm oil and palm kernel, and so on which accounted for over 60 percent of Nigeria's export earnings. Agriculture as a sector accounted for the largest proportion of the nation's Gross Domestic Product (GDP). In the period 1960-69, agricultural output accounted for 59 percent of GDP. GDP per capita then expanded by 132% (Wikipedia, 2008). During this period, the share of food import in total import was low being 9.6 percent.

However, from 1970 the situation changed. There was extensive exploration, production and exportation of petroleum and its products in Nigeria leading to the relegation of agricultural sector. Its contribution to the GDP declined drastically. It dropped from 59 percent in 1960-1969 period to 33 percent in the 1970-74 period and to 30 percent in the 1975-79 period. It rose to 41.9 percent in the 1986-88 period and since then has been recording marginal but unsteady increase in output. The GDP per capita also, which has its peak growth of 283% in the 1970s was not sustained as it shrank by 66% in the 1980s. (Wikipedia, 2008).

In terms of proportion of total exports, the contribution of agricultural sector dropped from 53 percent in 1960-69 to 10.61 percent in 1970-74, 5.7 percent in 1975-79, and 1.6 percent in 1998-2000. It rose up to 5.3 percent in 2001-2003 (see Table 1).

Table 1: Nigeria's Oil and Non Oil Exports (1960- 2006)

Year	Total Export(₦ m)	Agric export(₦ m)	Proportion of oil export to total export	Agric export % total export	Agric % total GDP
1960-69	1219.2	613.1	31.0	52.8	58.8
1970-74	2237.2	581.7	88.5	26.0	33.2
1975-79	7242.3	412.8	93.3	5.7	30.2
1980-82	9082.0	179.3	97.0	2.0	33.8
1983-85	95373.0	242.0	96.0	2.5	38.6
1986-88	20849.5	942.1	93.0	4.5	41.9
1989-91	36463.8	1555.2	89.2	4.3	39.4
1992-94	210157.3	3437.0	97.7	1.6	38.1
1995-97	1131233.0	16766.2	98.0	1.5	39.1
1998-00	1060841.7	16973.4	97.2	1.6	40.8
2001-03	2809158.9	139167.1	89.2	5.3	40.6
2004-06	5465166.5	38059.3	98.1	1.4	41.1

Source: 1. CBN Statistical Bulletin Vol. 5 No.1 2000

2. CBN Annual Report and statement of Account 2004, 2005, 2006

In order to bring about a positive change in the performance of the agricultural sector, Nigeria is currently preoccupied with the challenges of diversifying the structure of her economy. Over the years, there have been

different agricultural policies targeted at boosting agricultural production through the adoption of appropriate technological innovations and reviving export trade through improved practices in food production and marketing. In the 1990s, diversification initiatives took effect. The overall agricultural production rose by 28% and the decade's GDP per capita growth was restored to 10%. Today, per capita GDP remains lower than in the 1960s due to inflation. About 57% of the population live on less than US 1Dollar per day. Naira depreciation amounted to over 30% between December 2008 and January 2009. This subsequently led to increased inflation (Bank introduction, 2008).

1.2 Palm Kernel Production in Nigerian Economy

Palm kernels are obtained from the fruits of oil palm trees (Elaeis guineensis). Oil palm is an economic crop and from the earliest times, its products have played a very important role in the socio-economic and political life of the people of Nigeria. Oil palm needs an even temperature of between 24^0C and 28^0C; a reason why the cultivation is limited to the wet tropics about 10^0C north and south of the equator and below altitudes of 50 metres above sea level. Favourable conditions are annual rainfall of 1500 to 3000mm with dry seasons not exceeding three months.

Apart from tropical West Africa, oil palms are mainly cultivated in South East Asia and as a later development in Central and South America. Due to the

introduction of new varieties, world production of oil palm fruit has greatly multiplied in the past three decades. Major producing countries of palm kernels are Malaysia, Nigeria and Brazil. The world market for palm oil is dominated by Malaysia, Singapore and Indonesia, which have taken a market share of over 90%; Africa as a whole only contributes 2%. (Palm Oil Situationer Report, 2005).

Oil palm trees are found in wild groves, semi wild groves and in cultivated state in Nigeria. Oil palm groves supporting the greatest population of oil palm trees are found in the rainforest belt and the southern part of the derived savannah. However, population densities of the trees vary from grove to grove.

Oil palm produces two distinct vegetable oils: palm oil derived from the fleshy mesocarp of the fruit and palm kernel oil from the endosperm (kernel). The kernel oil is liquid at room temperature and is colourless or light yellow in colour.

Like coconut oil, palm kernel oil is used in hard water soaps and in the manufacture of glycerine, shampoos and candles. The better grades are used in the manufacture of margarine. The stearine fraction of palm kernel oil is used in confectionery and ice cream industries, especially as a substitute for cocoa butter and the olein fraction may be used in biscuits and cakes. The cake remaining after the extraction of the palm kernel oil contains about 19 percent protein. It is

used as animal feed referred to as palm kernel cake. The kernel shell is also useful as fuel.

At the early stages of Nigeria's economic growth, the contribution of the Nigeria oil palm industry was quite significant. During the first decade of the twentieth century, that is, 1900- 1910, palm oil and palm kernel contributed over 80 percent of the total domestic export earning (Table 2). This contribution however declined to 54.5 percent in the period 1914-1918 and to less than 20 percent during the 1955-1966 period mainly as a result of the appearance of crude petroleum in Nigeria's economic scene. This downward trend persisted until 1990 when the oil palm industry started recording marginal but unsteady increase in output. From 1,190,000 metric tonnes of palm kernel in 1990 to 1,321,000 metric tonnes in 1992. A sharp fall was recorded in 1993 when the output of palm kernel dropped to 491,000mt. It rose slightly to 600,000mt in 1999, and up to 922,000mt in 2006.

Table 2: Trends in Palm Oil and Palm kernel output in Nigeria, 1970- 2006

Year	Palm Oil ('000 mt)	Palm kernel('000mt)
1970-74	452.5	286.6
1975-80	597.1	285.7
1981-85	539.0	316.6
1986-89	581.5	509.5
1990	730	1190.0
1991	760	1203
1992	792	1321
1993	825	491
1994	837	503
1995	687	543
1996	776	548
1997	780	550
1998	792	572
1999	829	600
2000	860	629
2001	980	725
2002	988	735
2003	1018	788
2004	1204	836
2005	1264	878
2006	1327	922

Source:
1. CBN Statistical Bulletin, Vol.5 No. 1, 2000
2. CBN Economic Report 2004
3. FOS Trade Summary (Various Issues)

1.4 Problem Statement

Oil palm is mainly planted for the purpose of getting palm oil. Many farmers regard the palm kernel, which is the focus of this study as a secondary product. Hence, they take proper care of the palm oil than they do of palm kernel. Once the palm oil is obtained these farmers at times use the palm kernel as fuel in their kitchen. This definitely affects the amount of kernels available for sale at the market.

To get an accurate record of bags of kernel obtained from a harvest is not easy. This is because of the low level of importance attached to the product by these farmers. Hardly can accurate record of bags of kernel obtained from a harvest be found with any farmer. After the extraction of the palm oil, the kernel nuts with the fibres are just dumped at the back of the oil palm depots. Since the commodity is useful and needed as raw materials for certain industries, also since it contributes to Nigeria's non-oil exports, there is the need to ensure it is always available. Alongside this is the need for efficient and well –organized marketing system to stimulate and sustain palm kernel production in Nigeria.

1.5 Objective of the study

The general objective of this study is to carry out a performance evaluation of the marketing activities of palm kernel and associated problems in the study area. The specific objectives are to:

1. examine the socio-economic characteristics of palm kernel marketers in the study area;
2. investigate the conduct, structure and performance of palm kernel market in the study area;
3. determine the profitability of palm kernel business in the study area;
4 examine the influence of specific variables on the level of output of palm kernel marketers in the study area; and
5 investigate the factors militating against palm kernel marketing in the study area.

1.6 Justification for the study

The study area is in the rain forest ecological zone of Nigeria where the climatic factors are favourable to oil palm growth. Oil palm is widely grown in the study area. Okitipupa Oil palm Plc and Ore –Irele Oil Palm have large plantation estates. There are also many private oil palm plantations in the study area, hence palm kernel marketing. Many researchers have done a lot of work on the palm oil aspect of oil palm but enough has not been done on palm kernel. It is therefore imperative to examine those factors that affect palm kernel marketing in the study area.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Markets and Marketing Concept

The term "Market" may refer to the medium through which buying and selling take place. A Market is a point of contact, place or any means of communication whereby sellers and buyers can communicate with one another, to exchange goods and services at prices determined by the market forces. According to Agunbiade (2005), market exists whenever buyers and sellers can be in touch with one another. He explained that buyers and sellers may not necessarily meet face to face before a market exists. Once contact can be made through telephone or letter and negotiation is done, market is established. The goods to be sold must exist, there must be sellers and buyers and both must agree on a price.

Markets can be grouped on the basis of the type of commodities purchased and sold: money market, capital markets, consumer goods market, primary products market, factor market, foreign exchange market, labour market and stock exchange market. Markets could also be grouped on the basis of the channel of movement of finished products from the producers to consumers: wholesale market, retail market.

Marketing on the other hand is concerned with all stages of operation which aid the movement of commodities from the farms to the consumers. It is the sum total of all business activities involved in the movement of commodities

from production to consumption. It is really a method of bringing the impersonal forces of demand and supply together, irrespective of the location of the markets (moudu,1998). Kotler (1993) said marketing is a social and managerial process by which individuals and groups obtain what they need and want through creating, offering and exchanging products of value with others. This definition is in line with that of Olufokunbi and Ndibe (1983) who viewed marketing as human activity directed at satisfying needs and wants through exchange processes while also aspiring to achieve the marketer's objective.

According to Crawford (1997), marketing is the integrative force that matches production to consumer needs and satisfaction He explained that marketing is not an activity to which an organization turns its attention at the end of the production operations. Rather, marketing needs to be directing production in accordance with clear signals from the market place as what is needed by customers.

According to Olufokunbi and Utimakili (1982), the definition that is most succinct and all embracing is the one given by the British Institute of Marketing which runs thus:

"Marketing is the business management process for anticipating, identifying and satisfying customer requirements profitably".

From the definition, it can be inferred that

a marketing concerns itself with a clear definition of business objectives for example profitability, market share, quality prospect, corporate image, and so on;

b A clear definition of the company's suppliers and customers;

c Proactive and consistent anticipation of customer's needs, wants, perception and preferences through organized effort; and

d Continuously sourcing or designing need satisfying products that are appropriately priced and distributed.

One of the major themes that run through the definitions is that marketing philosophy regards the customer as the king and the main focus in the entire business processes. The definitions equally emphasize on balancing company prospects and customer satisfaction. Also the definitions underline the essence of continuous planning, environmental scanning and adaptation.

All of the above are contained in the four ingredients of marketing usually referred to as marketing mix which are identified as the four Ps in marketing viz product, price, promotion and place.

Generally, in all countries, the pace of economic development is quickened as marketing activities increase (Ojo and Imoudu, 2000) The more the goods available for marketing, the more the people employed in their production and hence the higher the increase in employment, this will invariably lead to a rise in the standard of living which will consequently add to the wealth of the

community (Adegeye and Dittoh, 1985). The existence of a market is fundamental for increased output thus marketing stimulates the organization of its distribution in such a way to ensure the full exploitation of consumer demand.

2.2 Concept of Marketing Functions

The nature of agriculture significantly influences the organization of the food marketing system and the complexity of food marketing process. (Kohl and Uhl, 1985). A market function is defined as a major specialized activity performed in accomplishing the marketing process.

Downey and Steven (1987) explained that marketing functions are not necessarily carried out in a fixed order, but they must be accomplished. They identified three major types of marketing functions: exchange functions, physical functions and facilitating functions.

Exchange functions involve those activities that are concerned with the transfer of ownership in the marketing system. Demand and supply analysis has direct application to this area, as prices are determined when buyers and sellers meet to exchange commodities. Exchange functions are basically made up of buying and selling functions.

The physical functions are those activities that involve handling, movement and physical change of the actual commodity itself. They are involved in solving the problem of when, what and where in marketing. Storage,

transportation and processing functions make up the physical functions performed in a marketing system.

The facilitating functions include product grading, standardization, financing, risk bearing and market intelligence. Facilitating functions are those activities that enable the exchange process to take place, although they are not direct part of either the exchange of title or the physical movement of produce. According to Kohls and Uhl (1985) facilitating functions make the smooth performance of the exchange and physical functions possible and without them the modern marketing system would not be possible.

Marketing functions can thus be seen as the essential link between producers and consumers in two very different and yet simultaneous and connected ways. First, the marketing agents link producers and consumers physically, by actually buying, storing, transporting, processing, and selling commodities. Simultaneously, exchange of commodities is taking place, open or implicit signals are being generated and transmitted to the active economic agents in the food system influencing their production and consumption decision.(Agunbiade 2005).

2.3 Market Structure, Conduct and Performance

Market structure refers to the set up of a market. It refers to the composition of the market in terms of number of buyers and sellers. Hariss (1993) explained market structure as consisting of the characteristics of the

organization of a market, which seem to influence strategically, the nature of competition and pricing within the market. Adegeye and Ditttoh (1985) also referred to market structure as certain characteristics of the market which are believed to influence its nature of competition and the process of price formation. These characteristics include:

I Size and number of buyers and sellers ensuring an adequate intensity of price and quality competition.

Ii Freedom of entry and exit

Iii Adequate size of sellers so as to encourage increased investment.

Kotler (1990) used three theoretical market models in analyzing market structure. These include:

(i) Perfectly competitive market

(ii) Monopolistic market

(iii) Oligopolistic market

The structure of a market is an important indicator of the conduct and economic performance of the market.

Market conduct refers to the way the participants behave when they are trying to adapt to market situation as regards pricing mechanism, price collusion and discrimination in the market. Adegeye and Dittoh (1985) explained that market conduct refer to certain behaviours of forms in the market, such as pricing practices which encourages grading and standardization of agricultural

commodities; and uniformity of market charges. It also includes pricing practices free of collusion and exclusionary tactics as well as black marketing, and pricing policies which encourages product quality improvement and greater consumer satisfaction.

The sole aim of marketing is found on the successful movement of produce from point of production to the ultimate consumer putting into consideration time, price and quality.

Adekanye (1988) described market performance as a measure of how the market process operates and how its aims are accomplished. According to him, using the criterion of perfect competition as the standard for assessing the performance of the Nigerian food marketing system, it was observed that the food market is imperfect, both in operational and pricing terms. This was particularly so because of the small size of operation, lack of integration, imperfect knowledge, lack of standardized grades and collusive tendencies among others. This point was further buttressed by Imoudu and Afolabi (2002) by saying that market for most agricultural products could be said to be near perfect competition because there are many buyers and sellers and there is relatively free entry and exit from the market. There are however some collusive tendencies on the part of the sellers.

2.4 Marketing Margins.

According to Agunbiade (2005) marketing margin represents the difference in price paid to the first seller and that paid by the final buyer. Every category of middleman earns a sort of margin for the duties performed in the marketing channel. Since many marketing costs like transportation, wages, and so on tend to be fixed, marketing margins tend to be more stable than prices. This inflexibility of the margin causes retail prices to fluctuate by the farm prices. The size of the margin is sometimes influenced by the degree of processing of the commodity in question, its bulk and unit value and perishability. Marketing margins are moreover mostly governed by the demand for, supply of marketing services.

There are three major ways of measuring the marketing margin in monetary terms. Firstly, one can take a lorry load of yams from a given rural market and then trace what happens to it through the marketing system. But it is essential that the procedure followed is representative of the selling procedure for yams.

Secondly, the volume of total trade carried out can be recorded and gross margin obtained by dividing money sales minus money purchases by the volume handled. Margins from each intermediate stage can then be added together to obtain overall margin.

Thirdly, prices can be compared at the different levels of marketing. This however depends on the availability of representative and comparable series of prices at each level.

Marketing margin can be expressed either in cash or as a percentage of the retail cost. Margins indicate the relative cost of marketing at a particular time. In trying to reduce marketing costs it is usual to look carefully at the magnitude of the marketing margins.

2.5 Marketing Efficiency

According to Agunbiade (2005) Marketing efficiency is a concept that is usually defined to suit one's own conception of the market. To the farmer, marketing efficiency may mean selling his produce at the highest price. To the consumer it may mean getting his commodities at the lowest price. But if farmers' prices are too high, this will limit consumer purchases, which will in turn affect the farmers' future production. As a result, marketing efficiency can be defined as the movement of crops and livestock from producers to consumers at the lowest cost consistent with the provision of the services consumers desire.(Agunbiade, 2005)

Marketing efficiency is indeed the common goal of producers, marketers and society. Necessary changes in the marketing units must start for improved efficiency. (Adekanye, 1988)

2.6 Issues in Agricultural Marketing in Nigeria

2.6.1 The Marketing Board System In Nigeria

After the end of the Second World War, four commodity boards were established to handle the country's main agricultural exports. Thus the Cocoa Marketing Board was established in 1947, while the Palm Produce Marketing Board, the Groundnut Marketing Board and the Cotton Marketing Board were established in 1949. Each Board operating in a country-wide basis was expected to secure the most favourable arrangement for the purchase and marketing of Nigeria produce and to assist in the development (by all means possible) of the agricultural industry in Nigeria for the benefit and prosperity of producers. A private limited company, the Nigerian Produce Marketing Company Limited. (N.P.M.C.) was incorporated in England in 1947 to serve as the overseas selling organization of the four commodity boards.

Since the boards were empowered to fix the price to be paid to the producer of the crops they handle, it was possible for them to deliberately fix prices that would be much lower than the proceeds to be expected from the sale of commodities, thereby leaving the boards with surpluses on the transactions.

With the creation of states in 1967, some states established their own marketing boards in addition to the existing ones. That meant that there could be twelve marketing boards. The high administrative expenses that would result from such a proliferation of boards necessitated a change of the system by the

Federal Government in 1973. The Federal Government took over the responsibility of purchasing and selling produce through the Nigeria Produce Marketing Company Limited (N.P.M.C.) which was transformed into a Federal Government Company. The company in turn now employed the state marketing boards as its agent and middlemen. The price the farmer would receive was fixed by the Head of State who became the Price Fixing Authority (PFA). This PFA was assisted in the price fixing exercise by a 19-Man Technical Committee on Produce Price (TCPP) made up of representatives from the Federal Ministries of Finance, Economic Development, Trade, Industries, Agriculture, the Central Bank of Nigeria, the Nigerian Produce Marketing Company and one representative from each state government with the marketing boards attending as their advisers.

The boards obtained funds for their marketing operation from the Nigeria Produce Marketing company which in turn borrowed from Central Bank of Nigeria for the purpose, in the same way as the boards used to borrow from the Bank earlier. For acting as agents of N.P.M.C., the boards were granted allowance calculated at rate per tonne of produce handled. Such commissions were intended to cover handling expenses for licensed buying agents (LBCS), transportation and other expenses.

In spite of the government's desire to have enhanced producers prices paid to the farmers, government soon found that this objective was not being met. This

was because the boards kept asking for increase in allowance which created a large deficit between the cost of purchase and the expected proceeds to be realized from the sale. Again there was still the possibility of new boards emerging from the new states and exacerbating the situation through high administrative costs and reduced producer prices.

An assessment of this situation led government to revert to the commodity board system in 1977. Thus, the state marketing boards were abolished and seven national commodity boards were established in their place. The names of the boards and the crops they handled were:

a. The Nigerian Cocoa Board ----- -------cocoa, coffee, tea.

b The Nigerian Groundnut board ---------Groundnut, soyabeans, beniseed, sheanuts, ginger.

c The Nigerian Cotton board ----------Cotton and kenaf

d The Nigerian Palm Produce Board----------Palm produce and copra

e The Nigerian Rubber Board ---------- Rubber

f The Nigeria Grains Board ----------Guinea corn, millet, maize, wheat, rice and cowpea

g The Nigerian Tuber and root crop board-----yam

The functions of each board were clearly spelt out in the laws establishing them and such specific functions included:

a the purchase and sale of the commodities

b ensuring high produce standards

c promoting the rehabilitation of producing area and input supplies, etc to producers.

d supporting and establishing the price of the relevant commodity.

e fixing and controlling the allowances to be paid to licensed agents for the relevant commodity.

f to advise the minister charged with the responsibility for external trade with regards to standards and grades of the relevant commodity to be exported.

2.6.2 An assessment of the Performance of the Commodity Boards.

The Federal Government reformed the marketing boards in 1977 " with a view to increasing producer prices, producer incomes and the level of output" in order " to guarantee adequate returns to farmers and ensure reasonable prices to consumers..." (Nigeria Third National Development Plan, 1975-80) But available evidence or producer prices did not suggest that these objectives were met. The common characteristics of producer price levels from the inception of the commodity boards in 1977 were generally lower than the local market prices of scheduled commodities. (Njoku, 1981) The effect of this setting on producers

was more or less counterproductive. Hence, with other points showing the demerits of the boards system, the boards ceased to exist in 1986.

2.6.3 Problems of Agricultural Marketing in Nigeria.

Marketing system for food and livestock in developing countries of which Nigeria is one is characterized by some problems. These problems include the following:

1. The nature of the source of supply. A higher percentage of our farmers are small scale farmers, hence their commodities are produced on small-sized farms scattered throughout the country. It is not an easy task organizing how the goods can be assembled for efficient marketing. Moreover, there are many varieties of particular crops such as yam and this poses problems of pricing.

2 Lack of transport facilities. There are many dimensions to this problem. In some cases there are insufficient vehicles to carry goods from the farms to the rural markets and from the rural markets to the towns. In other cases, transport accounts for a large proportion of marketing costs. In some instances, there are no roads or where they exist, they might be seasonal. Feeder roads are usually few and in most cases, have to be constructed and maintained by communal efforts.

3 Lack of efficient handling, packaging and processing facilities. Particularly for perishable crops like tomatoes, lack of efficient processing and packaging facilities implies that the harvested crop must be sold within a given time.

4 Inadequate storage and warehousing facilities. Most markets lack storage and warehousing facilities. The effect of this is that there will be wastage which leads to increasing cost of marketing and hence higher retail prices.

5 Lack of uniform weights and measures. In most markets, different types are used. These range from bags, derica tins, to cigarette tins. Weights are rarely used in marketing food and livestock products. Pricing is usually by haggling and price paid depend on the bargaining power of the buyers. Sometimes buyers pay prices according to their assumed social status. When weights are used, they are usually debased or tampered with.

6 Adulteration of produce. In some cases inferior commodities are mixed with superior ones and are sold as superior commodities. This is possible since there are no grades and no quality control measures.

7 Instability of prices. There is too much seasonal variation in prices due mainly to lack of storage facilities and insufficient supply.

8 Inadequate research on marketing. Until recently, all efforts have been geared towards producing more without thinking about how to market them. There is need to know about new technologies in food storage and preservation.

There is also need for research on consumer demands and preferences, handling and packaging.

9 Lack of information about production and marketing. For instance, sellers may not be able to identify sources of supply of commodities, while producers may curtail their production as a result of poor sales. Some broiler producers, for instance, keep their birds for longer periods because they can not get people to buy them. On the other hand buyers may not know that such broiler farms exist. There must therefore be an information system where buyers and seller can be aware of each other's problems.

2.6.4. Possibility of boosting Nigerian Economy through Palm Produce

According to 'The Nigeria Tribune' 4th March, 2007, before the advent of crude oil, the Eastern government had palm produce as its main economic stay in addition to cashew production. The economic fortunes realized from palm produce stimulated the government then to embark on oil palm plantations and bumper yields were realized. Then the government of Eastern Nigeria under the leadership of Dr Michael Okpara and Dr Akanu Ibiam established palm plantations. The foreign exchange realized was so enormous that the then Governor- General of Nigeria Dr Nnamdi Azikiwe was able to establish the first indigenous University of Nigeria, Nsukka(UNN). The palm oil obtained from it,

the oil from the kernel also apart from other by products from it earned huge foreign earnings to the government of Nigeria. (Nigerian Tribune, 2007).

However, since the discovery of crude oil in Nigeria, the Eastern governments shifted their attention from palm produce to concentrate on Federal allocation which is a windfall from petroleum production. A lot of palm plantations in the East are being cleared by the government and replaced with buildings. According to the write up, since the oil wells can dry up as evidenced by the Oloibiri well in Bayelsa state which is already dried up, Nigerian economy should rest on a better sector than crude oil. Long after the crude oil must have been expended in the nearest future, the palm trees are sure to be there, providing Nigeria with revenue and also serve for internal consumption. In order to have a solid economic base in palm produce, Nigerian government should embark on aggressive establishment of palm plantations. (Nigerian Tribune, 2007).

2.6.5. Government efforts on Marketing of Agricultural Products

Various efforts have been made and are still being made by the Nigerian government to save her economy. Having realized the negative effects of the discovery of petroleum on agriculture, particularly on the drastic drop in its contribution to the country's GDP, the Alhaji Umar Musa Yar Adua led government evolved a 7-point agenda aimed at guaranteeing a better life for all

Nigerians. A key aspect of the agenda is the attainment and sustenance of food sufficiency and security for all citizens.

The National Food Security Programme (NFSP) developed by the Federal Ministry of Agriculture and Water Resources, is designed to ensure sustainable access, availability and affordability of quality food to all Nigerians, and is targeted at making Nigeria a significant exporter of agricultural commodities.

As contained in the agenda, government's intention in the short run is to improve production in all aspects of agriculture. By 2011, the target is to significantly boost productivity, attain large scale production while also improving storage, processing and marketing infrastructure to achieve sustainable food stability.

In the long run on the other hand, its plan is to derive over 50% of the nation's foreign exchange through agricultural exports. The country realized over N50.6 billion (S341.8 million) from export of agricultural produce of which palm kernel cake contributed a significant share in 2008. This is N2.9 billion higher than the N47.7 billion realized in 2007. (CBN, 2008).

Apart from government efforts, some other private sectors recently have contributed to agriculture. The banking sector particularly through Agricultural Credit Guarantee Scheme Fund (ACGSF) has contributed by granting loans into the agricultural sector. Between 2005 and 2009 loans granted by banks reached N18, 992.408 million. (Olowa, 2009). Most of the loans were used for food

crops. Specifically N15,462.331 million or 81.4% went to food crops, livestock farming accounted for N2,238.581 million, fisheries reached N789,975 while N363,460 went into cash crops. (Business day 2009).

Furthermore, the global financial meltdown is one of the major instruments that have turned the attention of the high and mighty in the banking industry to the downtrodden of the agricultural sector. Banks that took up this idea are First Bank PLC in its First Bank Agriculture, followed by the United Bank for Africa (UBA) making a resounding N50 billion stake towards agricultural financing. This initiative called 'The Agricultural Support Scheme' is one of the largest private sector initiatives to support agricultural development in Nigeria. The fund is targeted towards all segments of the agricultural chain from small and medium scale farmer to large industrial projects. (Olowa, 2009).

Beautiful as these policies may appear, there is the fear that they may experience what other policies before now have experienced. Agricultural policies in Nigeria have been characterized by lots of inconsistencies. Lack of continuity in their implementation particularly the good ones has caused a lot of havoc to the Nigerian International trade arrangements. Hence, full realization of the benefits of International trade has not been achievable in Nigeria.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 The Study Area

The study was carried out in Ondo State, Nigeria. The state is situated in the South Western geographical region of Nigeria. Ondo state is bounded by Ogun state to the West, Ekiti and Kogi states to the North, Edo and Delta states to the East and the Atlantic Ocean to the south. It is located within longitude $4^{0}3^{1}$ and 6^{0} East of the Greenwich Meridian and latitude $5^{0}45^{1}$and 8^{0} 15^{1} North of the Equator.

This study focused on the southern part of the state-Okitipupa Local Government Area and Irele Local Government Area. The major occupation of the inhabitants in the study area is farming. There is substantial production of tree crop produce such as cocoa, kola nut and oil palm in the study area. Oil palm plantations are found in the study area, both privately owned and state-owned. There are palm kernel-cracking units all over the area. Palm produce activities thrive and flourish.

3.2 Data sources and collection

Primary data were used for this study which were collected using a well- structured questionnaire, administered by random sampling method among the palm kernel marketers in the study area.

Data collected include sales revenue from palm kernel, cost of transportation, cost of storage, cost of cracking and operating expenses. Also information was collected on socio-economic characteristics of the marketers such as age, marketing experience, household size, marital status, source of credit and loan utilization.

3.3 Sampling Procedure:

The target population for this study was palm kernel marketers in Okitipupa and Irele local government areas of Ondo state A multi-stage sampling technique was adopted for this study. Purposive sampling technique was used in the selection of the two LGAs because they are mainly the largest producers of palm kernel in the state (Field Survey, 2007). The cracking and processing of kernel nuts is done mainly at the LGA headquarters, that is, Irele and Okitipupa respectively. Those marketers at the villages/communities transport their kernels to the headquarters for cracking hence the choice of the two towns as the target communities. Sixty (60) respondents were randomly selected from Okitipupa LGA and forty (40) respondents were selected from Irele LGA. A total of 100 respondents were thus sampled for the study. This was because from observation, Okitipupa has a higher population of marketers than Irele.

3.4 Methods of Data Analysis

Descriptive statistics

These include frequency distribution, minimum, maximum, means, standard deviation and percentage were used to analyze the socio-economic characteristics of the respondents.

Net Profit per output analysis

This was used to determine the profitability of palm kernel marketing. The Net Profit (π) was determined using this relationship.

$$\pi = TR - TC$$

$$\text{i.e } \frac{\pi}{Q} = \frac{TR - TC}{Q}$$

Where π = Net Profit accruing to the marketer

TR = Total Revenue (₦) from palm kernel sales

TC= Total Cost (₦) of palm kernel processing/cracking

If $\pi > O$, then palm kernel marketing is considered profitable.

To measure the kernel market structure the **Lorenz curve** with its adaptation of **Gini coefficient** analysis and **the concentration ratio** were used

i. The Lorenz curve was obtained by plotting the cumulative proportion of the palm kernel marketers from the smallest number to the largest against the cumulative proportion of their earnings (Dillon & Hardaker, 1993). The entire graph is classed in square and a diagonal line is drawn from the lower left hand

corner (the origin) of the square to the upper right hand corner. If the distribution is totally equitable, the curve will fall on the 45- degree line (the diagonal). The greater the inequality, the greater will be the departure from the 45- degree line.

Gini coefficient (also known as the index of income concentration) is a measure of income inequality among sellers of a particular product. It is the rate of the area between the curve and the 45- degree line to the area under the 45-degree line.

Mathematically, the Gini coefficient (G.C) = I- $\sum XY$

Where $\sum XY$ = Summation of the product of the cumulative proportion of the palm kernel marketers (X) and the cumulative proportion of their earnings (Y).

Gini coefficient greater than 0.35 is high, indicating inequitable distribution (Dillon and Hardaker 1993.) In other words, higher Gini coefficient means higher level of concentration and consequently high inefficiency in the market structure.

ii **Concentration ratio** is the percentage of all sales contributed by the leading three or five firms in a market (Maunder, 1991). So, the concentration ratio was calculated by using the cumulative share of the first three or five leading firms according to their sales revenue share, summarized in the following equation:

$$CR_K = \sum S_i$$

where Si = $\frac{\text{Sales revenue of ith firm}}{\text{Total Sales revenue of industry.}}$

3.4.4. Market Performance Evaluation

The performance evaluation of palm kernel marketers was carried out, using profitability ratio and multiple regression analysis.

1 **The Profitability ratio** was calculated to know the amount of naira gained from every naira invested in the purchase of palm kernel as well as knowing whether the gain makes palm kernel business operationally efficient in Ondo state or not .

Profitability ratio is given as π / TC, where π = profit and TC = Total cost

π / TC >O = Profitable

π / TC <O = Not Profitable

π / TC = 0 = Break even

Ii **Multiple regression method** was used to measure the influence of specific variables on the quantity of the palm kernel marketed and the extent to which they significantly determine the quantity of the cracked kernel. The postulated model expressing the relationship between quantity of palm kernel marketed (Y) and the explanatory variables is implicitly expressed as follows:

$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, \mu_i)$ Where

Y = Quantity of processed kernel marketed in tonnes

X_1 = Age of marketers in years

X_2 = Level of education

X_3 = Cost of labour (₦)

X_4 = Cracking cost (₦)

X_5 = Fixed cost (₦)

X_6 = Cost of uncracked kernel (₦)

X_7 = Transport cost (₦)

X_8 = Operating expenses (₦)

μ_i = error term

CHAPTER FOUR

4.0 RESULTS AND DISCUSSIONS

4.1 Socio- economic characteristics of Respondents

The socio- economic characteristics of palm kernel marketers in the study area include:

4.1.1. Age Distribution of the Respondents

Age of the respondents in the study area ranged between 22 and 76 years. Table 4.1 shows the percentage age distribution of the respondents. It is shown that 76 percent of the respondents fall within the age range of 21 and 40 years, 23 percent of them fall within age 41 and 60 years while only 1 percent was above 60 years of age. This shows that the highest concentration fall within the age range of 21 and 40 years with frequency 76. This clearly indicates that the palm kernel sellers are mostly adults that are in their very agile years (economic life).

Palm kernel marketing has stages of operation that are labour intensive. 73 percent of the marketers or age range 21 – 40 years are still very strong to cope with the stages of operations involved. Among the respondents, only 1 respondent was found to be above 60 years, precisely 76 years; and from interview with him, it was discovered that he was no longer directly involved in the operations. His children were the ones carrying out the operations for him. This implies that palm kernel marketing is dominated by young and agile men and women who can cope with the operations involved.

Table 4.1: Age distribution of the respondents

Parameters	Frequency	Percentage
Age (Years)		
20-40	76	76
41-60	23	23
Above 60	1	1
Total	**100**	**100**

Source: Field Survey 2007

4.1.2 Gender Distribution of the respondents.

Table 4.2 shows the distribution of the marketers according to gender. It reveals that 73 percent were males while 27 percent were females. This is so because of the drudgery of the operations involved ranging from the search for uncracked kernel from one palm oil depot to another, getting trucks and manual labour to load it into the trucks, the cracking and separation proper, bagging it, weighing to loading into trucks for onward transportation outside the state to companies that will buy it. Only active and strong women and who are financially capable are able to cope with the operations in this business.

Table 4.2: Gender Distribution of the Respondents

Gender	**Frequency**	**Percentage**
Male	73	73
Female	27	27
Total	**100**	**100**

Source: Field Survey 2007.

4.1.3 Household size of the Respondents

From Table 4.3, the household size of these respondents is seen. 57 percent of the respondents had a household size of between 1 and 5 while 37 percent had family size of between 6 and 10. Only 6 percent had a family size of above 10. With the various operations involved, 57 percent having household size of between 1-5 are not sufficient at all to cope. Most of them make use of hired labour for their operations.

Table 4.3: Household size distribution of the respondents.

Household Size	Frequency	Percentage
1-5	57	57
6-10	37	37
Above 10	6	6
Total	**100**	**100**

Source: Field Survey 2007

4.1.4 Educational Status of the Respondents

Table 4.4 shows the educational status of the marketers. About 90% of the marketers are literate. This shows that the level of awareness for improved agricultural production and marketing techniques among the marketers could be high since the marketers had relatively high level of education. This literacy level of theirs should be an advantage to making them adopt new technology which in turn will promote their sales since they could read instructional materials and publications that relate to their marketing activities. This finding supports the earlier finding of Hildo (1997) that education is related not only to the ability to obtain and process information but also to the use of more sophisticated techniques by the farmer.

Table 4.4: Educational status of the respondents

Educational Status	**Frequency**	**Percentage**
No formal Education	10	10
Primary Education	18	18
Secondary/ Tech. Edu	53	53
Tertiary Education	19	19
Total	**100**	**100**

Source: Field survey 2007.

4.2. STRUCTURE, CONDUCT AND PERFORMANCE OF PALM KERNEL MARKET IN THE STUDY AREA.

4.2.1. The Market Structure for Palm kernel

Market Structure for Palm kernel in Ondo State from the measure of market concentration was found to be nearly oligopolistic in nature. There were few buyers and sellers who were restricted by the huge capital requirement and the need to carry the produce outside the state to companies that buy from them.

Table 4.5 shows that the market for palm kernel is made up of both full-time and part-time marketers; some combined this work with other major works. Among the respondent 13 percent of them combined palm kernel marketing with Civil Service while 15 percent of them combined it with farming work. Palm kernel marketing was a secondary work to them. The implication of this is that those marketers who are taking this work as secondary are not totally committed in terms of time factor and capital investment which definitely hinder them from making the maximum profit possible.

About 72 percent of them were full-time palm kernel marketers. This shows that majority of them were fully into the business. This definitely determined their level of investment into the business.

Also, the marketers are grouped into two: Agent marketers and Supplier marketers. Agent Marketers do not take their cracked kernel nuts to the companies directly. Rather, they sell to the Supplier Marketers who buy in bulk and take directly to the companies. The implication of this is that these agent

marketers do not make the maximum profit possible in the business as a fraction of it has gone to the Supplier marketer as part of his own marketing margin. This complies with one of the characteristics of oligopoly which states that 'although the industry may contain hundreds of firms, it will be dominated by a few large firms (Supplier marketers) which from findings is 6%. Also the firms in the market structure are capable of earning supernormal profits in the long run, however in practice the profits may not always be as high as possible. (Stanlake and Grant, 1999). In the study area, 94 percent of the marketers are agent marketers while 6 percent were supplier marketers.

Table 4.5 Major occupation of the respondents

Parameters	Frequency	Percentage
Type of Marketer		
Supplier Marketer	6	6
Agent Marketer	94	94
Total	**100**	**100**
Major Occupation		
Civil Service	13	13
Farming	15	15
Palm kernel marketing	72	72
Total	**100**	**100**

Source: Field Survey 2007

4.2.1b Source of Fund/ Capital

Table 4.6 also reveals the source of fund/capital for the business. 52 percent of the respondents had their capital from personal savings. 13 percent got fund from relatives, 27 percent borrowed from cooperatives/ Ajo while 8 percent got their fund borrowed from the bank. This implied that the majority of those in the business were fairly financially stable, which strengthened their courage on the business.

Table 4.6: Respondents source of fund

Source of Fund	Frequency	Percentage
Personal Savings	52	52
From Relatives	13	13
Cooperatives/Ajo	27	27
Bank	8	8
Total	**100**	**100**

Field Survey, 2007

4.2.1c: Source of uncracked kernel & its Availability

Table 4.7 showed how the marketers got uncracked kernel to buy. 51 percent of them got by moving from one palm oil depot to another while 39 percent went to villages to buy. Only 3 percent of them said that the farmers / palm oil sellers brought it to them. This shows that cumulatively, 97 percent of the marketers sourced for uncracked kernel personally. This buttresses the reason why a high percentage of the marketers are young agile men who are capable of running around from depot to depot, village to village in search of their raw materials, that is, uncracked kernel. Associated with this is the problem of bad roads leading to those villages and depot that the marketers had to go through with trucks/pick up van in order to carry their raw materials to their own cracking depots. Children under 20 years and women who are not very strong physically cannot cope in this kind of business.

This table also showed availability of kernel. About 88 percent of the respondents stated that kernel is available throughout the year even though they have to make journeys far away from their processing unit before they got. The remaining 12 percent who responded 'NO' are most likely those who waited for the farmers to bring it to them. This justifies the efforts of those searching for their raw materials as they always had raw materials to work with; hence, they had consistent income earning.

Table 4.7: Uncracked kernel availability to the respondents

Source of Unprocessed Kernel	**Frequency**	**Percentage**
Moving from one palm oil depot to another OR village to village	90	90
From OOPPLC	7	7
Farmers bring it to us	3	3
Total	**100**	**100**
Kernel Availability		
Yes	88	88
No	12	12
Total	**100**	**100**

Source: Field Survey 2007

4.2.1d Getting Buyers for their cracked kernel

Table 4.8 revealed how the marketers got buyers for their palm kernel. 63 percent of the marketers took their product outside the study area either directly or indirectly for sale. 29 percent through persuasive efforts were able to get buyers while 5 percent and 3 percent sold their products through open display and advertisement respectively. From interview, majority who sold to supplier marketers for onward transportation to Ibadan or Lagos where the companies are located usually had to wait till the supplier marketers returned before they got paid their money. This poses barrier to entry for would-be marketers who do not have enough capital base and hence would not have the patience to wait till the return of the supplier marketers before they got paid their revenues.

Table 4.8: Getting Buyers

Getting buyers for cracked kernel		
Advertisement	3	3
Open display	5	5
Factory	92	92
Total	**100**	**100**

Source: Field Survey 2007

4.2.1 Quantitative Measure of Market Structure

The **Gini Coefficient** with its adaptation of **Lorenz Curve**, and the **Concentration ratio** were used to measure the palm kernel market concentration, which served as basis for measuring market structure and degree of income inequality

Table 4.3 Computation of Gini Coefficient for palm kernel marketers in Ondo state

Income (₦)mill	No of . marketers	Proportion of marketers(X)	Total Sales (₦)	% of total sales	Prop of Totalsales	Cummu Pro(Y)	XY
<1 Mill	18	0.18	9940000	1.80	0.018	0.018	0.0032
1.0-4.99	55	0.55	144400000	26.17	0.2617	0.280	0.154
5.0- 9.9	21	0.21	145960000	26.45	0.2645	0.544	0.114
10-14.9	3	0.03	35000000	6.34	0.0634	0.608	0.0182
> 15 mil	3	0.03	216580000	39.24	0.3924	1.000	0.0300
	100	**1.00**	**551880000**	**100.00**	**1.0000**	**1.000**	**0.3194**

Gini Coefficient= $1 - \sum XY$

$= 1-0.3194$

$= 0.6806$

The Gini-coefficient of 0.6806 was obtained from the computation. The value indicates a high level of inequality in turn over among the palm kernel marketers since it is greater than 0.35 (Dillon and Hardaker, 1993.) This is an indication that there is significant inequality in the distribution of total sales made among

the marketers and hence a high level of concentration, which is a reflection of inefficiency of the palm kernel market structure.

The Lorenz curve

The Lorenz curve deviated from the diagonal, implying inequality in total sales made. The farther the curve is from the diagonal, the greater the degree of inequality and vice versa.

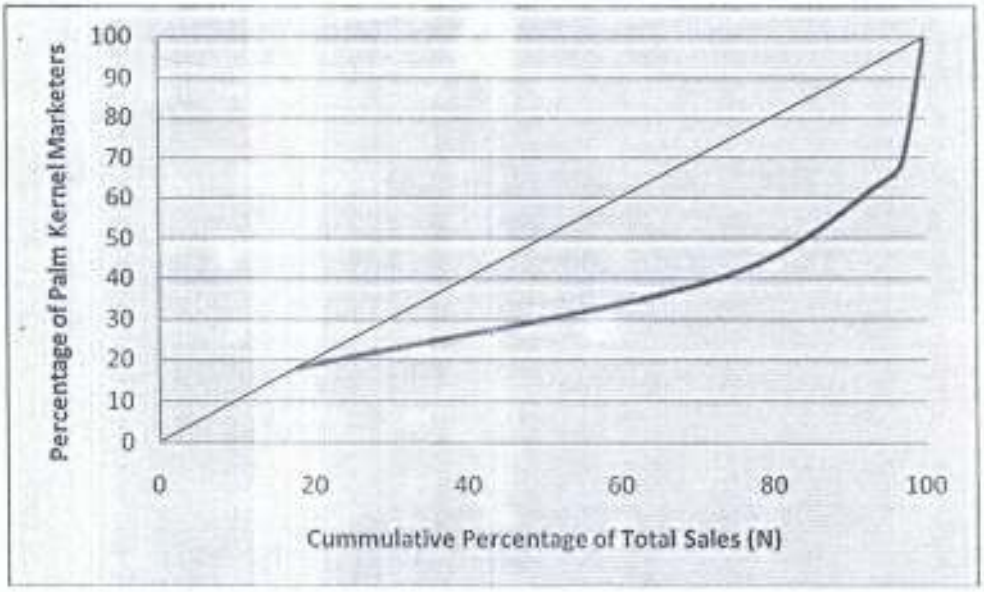

Figure 1. Lorenz Curve of Palm Kernel Marketers

4. 2.2: Concentration Ratio

In the palm kernel market in Ondo state, the five leading marketers account for 44 percent of net income of the market. This establishes a considerably high oligopoly since the few individuals are controlling 44 percent of the palm kernel market. The implication of this is that these five marketers can collude together to be controlling the entire market. The collusion could be in form of agreeing on the price to charge from the remaining agent marketers, thereby having the tendency to exploit the remaining marketers who are not as large.

Concentration Ratio is given as:

$\mathbf{CR_k = Si,}$

Where $Si = \frac{\text{sales revenue of ith firm}}{\text{sales revenue of industry}} \times 100\%$

$CR_3 = \frac{\text{sales contributed by the leading 3 firms}}{\text{Total sales revenue of the industry}} \times 100\%$

$CR_3 = \frac{216,580,000}{551,880,000} \times 100\%$

$= 39.24\%$

$CR_5 = \frac{\text{sales contributed by the leading 5 firms}}{\text{Total sales revenue of the industry}} \times 100\%$

$CR_5 = \frac{241,080,000}{551,880,000} \times 100\%$

$= 43.68\%$

Table 4. 4: Summary of indexes of Market structure for Ondo state palm kernel marketers.

Indexes	Ondo state palm kernel marketers	Lower limit	Upper limit
CR_3	39.24%	0	100
CR_5	43.68%	0	100
Gini Coefficient	0.6806	0	1

4.2.3: The Market Conduct for Palm kernel

Price fixing:

Price at which sellers sold their cracked kernel is determined as follows: 59 percent which is the majority, declared that the company that they supply to dictates the price at which they sell to them. This means that they as the sellers are not allowed to bargain. If they are not pleased with the price that the companies are willing to buy from them, they usually have to still bend to the price offered by the company when they consider the extra transportation cost that they are likely to incure moving their produce in search of where else they could sell their produce. So the marketers in Ondo state are 'price takers'. They take prices from the companies that buy from them. This is typical of an oligopolistic market. There are only few companies controlling the market of cracked kernels in Nigeria. Hence, the companies dictate the price of the product.

Standardization is the establishment of measurement for the quantity, variety and quality. In palm kernel business, bags are used as the measure of quantity. Processed kernels are packed into jute bags. These bags are weighed to certain kilograms. 13 bags make one tonne.

4.2.4 The market performance of palm kernel.

Market performance can be described as a measure of how its aims are accomplished. It is an economic result of structure and conduct which covers storage and transportation. These functions influence the quality, time, form and price of product that reaches the consumer.

4.2.4a. Storage function of Palm marketing in the study area.

Study reveals that all the marketers rented store where they kept their products. Only the rent was not the same. Per annum, a minimum of ₦ 2400 and a maximum of ₦48000 was paid depending on how large the firm is. Most of the marketers trade in bulk and jointly operate in a processing deport where they process and also store their kernels. Through this they enjoy some economies of scale, for example, the security cost, that is , the money paid to the security man watching over the depot is shared among them.

4.2.4b. Transport function

From the point of purchase of the unprocessed kernel – villages, palm oil depots scattered all over, to the processing depot and finally to the point of sale, the study shows that all the marketers i.e. 100% made use of hired vehicles to convey their produce. The transportation cost ranged between ₦15,000 minimum to ₦112, 500 maximum for small scale marketers and ₦114,750 minimum to ₦ 6,025, 000 maximum for large scale marketers.

4.3. Revenue/ Cost structure of Palm kernel marketing in Ondo state.

Table 4.5 shows the Revenue/cost structure of the palm kernel marketers in the study area. On the average, a net profit of ₦10, 197 was made per tonne by each marketer. This shows that palm kernel business is profitable in the study area. This high level of net profit per tonne should encourage new entrants into the business but the existing barriers to entry would not.

Table 4.5: Revenue/ Cost structure of Palm kernel marketing in Ondo State

Parameters	Mean Amount (₦/year)
Total Revenue (TR)	5,518,800
Total Fixed Cost (TFC)	106,638
Total Variable Cost (TVC)	4,665,627
Total Cost (TC= TFC + TVC)	4,772,265
Net profit (TR – TC)	746,535
Tonnes of cracked kernel sold	73.21
Net profit per tonne	10,197.173

Source: Field survey 2007

4.4 INFLUENCE OF IDENTIFIED VARIABLES ON THE QUANTITY OF THE PALM KERNEL MARKETED

4.4.1 Result of the regression analysis

Four functional forms were fitted to the collected data. The lead equation selected was Double log function for providing the best fit for the survey data, having the least value of standard error.

The estimate of the model is presented in table 4.6.

Table 4.6: Result of the Regression Analysis

Variables	Double log coefficients	Linear	Semi log	Exponential
Constant	-1.686	-3.968	-1753.655	0.927
	(0.347)	(5.577)	(565.902)	(0.112)
Age of palm kernel sellers	0.139	0.233	-109.918	0.007401
	(0.094)	(0.141)	(151.986)	(0.003)
Education of palmkernel sellers	-0.0416	-1.590	-155.854	-0.00607
	(0.045)	(0.990)	(73.038)	(0.020)
Cost of Labour	*0.78	-0.00000585	37.944	0.0000000267
	(0.243)	(0.000)	(69.183)	(0.000)
Cost of cracking	*0.207	0.00002861	540.971	-0.000000256
	(0.053)	(0.000)	(86.396)	(0.000)
Fixed cost	-0.00889	0.00006103	56.530	0.0000001678
	(0.031)	(0.000)	(49.674)	(0.000)
Qty of uncracked kernel purchased	*0.586	0.469	-352.424	0.003962
	(0.102)	(0.044)	(165.730)	(0.001)
Transportation	0.05271	-0.0000264	32.519	-0.000000466
	(0.057)	(0.000)	(93.284)	(0.000)
Operating expenses	*0.838	0.0008536	-142.578	0.00001391
	(0.357)	(0.000)	(92.929)	(0.000)
R^2	0.968	0.997	0.581	0.770
R^{-2}	0.965	0.997	0.544	0.750
Standard errors of the estimate (logY)	0.08381	11.1911	136.1005	0.2246
F	343.770	3999.645	15.744	38.086

(Figures in parenthesis are standard errors, * significant at 5%)

The R^2 of 0.968 indicates that about 96.8% variation in the quantity of palm kernel marketed was explained by the included eight variables. All the coefficients of the variable of labour, cost of cracking, tonnes of palm kernel purchased, transportation and operation expenses had positive signs. This implies that an increase in each of the variables would lead to an increase in the quantity

of palm kernel marketed by each respondent. In other words, quantity of processed kernel marketed will increase with increase in labour, cost of cracking, tonnes of uncracked kernel purchased, transportation and operating expenses. The standard errors of each of the variables were generally low ranging from 0.053 to 0.357

The coefficients of level of education and fixed cost had negative signs. The stage of processing cum marketing does not require increase in educational career. An increase in level of education and fixed cost will lead to a decrease in the level of palm kernel processed for marketing. Fixed costs include rent, depreciation and produce permit bills. Four of the explanatory variables, Cost of labour X_3, Cost of cracking X_4, quantity of kernel purchased X_6 and operating expenses X_8 were significant at 5% level of probability.

4.6. Constraints to Palm kernel marketing.

Most of the respondents complained of more than one constraints. The most emphasized was the issue of price which is being dictated by the company supplied to. The marketers are not given the opportunity to bargain but they rather have to accept whatever price the few companies available dictate to them. Furthermore, the marketers complained of delay in payment by the company. They explained that at times, they would supply their cracked kernel to the

company, only to go back home without the money and wait till a later date before they can collect their money.

The fact that Ondo state does not have a palm kernel milling company is one of the vital constraints. The marketers explained that they have to carry their produce to Ibadan in Oyo state or to Lagos before they can sell. This shows that they are far from the market for their produce. The effect is seen in the high transportation cost incurred by the marketers.

Lack of fund enough to acquire the necessary machine and equipment. In the study area, the cracked kernel is separated from the shaft through throwing with the use of shovel/spades. No single depot had the machine designed for the purpose of separating the kernel nut from the shaft. The result is that the kernel nuts offered for sale is not clean enough, making the companies to rate the product as of low quality.

Other constraints are high evacuation/ loading fee being paid to the state government coffers, which the marketers said was higher than what is being paid in other states.

High produce permit fee, climatic factor –too much rain, disturbing drying of kernel. Kernel dusts when accumulated are burned with fire. Smoke from it causes air pollution since the kernel depots are located within the town; where to pack the debris to before they are burned remains a problem to the marketers.

Table 4.7: Constraints to Palm kernel Marketing in the study area

Constraints	Frequency
Price being dictated by companies supplied to	92
Lack of enough fund	96
No single milling company in the state	100
No adequate equipment/ machines for the operations	82
High transportation cost	90
High produce permit fee	06
Climatic factor- too much rain hindering drying	

Field Survey, 2007.

CHAPTER FIVE

5.0: SUMMARY, RECOMMENDATION AND CONCLUSION

5.1: SUMMARY OF THE STUDY

The study estimated the performance and profitability of palm kernel marketing in Ondo state. The specific objectives that were examined include: socio- economic characteristics of palm kernel marketers, the structure, conduct and performance of the market, profitability of the business, and influence of variables on the level of output of palm kernel marketed as well as its constraints

Result of data analysis indicated that palm kernel marketers are middle aged and are mostly males. Net profit analysis indicated that palm kernel business is profitable in Ondo state with a mean profit of ₦746534.80 per marketer. Profitability analysis further revealed that the marketers made N0.156 profit over every ₦ 1.00 that is invested in the business. Measure of market structure using Gini coefficient and its adaptation of Lorenz curve indicated that palm kernel market in the study area is oligopolistic.

Result of the regression analysis confirmed cost of labour, cost of cracking, tonnes of uncracked kernel purchased, transportation cost and operating expenses as significant factors that dictate the level of output of palm kernel nuts produced.

The study however identified some constraints by these marketers. They include price fixing by the company supplied to leading to price instability, high

transportation cost, inadequate capital and unavailability of Processing/ milling Company in the state.

5.2 RECOMMENDATIONS

Based on the findings from this study, the following are recommended as possible solutions to the outlined problems:

1. Establishment of palm kernel milling and processing factory in the state. This will make market for palm kernel closer to the marketers, thus reducing transportation cost.
2. The marketers should organize themselves and have association in collaboration with marketers in other states. This will help them to be able to negotiate prices with the companies that buy from them.
3 The marketers should organise themselves into groups and buy modern cracking machines in order to improve the quality of their cracked kernels.
4 Importation of palm kernel products should be discouraged by the government in order to encourage local production and marketing.
5 Credit facilities should be made available to marketers.
6. The state government should create or map out portion of land for the marketers outskirts the towns where they can be dropping their kernel

debris/ shafts for burning. This is to avoid air pollution in form of smoke within the town.

5.3 CONCLUSION

The estimated models indicated a high market concentration, which implies that a few individuals are controlling the market, hence, it is oligopolistic. There is a high level of income inequality among the sellers, the cause of which could be attributed to their different income sources, which invariably determines individual's market size either as supplier marketer(who buy in bulk from agent marketers and supply to the company) or agent marketer. Palm kernel business is profitable in the study area, but the business can be made more profitable and operationally efficient if the limitations to attaining efficiency are removed. Recommendations made if implemented can improve the performance of palm kernel marketing in Ondo state. It will also ensure a more prosperous and equitable future for palm kernel marketers in Nigeria and also strengthen the contribution of agricultural sector to her gross domestics product.

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